more than the sum of its parts

THE VALUE OF

COLLABORATION

http://tti.tamu.edu
ON THE COVER: TTI assembles expert teams of researchers to solve challenging transportation issues.

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Thwarting Terror through Teamwork

Agencies pool resources for national security

The worst of situations brought out the best in collaborative research efforts for a group of agencies dedicated to making our nation safer. Since 2004, Sandia National Laboratories and the Texas Transportation Institute (TTI) have collaborated on projects for several federal agencies including the United States Department of Energy, Technical Support Working Group (a consortium of federal agencies), the United States Department of State, the Bureau of Diplomatic Security and the Department of Homeland Security (DHS). Most recently, TTI and Sandia Labs have teamed up to successfully test security barriers aimed at securing our nation’s borders.

In 2004, a vehicle barrier was being considered for deployment at one of the national laboratory sites. The manufacturer hoped that the barrier would stop a heavy-weight, high-speed vehicle. This claim had not been verified by testing, however “That’s when we initially came into contact with TTI. We did a nationwide search of groups that were qualified to do the level of testing that we required,” says Mark McAllaster, principal member of the technical staff at Sandia Labs. “That work needed to be done quickly, economically, and with a high level of confidence in the testing data.”

Since that initial test, TTI has conducted all five of the high-weight, high-speed vehicle barrier tests completed in the U.S. Currently working alongside DHS, Boeing and Sandia National Labs in an effort to further secure the nation’s border, TTI is helping to conduct a series of crash tests at its Riverside facility on various types of vehicle barriers and fencing for potential placement along miles of high-traffic, high-risk border areas.

“During an eight-week period, six commercial barriers and three government selected barriers were to be identified, built, tested, and the data reported,” says McAllaster. “It’s a very aggressive schedule.”

TTI Research Engineer Roger Bligh and TTI Assistant Agency Director Dean Alberson are co-principal investigators on this project. Alberson is spearheading the effort to draft uniform standards for fences through ASTM International (formerly American Society for Testing and Materials).

The results of the crash tests will help determine which types of fences will be used at diverse locations along the Mexico-U.S. border. “TTI has a stellar reputation for crash testing,” says Richard Young, the Fence Lab project manager for DHS. “The Institute has the facility and the know-how to accomplish this very important work.”

“This has been an excellent, cooperative relationship,” adds McAllaster. “The agencies have a very effective and efficient relationship. It has been a high performing and successful testing program.”

MORE INFORMATION

For more information, please contact Dean Alberson at (979) 458-3874 or d-alberson@tamu.edu or Roger Bligh at (979) 845-4377 or rbligh@tamu.edu.
Teaming Up for Work Zone Safety

In 2005, over 1,000 people were killed in motor vehicle traffic crashes occurring in highway work zones across the United States. Better educating workers about safety issues can help them avoid dangerous, even deadly situations.

The Texas Transportation Institute (TTI) is part of a broad consortium awarded a grant by the Federal Highway Administration (FHWA) to develop and conduct work zone safety training. “The advantage of partnering through the consortium is that each of the organizations can leverage its strength in making the educational efforts successful,” says Scott Schneider, director of occupational safety and health for Laborers’ Health and Safety Fund of North America (LHSFNA), which is affiliated with the Laborer’s International Union of North America (LIUNA). LHSFNA is the lead partner for the consortium. Other partners include the Laborers-AGC Training Fund, American Road and Transportation Builders Association (ARTBA), the American Association of State Highway and Transportation Officials (AASHTO), CNA Insurance, the International Union of Operating Engineers (IUOE) and the National Asphalt Paving Association (NAPA).

“Bringing all these players to the table represents a major effort by FHWA to make work zones safer for motorists and highway workers alike,” explains Jerry Ullman, manager of TTI’s Work Zone and Dynamic Message Sign Program.

The principal goals of the project are to develop guidelines and conduct safety training for highway workers, contractors and transportation agency personnel. Specific details about the consortium and the work zone safety program in general are available on the National Work Zone Safety Information Clearinghouse website (see http://wzsafety.tamu.edu/training/wz_training_grant_programs/).

TTI is providing expertise in work zone traffic control research and development, helping to ensure that the guidelines and training materials being created are based on objective data and real-world experiences of work zone personnel. Ullman and his team will help incorporate the refined guidelines into existing materials as well as help develop new materials, such as an interactive CD-ROM aimed at work zone supervisory personnel.

Getting the best knowledge available in the hands (and heads) of those individuals who can most positively impact safety in work zones is of paramount importance. Organizations like LIUNA can work with private contractors to get the guidelines in the hands of those that need them most, namely the organizations and personnel who do the work. Meanwhile, associations like AASHTO and ARTBA can work with state departments of transportation to adapt the guidelines to their procedures. Covering both the private and public aspects of work zone construction will help ensure that the word gets out.

“TTI’s expertise will play an integral role in creating guidelines that are both useful and implementable,” says Schneider.

MORE INFORMATION
For more information, please contact Jerry Ullman at (979) 845-9908 or g-ullman@tamu.edu.
Work Zone Safety Clearinghouse Hosts New Website and Conference

The National Work Zone Information Clearinghouse is hosting the National Traffic Management & Work Zone Safety Conference in October. This conference will connect national transportation leaders with representatives from all levels of government and private industry to discuss the challenges of, and cutting-edge solutions to, work zone safety.

“As a forum for information exchange, the conference will help improve the safe movement of traffic under many different roadway conditions,” explains Brad Sant, vice president of Safety and Education for the American Road and Transportation Builders Association (ARTBA).

Partners supporting the conference include ARTBA’s Transportation Development Foundation, the American Association of State Highway and Transportation Officials (AASHTO), the U.S. Department of Transportation’s Federal Highway Administration (FHWA) and the Texas Transportation Institute (TTI). Other organizations providing support include the National Asphalt Pavement Association, the Laborers Health and Safety Fund of North America, the International Union of Operating Engineers, National Institute for Occupational Safety and Health and CNA Insurance.

In conjunction with the conference, the Clearinghouse will also unveil its new and improved website, www.workzonesafety.org, in October 2007. The site’s new design and enhanced content will provide a number of features to better serve the wide range of users that regularly come to the Clearinghouse for information. Training webinars and other types of digital video segments on work zone safety topics will now be accessible online. A free registration system is being developed that will allow users to request certain types of information “pushed” to them as it becomes available.

Registered users will also have the opportunity to participate in an electronic listserv to ask questions and share thoughts and ideas on all types of work zone issues. As part of the redesign effort, the large amounts of information that have been collected over the nine-year existence of the Clearinghouse are being updated and transferred to a more effective database management platform.

“These new functions will allow the Clearinghouse to be an even better resource for its users, and help to make work zones as safe as possible for all motorists and highway workers,” explains Gerald Ullman, manager of TTI’s Work Zone and Dynamic Message Sign Program, who oversees operation of the Clearinghouse by TTI for ARTBA and FHWA.

For more information about the National Work Zone Safety Information Clearinghouse or the National Traffic Management & Work Zone Conference please contact Brad Sant, ARTBA’s vice president of Safety and Education, at bsant@artba.org or 202.289.4434, ext. 309.

A new look for the National Work Zone Safety Information Clearinghouse will be unveiled in October 2007.
MoPac’s Managed Lanes
Researchers, team members supply strategies to ease congestion on Austin’s Loop 1, MoPac Expressway

The congestion problem on Austin’s MoPac Expressway is shown in this aerial photo.

(Above): Map of MoPac in Austin. Courtesy of TxDOT.

The Central Texas Regional Mobility Authority (CTRMA) is projected to operate and maintain the Loop 1 managed lane. We continue to rely on critical industry knowledge provided by key TTI personnel working with us and TxDOT.

Ron Fagan,
CTRMA Director of Operations
A<br>ustin, Texas, widely dubbed the “Live Music Capital of the World” has enjoyed a renaissance in recent years that transformed the town into a thriving and vibrant center of tourism, culture, higher-learning and technology. But accompanying Austin’s booming growth are gridlock and congestion throughout its roadway system.

Loop 1, the MoPac Expressway, is far from immune to the problem. The Texas Department of Transportation (TxDOT) is working to ease congestion woes along this major north-south corridor with the assistance of the Texas Transportation Institute (TTI), Austin’s Central Texas Regional Mobility Authority (CTRMA), a team of consultants led by DMJM Harris and the Federal Highway Administration (FHWA) through a Value Pricing Pilot Program grant.

After holding public open houses in April and beginning the environmental portion of roadway planning, TxDOT is considering adding a managed lane on each side of Loop 1. Rather than converting an existing lane, new managed lanes would be constructed along an 11-mile stretch of MoPac.

Managed lanes are typically created in congested corridors to provide travel options by setting aside lanes for high occupancy vehicles (HOV), including transit, trucks and toll-paying vehicles, depending on the solution needed for a specific roadway.

TTI has been great to work with on the Loop 1 Corridor Project. The close collaboration, expertise, experience and practicality that TTI researchers have provided the project team (TxDOT and consultant alike) has been of great value. They have helped us with all aspects of the project, including public involvement, policy, safety, operations and incident management.

TTI Research Engineer Ginger Goodin heads a team of TTI researchers who are contributing expertise to the Loop 1 managed lanes project on a host of topics, including geometric design, safety, signing, public outreach, operations planning, simulation modeling and traffic and revenue analysis.

TTI’s team is providing research input on specific questions, such as:

• How wide should the new managed lanes and adjacent shoulders be?
• How should the access points be designed?
• How much space should be allocated to general purpose traffic and managed lanes traffic?
• What are effective methods for enforcing the managed lanes?
• How can freeway operations, incident management, pricing and enforcement be effectively integrated for Loop 1?
• What is the best way to communicate sometimes complex toll pricing information and lane instructions to drivers?
• What is the most reliable method for estimating revenue?
• What are effective ways of communicating the proposed use of managed lanes to the public?

“The Loop 1 project has been strengthened from the beginning because all of the right team members have been at the table,” says Goodin. “What makes this project different from a typical freeway project is that managed lanes are still a relatively new concept, so TTI is providing research expertise at just about every step of the process. We have researched numerous aspects of managed lanes and are using what we have learned to contribute to an actual project in development.”

The consultant team (led by DMJM Harris and TxDOT could not successfully develop this concept, however, without the critical input and expertise provided by the researchers from TTI. Along with the Central Texas Regional Mobility Authority, who will operate the facility on TxDOT’s behalf, the teamwork of all involved has been critical to analyzing the multiplicity of issues involved in rolling out a successful project.

John P. Kelly, DMJM Harris Vice President – Major Projects Texas

We’re excited about the prospect of developing potentially the most technologically advanced corridor in Texas with the MoPac 1 managed-lanes concept. This project may entail the state’s first use of real-time, dynamic pricing for metering the added lanes’ capacity, all monitored and managed entirely electronically.

The Team of Consultants—led by DMJM Harris

The project wouldn’t be where it is today without them, because this project is so experimental in nature, and so little of it is covered by existing TxDOT manuals. I believe we will have a successful project because of the work we have done together.

Mark Herber, TxDOT Transportation Engineer and Loop 1 Project Manager
Pipeline networks around the world are a vital part of our global infrastructure. Pipelines stretch across more than 1.5 million miles in the U.S. alone, so ensuring they remain an effective means for transporting fuel is a full-time job. As it strives to maintain and improve the safety of the world’s pipelines, Pipeline Research Council International (PRCI), Inc., has begun working with the Texas Transportation Institute (TTI) to enhance its research initiatives.

PRCI is an international, nonprofit corporation made up of pipeline companies, manufacturers and service companies that fund pipeline research deemed vital to the industry. As the research arm of the pipeline industry, PRCI focuses on finding near-term reliable solutions to pipeline problems, especially those involving issues of safety in design and operation. At a time when rising energy prices are a worldwide concern, the significance of PRCI’s work has never been greater.

“Our focus—and funding—are toward the research itself,” explains Scott Thetford, PRCI’s director of pipeline programs, “but we often need support services to make that research useful. When we sought a partner to fill that need, TTI was at the top of the list.”

TTI’s expertise in the area of pipeline research recently helped it secure a federal grant to support start-up operations for its National Pipeline Safety and Operations Research Center. Pipelines are sometimes overlooked as an area of transportation research, and the center—a partnership with New Mexico State University—represents TTI’s commitment to broadening its knowledge base in that area. Partnering with PRCI gives TTI prospects for research, and those opportunities will benefit our nation and the world as they lead to more efficient, safer and longer-lasting pipelines.

What led PRCI to TTI’s door was the wide range of support services offered by the Institute. TTI’s project management, network support and communications expertise are helping PRCI manage its research program and implement its findings. This allows PRCI to focus on carrying out the research itself, while TTI supports ancillary activities—like managing the corporate website, transferring technology through print and other media and assisting with the day-to-day requirements of project management.

As the two organizations settle into a close partnership, both are keenly aware of the significant opportunities one offers the other. “It’s truly a symbiotic relationship,” observes Steve Roop, director of TTI’s National Pipeline Safety and Operations Research Center. Associate Research Scientist Les Olson, TTI’s liaison with PRCI, adds, “We provide support services for their research needs, and they provide research opportunities for our center.” Recently, in fact, New Mexico State submitted a research proposal, which is currently under consideration by PRCI.

“It may sound like a cliché, but you always want to dance with the prettiest girl at the ball,” observes Thetford. “TTI’s reputation for excellence, research expertise, and support capabilities certainly caught our eye. We look forward to conducting many years of innovative research together.”

For more information, please contact Les Olson at (979) 862-2846 or lolson@tamu.edu.
Many Desks, One Product
Internal teamwork helps outreach of TMIP

Pooling the talented resources of multiple programs located in multiple locations to support a single effort sounds ideal in theory, but is not always easy. The support and outreach program of the Travel Model Improvement Program (TMIP) at the Texas Transportation Institute (TTI) pulls it off, though, and is a great example of internal collaboration.

TMIP is a Federal Highway Administration (FHWA) program that aims to improve the state of the art in travel demand forecasting. TMIP helps planning agencies improve the computer models and forecasting techniques used to inform decision makers on how growth in population and employment, development patterns and investments in transportation infrastructure are likely to affect travel, congestion, air quality and quality of life. With the help of different programs within TTI, the Center for Professional Development supports the outreach activities of TMIP that include:

- A website with current events and information about the TMIP program that is maintained by the Interactive Media group and Events Management and Planning.
- A document information clearinghouse supported by Library Services.
- A newsletter (TMIP Connection) published 3-4 times a year with a readership of over 1,200 practitioners from around the world.
- Attending several major conferences a year to distribute information about TMIP. The booth is staffed by the Washington D.C. TMIP liaison and TTI Associate Research Specialist Penelope Weinberger.
- Summarizing comments received on the e-mail discussion list and documenting peer-exchanges at agencies throughout the country by the researchers in the Travel Forecasting Program.

“Careful planning makes collaboration work. Knowing who your teaming partners are and what their capabilities are, as opposed to chancing upon them, makes for more effective and better collaboration.”

TTI also helped create and moderate an active e-mail discussion list with nearly 900 subscribers. This discussion list is a resource for professionals to ask questions and share information throughout the country and might eventually move to a blog-type format. The first TMIP webinar is also scheduled for the end of June.

Gary Thomas, director of the Center for Professional Development at TTI and project manager for the outreach activities for TMIP, acknowledges that pulling together so many different programs for one effort has its challenges, but overall the operation runs smoothly.

“Our customer doesn’t see the different departments at TTI,” says Thomas. “They just see TTI as a whole. So it’s really important that we collaborate with each other very well. We have to be able to present a product to a client that looks like it came out of one office, and I think we do a great job of accomplishing that goal.”

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

Please visit the TMIP website at http://tmip.fhwa.dot.gov/.
ROW goes WWW
Researchers test and implement online system for right-of-way (ROW) utility permits
Try to think of an aspect of our lives that is not impacted by the Internet. The technology that brought us video on demand and faster-than-you-can-blink searches now offers an online system to benefit utility companies and transportation agencies.

Researchers at the Texas Transportation Institute (TTI) are in the process of testing and implementing an online system designed to take right-of-way (ROW) utility permitting into the digital world forever. The implementation project is sponsored by the Texas Department of Transportation (TxDOT) and is being led at TTI by Associate Research Engineer Cesar Quiroga.

The history of the research begins with John Campbell, director of TxDOT’s ROW Division, who had an idea in the late 1990s to develop a comprehensive inventory of utilities within the Department’s ROW. Research conducted at TTI resulted in a prototype geographic information system (GIS)-based model to track utility inventories and a web-based prototype to automate the utility permitting process. That research received a TxDOT Top Innovation award in 2002.

TxDOT decided to implement the findings of the research through two implementation projects, one of which focused on the online utility permitting process. Quiroga’s team took the research a significant step further by creating the Utility Installation Review (UIR) online system. UIR automates and standardizes the submission, review, approval, inspection and archival of utility permit applications. The system enables the online submission of utility permit applications, including:

- uploading of engineering drawings and other supporting documentation;
- converting uploaded documents into PDF files;
- a GIS-based visualization, or map, of utility permit locations;
- a system to track permits through the approval process;
- e-mail notification; and
- reporting capabilities.

“We started testing the online utility permitting system in San Antonio in 2005,” says Quiroga. “The District used the system for a few months in parallel to the old paper system. After the San Antonio District went online with their permitting efforts, we collaborated with the Pharr District to test and implement the system there. Then we moved on to assist the Bryan District.”

TxDOT and utility companies benefit from the use of the online utility permitting process. “TxDOT reviews many thousands of utility permit applications per year,” says Quiroga. “They receive a large number of application packages in the mail, which may or may not contain everything necessary to review and approve the permit. The benefits of using an online system include preservation of institutional memory at TxDOT, improvements in the quality of the information provided and document retention.”

The On-Line Utility Permit System is a win-win program for both TxDOT and Utility Companies. The system provides faster approval times and better documentation resulting in cost saving by the automation of previously manual tasks. The system enables TxDOT to manage the state highway facility more effectively by having a comprehensive inventory of utilities which have located on state right of way.

Jesse R Cooper, RPLS
Map, Survey, and Utility (MSU) Section Director
TxDOT ROW Division

The above photo shows a few of the critical elements within the ROW: freeway ramps, frontage road, utility poles with both electric and communication lines and an indication of the ROW line (directly behind the poles).
Preserving institutional memory—as TxDOT employees move on or retire, they take with them valuable institutional memory about utility locations in the ROW. The online system relies on locational attributes and an interactive GIS-based online map that helps preserve this vital information.

Quality of information—the online system improves the quality of information gathered by providing utility company applicants with a user-friendly interface that includes checklists and other quality controls. Online access to all permit documentation also helps improve the quality of the approval process, enabling a more thorough review of the documentation as well as expedited permitting.

Document retention—whereas paper permit applications can be misplaced or even discarded after a few years, the online system retains permit applications and records indefinitely.

“Instead of having to mail a permit application, which includes an original and several copies of the application form and attachments, all utility company representatives have to do now is log in, complete the steps, hit a button to submit and it’s done,” says Quiroga. “On the TxDOT side, instead of reviewing, forwarding and archiving paper copies, officials just open a permit application, review the documentation and event history and electronically route the application to the next person.”

Quiroga says that TxDOT plans to implement UIR statewide. The Fort Worth and Houston Districts will soon join the San Antonio, Pharr and Bryan Districts in using the system. Other departments of transportation around the country have expressed an interest in the system, as well.

The best part of this whole process is that I can approve utility permits anytime and anywhere that I can get my hands on a computer with Internet access. I do them at home, on the road when I travel and sometimes when I’m traveling within the district. I log on at the various maintenance sections and approve them there.

TTI and all of the members of the research team have gone above and beyond to help us and our customers in processing utility permits as quickly as possible. I feel we all gain when we can do our work better, quicker and more efficiently.

In my 20 years with TxDOT, the On-Line Utility Permit System may be the most cost-effective research we have implemented for district maintenance offices to review and issue utility permits. This system provides a faster process time, better documentation of comments and changes, and a user-friendly system to track down the status of utility permits. The result is less time for review and approval and less paperwork.

Chano Falcon, Jr.
District Maintenance Administrator
TxDOT Pharr District

More Information
For more information, please contact:
Cesar Quiroga at (210) 731-9938 or c-quirola@tamu.edu.
Jerry Le at (210) 731-9938 or le@tamu.edu.
A Coordinated Effort
Many players involved in regional public transportation coordination

What do you get when you combine public transportation and health and human service agencies in the same room with customers and citizen advocacy groups? This answer may surprise you: a coordinated transportation plan that meets the goals and objectives of all parties involved. Thanks to the Regional Planning and Public Transportation Study Group, established under guidance from Texas Transportation Commissioner Hope Andrade, regions throughout the state of Texas are doing just that.

The study group, chaired by Michael Morris, the transportation director of the North Central Texas Council of Governments, is part of a larger project aimed at reviewing current public transportation practices within regions throughout Texas and enhancing their effectiveness. The Texas Transportation Institute (TTI) provides technical support and helps to facilitate the regional coordination meetings with funding from the Texas Department of Transportation (TxDOT).

“TxDOT is a national leader in coordination planning,” says John Overman, assistant research scientist at TTI. “Although other states besides Texas have prepared these plans, the Public Transportation Division (PTN) at TxDOT advanced these planning efforts before the federal requirements were enacted.”

The Regional Planning and Public Transportation Study Group was established with the goal of assisting each of the 24 regions, as defined by the council of government boundaries, develop regional public transportation plans. Additional meetings were held in each region, with as many as 125 stakeholders attending. According to Overman, establishing a set of common goals and objectives at the beginning of the process was a key in developing a successful plan.

“With so many different agencies, there are a lot of different rules and constraints to coordination. An important benefit of this project is addressing many of these barriers and constraints, and allowing regions to better coordinate services and programs,” says Overman.

In addition to facilitating meetings, TTI also developed and maintained a website and information clearinghouse. Plans have been submitted for all regions. Several pilot programs are anticipated to be initiated in the implementation phase.

“From the outset of this initiative, the Commission has emphasized the importance of an inclusive and locally meaningful process for each region. Working together, we have made great progress and have kept the ‘public’ in public transportation planning throughout this process,” says Project Director and Texas Transportation Commissioner Assistant Shawna Russell.

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

Texas Transportation Commissioner Andrade addresses a regional planning study group.

Please visit the regional planning services website at http://www.regionalserviceplanning.org/

Team Public Transportation Coordination

- Texas Transportation Commissioner – Hope Andrade
- Texas Transportation Commissioner Assistant – Shawna Russell
- Transportation Director of the North Central Texas Council of Governments – Michael Morris
- TxDOT Public Transportation Division Director – Eric Gleason
- TxDOT Public Transportation Division Program Coordinator – Karen Dunlap
- TTI Assistant Research Scientist – John Overman
- TTI Research Scientists – Linda Cherrington and Jeff Arndt
- 24 Statewide Planning Regions
Easing Crowded Corridors

Coordinated plans in three Texas cities, eight nationwide, aim to reduce congestion

**Congestion.** It is the bane of the modern, busy and enterprising city. More than just an irritant for commuters, congestion is like a clogged artery that affects every aspect of a city’s “health” from air quality, to the economy, to quality of life.

A unique approach to easing congestion along major travel corridors is being led by the US Department of Transportation (US DOT). Known as Integrated Corridor Management, or ICM, the idea is to assemble a “toolbox” of transportation operational policies, analysis tools and Intelligent Transportation Systems (ITS) technologies that can be tailored to match the infrastructure and the characteristics of different corridors.

US DOT selected eight metropolitan areas nationwide to develop ICM plans for specific corridors. Three of these eight metropolitan areas are in Texas. Dallas, Houston, and San Antonio were selected along with Seattle, San Diego, Oakland, Montgomery County (Maryland) and Minneapolis.

“Transportation agencies in Texas are doing many of the right things to ensure the efficient and safe operation of major corridors,” says Christopher Poe, assistant agency director at the Texas Transportation Institute. “The state is poised to take corridor operations to the next level, and developing these ICM plans will help advance these efforts.”

Poe says that while travelers do not seem to care which agency is operating the part of the transportation system they are using, they do care about getting from point A to point B as quickly as possible.

“ICM plans to help answer questions like, ‘How do all of the agencies along a major urban corridor (e.g., transit authorities, departments of transportation and toll authorities) work together to operate roadways, buses, rail, and traffic lights and utilize other strategies to make things better for the customer?’” says Poe. “Cities, transit agencies, and TxDOT do a very good job managing their own systems, but working together, these agencies can reduce travel times, increase the use of transit, ensure the reliability of roadways and improve air quality. That’s where teamwork comes in.”

The transportation industry has a history of investing in highway, arterial and transit systems. However, this investment is typically focused on one mode. Texas’s ICM pioneer sites will demonstrate how technology can link routes and modes to leverage available capacity. By managing the individual transportation networks in a corridor as a multimodal system, we can realize significant improvements in managing congestion. Texas’s Pioneer Sites will play an important role in what could become a transformation in America’s approach to congestion management.

Shelly Row
Director ITS Joint Program Office,
Research and Innovative Technology Administration
U.S. Department of Transportation
Teams in the three Texas cities (see “TTI and Teamwork” sidebar) were formed with transportation planners and experts from TxDOT, transit agencies, communities, stakeholder groups and universities.

The eight cities selected nationwide were chosen for stage one of a three stage, long-term project by US DOT. Each site was provided funding to develop a Concept of Operations or operational plan.

US DOT expects to select up to four of the original eight pioneer sites to participate in stage two, which involves funding to analyze and model the proposed operational plans in each corridor developed in stage one.

Stage three, the demonstration stage, will also involve up to four pioneer sites. As much as $10 million will be awarded to demonstrate key ICM strategies estimated to have significant benefit as defined from operational plans and modeling exercises conducted earlier in the initiative.

**MORE INFORMATION**
For more information, please contact Christopher Poe at (972) 994-0433 or cpoe@tamu.edu.

**TTI and Teamwork aid ICM in...**

**DALLAS**—TTI Assistant Agency Director Christopher Poe is leading a university team on data collection, modeling, and analyzing the ICM operational strategies for the U.S. 75 Corridor.

Dallas’ ICM Team: Dallas Area Rapid Transit (DART); TxDOT; the Cities of Dallas, Richardson, Plano, University Park, Highland Park; North Central Texas Council of Governments, North Texas Tollway Authority, TTI, Southern Methodist University and University of Texas at Arlington

**HOUSTON**—TTI Research Engineer Tony Voigt worked with TxDOT to craft the ICM plan for the I-10 west corridor, which runs from the IH-610 west loop, SH 99 in the west, U.S. 290 in the north and the West Park Toll Road in the south.

Houston’s ICM Team: TxDOT, TTI, Houston Metropolitan Transit Authority of Harris County, Harris County, City of Houston, and Houston Galveston Area Council

**SAN ANTONIO**—TTI Associate Research Engineers Steve Venglar and Cesar Quiroga led the data archiving effort for the I-10, I-35, and Loop 1604 corridor in the Alamo City.

San Antonio’s ICM Team: TxDOT, TTI, City of San Antonio, VIA Metropolitan Transit Authority, and the Southwest Research Institute

DART, TxDOT and the local cities have been working collaboratively on operations for over 20 years. ICM provides new tools to build on those relationships and provide superior service to the customers traveling in corridors such as U.S. 75. In Dallas, we have excellent freeways, HOV lanes, arterials streets, and a state-of-the-art light rail system, but through better information sharing among agencies and to the public, we can allow the traveler to maximize their use of the entire transportation system.

Koorosh Olyai, Vice President
Dallas Area Rapid Transit

The partners in San Antonio’s Integrated Corridor Management team have been working together for many years. The established relationships allow the project team to use their cumulative knowledge of the transportation issues within San Antonio to develop the Concept of Operations and Requirements Document to support the goals of Integrated Corridor Management for the I-10 Northwest corridor.

Brian G. Fariello
Traffic Management Engineer
TxDOT—TransGuide, San Antonio

ICM will help people make pre-trip and en-route decisions based on real-time traffic information. We’re looking at an aspect called “rolling telecommuting,” where some businesses can look at a prediction of heavy traffic for the next day and possibly encourage their telecommuting employees to schedule their telecommute day for the day we’re predicting a bad traffic scenario.

John Gaynor
Director of Transportation Management Systems
TxDOT—TranStar, Houston
Partnership Tests Quality-Control Device for Asphalt Pavement

The Texas Transportation Institute (TTI) is partnering with the Texas Department of Transportation (TxDOT) and several paving contractors around the state to field test a new quality control system for asphalt paving. Not only does the system designed by TTI give an accurate evaluation of the quality of the asphalt, it also relieves the contractor’s personnel from having to manually collect the information.

“Extensive research has shown that differences in temperature in the hot-mix asphalt relate to segregation,” says Stephen Sebesta, assistant research scientist with TTI. “Segregation is non-uniformity in hot-mix asphalt pavement materials. Our infrared system finds these differences in temperature and can pinpoint where pavement failure could occur.”

The system, called Pave-IR, uses thermal imaging to provide real-time measurements of material surface temperature. The Pave-IR test system continuously performs these profiles, providing more coverage and better documentation of thermal uniformity as compared to the existing test method.

“The new method is a major milestone,” says Sebesta. “We can now test 100 percent of the material in place, gathering continuous data for each day’s placement.”

The partnership between TxDOT, TTI and the contractor is actually formalized in TxDOT Standard Specification Item 341. The construction contractor is required to perform a thermal profile for each subplot in accordance with Test Method Tex-244-F. TTI then works with the contractor to provide the Pave-IR hardware, software and training to collect the thermal profile data.

“The system is easy to use,” says Arthur Gomez, manager of quality control with Silva Contractors. “TTI shows us how to install and run it one time, and then we pick it up. We run a segregation profile showing the variations in temperature so that we can modify the paver speed or rolling pattern if necessary.”

The system uses a thermal imaging bar with 10 infrared sensors attached to the back of the paver. The Pave-IR software package collects and displays the thermal profile in real time as the paving train progresses. Data collection does not slow production or placement of the mat, which is important to both contractors and TxDOT.

TTI has used the new system on about 15 construction projects throughout its development and implementation. Currently TTI is assisting with two TxDOT projects in the Odessa District and one in the Houston District.

Steve Smith, the director of construction with the TxDOT Odessa District, notes that the system allows them to sample all of the material as it is being laid down, not just a random sample as in current practice. This helps both TxDOT and contractors ensure a good quality pavement.

“If we get temperature differentials, then we can check air voids and density to determine if there’s a problem,” says Smith. “Contractors can address any problems in the pavement before it goes on too long and all the pavement needs to be replaced.” Obviously, replacing an entire section of pavement can be costly.

For the future, TxDOT plans to work with TTI to refine and improve Pave-IR, perhaps with ground-penetrating radar integrated for easier data coordination. “Some paver manufacturers have also expressed interest in the system,” says Magdy Mikhail, TxDOT pavement engineer and project manager. “If they acquire rights, they could make it part of the pavers they produce, saving contractors some costs.”
The Texas Transportation Institute is proud to announce the 2007 inductees of the Texas Transportation Hall of Honor. They will be formally inducted in a ceremony on September 25 at the Texas Department of Transportation’sGreer Building in Austin.

The Hall of Honor is located in the main conference room in Texas Transportation Institute’s Gibb Gilchrist building in the Texas A&M Research Park in College Station. The Hall is overseen by a five-member board comprised of senior transportation professionals with knowledge of the historical development of the transportation system in the state. Each individual inducted into the Hall of Honor is recognized by a plaque on permanent display.

For more information, please visit http://tti.tamu.edu/hall_of_honor/.

J.C. DINGWALL

J.C. Dingwall came to work for the Texas Highway Department in 1928 in Abilene. He would finish his career with the Department by serving as State Highway Engineer from 1968 until his retirement in 1973.

Dingwall left the Department during the Second World War to work with the Army Corps of Engineers building airfields around the world. In 1947 he rejoined the Highway Department and directed construction of the Gulf Freeway, the first urban expressway built in Texas. Dingwall moved to Austin in 1950 to head the Road Design Division.

In 1954, Mr. Dingwall was asked to become Engineering Manager for the Texas Turnpike Authority, charged with building the Dallas-Fort Worth Turnpike. The entire project, including design, ROW acquisition and construction was completed in three years. The bonds were retired 17 years ahead of schedule.

Mr. Dingwall returned to the Highway Department in 1958 as Assistant State Highway Engineer. Greer handpicked Dingwall to head the Department in 1968. Under Dingwall the Department had as many as 20,500 employees, as the push to complete the interstate highway system continued. J.C. Dingwall served as President of AASHTO in 1972.

ERNEST E. HOWARD

When Ernest Howard (UT ’1900) began his career with the Kansas City bridge design firm of Waddell & Hedrick, he also embarked on a career that would help revolutionize transportation in America and leave a legacy of technical excellence and innovation.

Never losing his connection to Texas, he designed many bridges in the state, including the landmark Congress Avenue Bridge in Austin. In 1914, Mr. Howard became a partner in the firm Harrington, Howard & Ash; in 1940, the firm became Howard Needles Tammen & Bergendoff (HNTB). Today, HNTB Corporation ranks among the top transportation infrastructure firms in Texas and the nation.

Mr. Howard’s technical excellence and innovation have been recognized in many ways. In 1921, Mr. Howard received the American Society of Civil Engineers’ prestigious Thomas Fitch Rowland Prize. In 1949, President Harry Truman appointed him to assist the Special Commission on the Renovation of the White House. Since 1954, ASCE has annually awarded the Ernest E. Howard Award for significant contribution to the advancement of structural engineering.

In 2004, the American Road and Transportation Builders Association named Mr. Howard one of the Top 100 Private Sector Transportation Construction Professionals of the 20th Century.

MARCUS L. YANCEY, JR.

Marcus Yancey, Jr. (UT ’50) joined the Texas Highway Department in 1957. He would spend the remainder of his career with the Department, retiring in 1993.

In 1967, Dewitt Greer transferred Yancey to his personal staff. Five years later, Marc was named Assistant Engineer-Director, and in 1980 he became Deputy Executive Director.

Known as a person of high integrity, Mr. Yancey represented the Department’s interests during 16 legislative sessions under eight governors. Marc Yancey was an effective manager and public spokesman for the Department. His management skills were recognized when he was called upon to chair the Governor’s Task Force on Management by Objectives in 1979. His strong financial oversight skills led him to be twice appointed as chairman of the State Agency Coordinating Council, and he was twice elected to the board of the State Employees Retirement System.

Mr. Yancey chaired numerous AASHTO committees and was recognized as “Public Administrator of the Year” by the Austin Society of Public Administrators. Referring to Mr. Yancey, former Governor Briscoe noted: “Working with leaders such as Dewitt Greer, Marc was the key in building the best highway system to be found anywhere…”

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TTI Day 2007

In honor of his first TTI Day as Director of the Institute, Dennis Christiansen wore the shirt given to him several months earlier by plaid-adoring, outgoing director Herb Richardson at his retirement party. “This is the first time this shirt has been worn,” Christiansen announced, prompting laughs from the nearly 400 employees who were able to attend the thirteenth annual event.

Although the atmosphere was jovial, there were some thoughtful discussions about TTI’s status and the efforts underway to make it stronger. In his “state of TTI” address, Christiansen emphasized that the results of the employee survey put TTI at the top of other state agencies.

The keynote speaker, Texas A&M University System Chancellor Mike McKinney, congratulated TTI for its Half Pint Library Book Drive. Employees raised $1,047 and a total of 475 books that were distributed to Half Pint Libraries in each city where TTI maintains an office.

The Teens in the Driver Seat (TDS) program was recognized with the second annual TTI Team Award, named in honor of Richardson.

First Keese-Wootan Fellowship Awarded

The first Keese-Wootan Transportation Fellowships were awarded at TTI Day on May 2, 2007. “The Keese-Wootan Transportation Fellowship was established to honor two long-time directors of the Institute,” stated TTI Director Dennis Christiansen. “Jack Keese served as Director from 1962 to 1976, and Charley Wootan headed the Institute from 1976 to 1992. Both were nationally recognized transportation researchers and both were active in numerous local, state, and national organizations.”

“The fellowships recognize and reward TTI employees who are full-time or part-time graduate students at Texas A&M University,” noted Katie Turnbull, agency associate director and chair of the Keese-Wootan Transportation Fellowship Committee. “Having had the opportunity to work with and know both Jack and Charley makes helping implement the fellowship very rewarding. They both set very high standards for research excellence and integrity at TTI.”

Mrs. Doxie Wootan, wife of the late Charley Wootan, and Mrs. Jan Amyx, Jack Keese’s daughter, were on hand to present the first fellowships to Cameron Williams, Rachel Stensrud, and Ben Sperry, all Masters Students in the Texas A&M University Zachry Department of Civil Engineering and TTI Graduate Research Assistants. Cameron Williams received a $1,500 fellowship, while Rachel Stensrud and Ben Sperry were awarded $750 fellowships.
Behrens to Retire from TxDOT

After 37 years with the Texas Department of Transportation (TxDOT) and the last six years as its executive director, Michael Behrens has announced his retirement effective August 31. The announcement was made in a letter to Texas Transportation Commission Chairman Ric Williamson.

Behrens, a Texas A&M University civil engineering graduate, noted the changes he has seen at the agency during his career. “The name of the Department itself went from the Texas Highway Department to the State Department of Highways and Public Transportation to TxDOT. When I started, plans were still being drawn by hand, calculations made with mechanical calculators and measurements done using tapes and surveying chains,” Behrens wrote.

Despite the changes, Behrens said the dedication and commitment of the employees to “getting the task done, day in and day out” has not changed. TTI Director Emeritus Herb Richardson worked closely with Behrens as they both headed up their respective agencies. “Mike has provided innovative, dedicated and ethical leadership to TxDOT during a time of tremendous change in the transportation enterprise in our state,” Richardson said. “He has been a stalwart supporter of university-affiliated transportation research in Texas, and I wish him well.” Behrens was one of the speakers at Richardson’s retirement ceremony last fall.

“I will always be an advocate for the Department and the need for providing adequate transportation infrastructure for this state. I will continue to inform and educate. Thank you for allowing me to serve the state of Texas in this position,” Behrens wrote.

Trejo Receives Barclay Fellow Award

David Trejo, TTI division head for constructed facilities and Texas A&M University associate professor in the Construction, Geotechnical and Structural Engineering Division, has been named a Charles H. Barclay ‘45 Fellow.

The honor was presented to Trejo during the spring meeting of the engineering faculty on May 3. Colleagues describe Trejo as “energetic, enthusiastic and a leading researcher in the field of corrosion of metals and service-life prediction for construction materials.” Trejo has conducted more than 200 projects and has been invited to speak at national and international conferences.

“Teens in the Driver Seat” Program Receives ITE Award

Texas Transportation Institute’s (TTI) “Teens in the Driver Seat” (TDS) Program was recently selected as the 2007 recipient of the Institute of Transportation Engineers (ITE) Transportation Achievement Award for Safety. This award recognizes significant and outstanding transportation achievements by entities concerned with transportation.

The TDS Program is led by TTI Division Head Russell Fette, who continues to expand the initiative in Texas and beyond. “We’re very blessed to have TTI Administration and Texas Department of Transportation Commissioner Hope Andrade as champions of our efforts,” says Fette.

Harris Honored by SCA Award

Tufts University awarded David Rosowsky, head of the Zachry Department of Civil Engineering and holder of the A. P. and Florence Wiley Chair, an Outstanding Career Achievement Award for Tufts Graduate Alumni. Rosowsky was one of two recipients honored as graduate alumni who have excelled professionally.

“I have a very close relationship with Tufts University,” said Rosowsky, who stays involved with his alma mater in several unofficial capacities including serving as an external reviewer for Tufts School of Engineering. “I was privileged to attend Tufts University.”

Rosowsky received the award at the Tufts graduate awards ceremony in April and said he was very grateful for the recognition.

Tufts University’s Civil and Environmental Engineering Department also recognized Rosowsky for his success when it presented him with its inaugural Outstanding Alumni Achievement Award in 2005.

Texas Transportation Institute Associate Research Scientist Pat Harris of the Materials and Pavements Division has been honored for his work on the George Bush Turnpike/Hwy 183 intersection near Irving. The Slag Cement Association presented Harris with the Best Use of Slag Cement for Innovation award at the association’s annual meeting in Atlanta March 21.

Harris’s research on the project involves the use of slag cement as a way of stabilizing sulfate-rich subgrade soil, which prevents problems with the asphalt or concrete pavement. “So far, the slag cement is holding up well. We will soon analyze samples from the site for reevaluation,” Harris said.
TECHNICAL REPORTS


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