

TEXAS TRANSPORTATION

Researcher

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The Next Generation

TTI and Texas A&M team up to educate
future transportation professionals

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and MEMBER OF
THE TEXAS A&M UNIVERSITY SYSTEM

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TTI Going Forward

by Dr. Dennis L. Christiansen

All of us at the Texas Transportation Institute (TTI) owe Herb Richardson a huge “thank you” for the 13 years that he led our agency. Herb’s last official day as TTI Director was on October 31, and he spent the day testifying before the Texas legislature.

The past 13 years under Dr. Richardson have been good for the Institute. Herb built on a strong base established by his predecessors, Jack Keese and Charley Wootan. These are the only three permanent directors TTI has had in its 56 year history. These outstanding directors, who all stayed with us for many years, gave the Institute a lot of stability. They were all individuals with national and international reputations and widely respected by their peers. During their tenure as director each were true leaders in university affiliated transportation research. We are fortunate that, as Director Emeritus, Herb will continue to be involved in strategic TTI activities.

As Herb steps down, TTI is in a very strong position. We have an excellent staff, good relations with our sponsors, outstanding facilities and are in a strong financial condition. We are in the enviable position of being a strong agency with numerous intriguing opportunities to be pursued. The coming years should be exciting.

I have had the opportunity to work closely with all three of the TTI directors. I came to consider them all to be very good friends and excellent mentors. It is humbling to follow in their footsteps. But the future holds great promise, and I look forward to

working with our friends, sponsors and staff as we move forward. We owe it to those who have built TTI to its current stature to take the strengths we have been given and continue to be leaders in addressing the key issue areas impacting transportation in both Texas and the nation.

In the future, I will be using this column to make you aware of some of the new initiatives we are pursuing and some of the interesting things that go on within the Institute. We work hard at being good communicators, and the Researcher is one of the vehicles we use to try to keep those of you who are interested informed as to what is going on at TTI.

If you have thoughts, ideas or suggestions, please feel free to send me an e-mail (dennis-c@tamu.edu). 

Civil Engineering Success

Q&A with the Department Head and
A.P. and Florence Wiley Chair of Civil Engineering at Texas A&M University



DAVID ROSOWSKY HAS BEEN THE PUBLIC FACE OF CIVIL ENGINEERING EDUCATION AT TEXAS A&M UNIVERSITY SINCE 2004. AS DEPARTMENT HEAD AND THE HOLDER OF AN ENDOWED CHAIR, HE IS UNIQUELY POSITIONED TO AFFECT CHANGE IN THE DEPARTMENT. AND HE'S PROVEN REMARKABLY CAPABLE OF DOING JUST THAT. WE SAT DOWN WITH HIM RECENTLY TO LEARN MORE ABOUT HIS VISION FOR TRANSPORTATION ENGINEERING AND EDUCATION AT A&M AND HOW THE TEXAS TRANSPORTATION INSTITUTE (TTI) PLAYS A ROLE.

Q *How would you describe the importance of transportation and transportation research in Civil Engineering (CVEN)?*

A Transportation is one of the most important disciplines in the broad field of Civil Engineering. It is very much a part of the history and heritage of the Civil Engineering program at Texas A&M University and must remain a strength in the department as we look to the future. Civil engineers are being called upon to address the infrastructure needs of society, including buildings, bridges, dams, water supply and treatment systems, ports and harbors, and every element of the transportation infrastructure. Not only are civil engineers responsible for the design of new systems but they are responsible for the maintenance, repair, and retrofit of existing systems.

The traditional field of transportation, focusing primarily on roads, now includes the study, design, and operation of large and highly complex systems of transportation networks comprising all modes. As the field of Civil Engineering has matured and made increasing use of advanced technologies (including modeling, simulation, new materials, sensors and real-time monitoring/control),

transportation engineers have seen increased opportunities and been able to address new challenges. What once was called “transportation engineering” is now often called “transportation systems” at many universities, reflecting the broadening scope of this important field and the increasingly multi-disciplinary approach being taken to solve today’s transportation challenges. Transportation research in Civil Engineering at A&M—including research in materials, traffic, safety, control devices, transportation economics, policy, network analysis and the design of transportation infrastructure—will continue at the cutting edge. We are committed to hiring the brightest new faculty, attracting top graduate students and adding value to our research programs through our cooperation with researchers at TTI.

What role do you see TTI playing with CVEN in developing transportation engineers?

TTI plays a valuable role by partnering with Civil Engineering in the training and mentoring of graduate students not only in the Transportation and Materials (TM) Division, but in the Construction, Geotechnical and Structural (CGS) Division as well. TTI projects and research staff provide our students access to real-world problems and allow them to be part of the team developing solutions. The experience our students gain as research assistants and interns is invaluable. Students in the transportation program in Civil Engineering have a unique appreciation for the breadth of the transportation field, thanks in large part to their interactions with the TTI research staff, and are able to make informed choices about career paths, post-graduate study and employment opportunities.

Can you describe any new faculty hires or other steps the department is taking to strengthen and grow transportation engineering at A&M?

We have hired four new faculty in transportation in the last three years, Dr. Gene Hawkins, Dr. Dom Lord, Dr. Yunlong Zhang and (most recently) Dr. Luca Quadrifoglio. In addition, we have hired a number of new faculty in other areas who are working in areas related to transportation including Dr. Seth Guikema and Dr. Ivan Damnanovic, both in the Construction Engineering and Management area. Dr. Tanner Blackburn (geotechnical) and Dr. Stefan Hurlbaeus (structural), both hired in the last two years, are also involved in some transportation-related research.

We are not only building up the core of transportation faculty, we are increasing the cross-discipline capabilities within the department to contribute to transportation research. We are also continuing to grow our faculty in the structures and materials areas, which will strengthen our research capabilities in transportation infrastructure (bridges, rail, ports) and civil engineering materials.

What can you tell us about new degree programs in Civil Engineering and the kind of students you are looking for?

The department has implemented three new one-year Master of Engineering (MEng) degree plans this year, with plans to introduce three more by the end of the year. One of these degree plans is in Transportation and Public Policy (T&PP) and includes courses in Civil Engineering as well as electives in Management, Planning, Statistics, and courses offered at the Bush School of Government and Public Service. This Master’s degree can be completed in 12 months and is intended to provide students with exposure to topics in public policy and management along with a sound foundation in graduate coursework in transportation engineering. The targets for this new one-year program include (1) undergraduate CVEN students with a strong academic record and interest in transportation/policy, and (2) practicing engineers interested in returning for a one-year graduate degree program. Undergraduate students are encouraged to learn more about this opportunity early in their undergraduate program by contacting Dr. Gene Hawkins.

What are some long-term goals of CVEN or the T&PP degree program?

My goal for the department is to achieve top-five ranking among Civil Engineering programs at public institutions. Thus, my goal for each academic area within the department—including transportation—is to become recognized at this level. We have a long history of strength and leadership in transportation engineering at A&M. I am fully committed to ensuring we remain one of the top academic programs in transportation engineering in the country.

Do you have any thoughts on the growth of interdisciplinary approaches to transportation? If so, what does that mean and what does that look like?

As the field of transportation has developed and expanded, the need for interdisciplinary solutions has increased tremendously. Team-based research to address today’s transportation needs has created opportunities for students and faculty across the University. Civil engineers are partnering with urban planners, public policy experts, statisticians, landscape architects, economists, industrial engineers and computer scientists, to name just a few. The one-year MEng program Transportation and Public Policy is one way the department is recognizing the need for training engineers with a broad skill-set, to enable them to communicate and work with such a diverse group of professionals. **R**



A leg UP

*Southwest Region University
Transportation Center,
Texas Transportation Institute
offer students funding
and research experience*

“The job market in transportation engineering is as hot now as it’s ever been. Employers are clamoring for graduates to go to work for them. Students who stay in school to get a Master’s or Ph.D. degree end up getting long-term professional benefits from the degree in their career.”

Gene Hawkins, associate professor in
Civil Engineering at Texas A&M University
and research engineer at the
Texas Transportation Institute

Mentoring and money. They're critical aspects of the college experience. Though tuition and fees are foremost on the minds of students, at some point—usually right around graduation—larger questions of career and future studies come to mind.

“What career options are available?” “What is the best for me?” “Who can I talk with about different opportunities?”

For Civil Engineering (CVEN) transportation students at Texas A&M University, the Transportation Scholars Program (TSP) was created precisely to give students a platform for careers in transportation engineering and to provide funding that helps attract the best students.

Gene Hawkins, an associate professor in CVEN and research engineer at the Texas Transportation Institute (TTI), heads the program. Open to U.S. citizens and permanent residents only, the TSP offers undergraduates and graduate students various funding opportunities. For graduate TSP students, this includes paying tuition and fees, additional stipend money, and funding for travel to the Transportation Research Board (TRB) annual meeting in Washington, D.C. Undergraduate students are funded through the summer fellows program, where they are paid to work on a research project and receive a stipend to assist with living expenses.

“With funding from the Southwest Region University Transportation Center and the U.S. Department of Transportation, we're able to give both undergraduate and graduate students a significant boost in their engineering education,” says Hawkins.

David Rosowsky, head of Texas A&M's Civil Engineering Department, says the TSP helps develop and attract students, particularly those studying transportation and materials.

“Funding from the Transportation Scholars Program provides our transportation and materials faculty with additional resources to attract top quality students,” says Rosowsky. “The combination of TSP funds, research support, and competitive fellowships allows Texas A&M to compete for the very best students from around the country. Few transportation and materials programs in

the country have this opportunity. Support for our students provided by the Transportation Scholars Program is another outstanding example of the Civil Engineering and TTI partnership.”

Undergraduate TSP students spend a summer working directly for a faculty member or research mentor in a full-time research position. By summer's end they will have written a research proposal, collected data and analyzed it, and made a formal presentation based on their research report.

“This is an outstanding opportunity for undergraduate students to gain exposure to transportation research,” says Hawkins. “They get a sense of what goes on in a research environment and gain work experience that looks good on any resume. Plus, they get an opportunity to work with established research professionals who are respected in their field of study.”

Hawkins says the goals of the graduate portion of the TSP are to continue attracting top caliber students from Texas A&M and the nation and to boost the number of Ph.D. students.

The graduate program boasts 13 students, several of which are graduating this fall. Hawkins says the students in the program in the spring will head to TRB this year. All 13 graduate students have formal research positions at the university, a significant experience booster and resume enhancer.

“The job market in transportation engineering is as hot now as it's ever been,” says Hawkins. “Employers are clamoring for

graduates to go to work for them. Students who stay in school to get a Master's or Ph.D. degree end up getting long-term professional benefits from the degree in their career. They really do better in the long-run. The funding and other benefits provided to graduate students is sufficient to cover their educational expenses so that they don't have to incur debt to stay in school.” **R**

A Snapshot of CVEN*

<p>Materials Research Areas:</p> <ul style="list-style-type: none"> • Asphaltic and Concrete Pavements • Construction Materials • Corrosion within Structures • Fracture and Damage Mechanics • Micromechanics and Microstructure Characterization • Nondestructive Testing • Pavement Evaluation • Recycled Materials • Mechanical Properties and Transport in Concrete Materials 	<p>Transportation Research Areas:</p> <ul style="list-style-type: none"> • Transportation Economics • Transportation Operations • Transportation Safety • Transportation Systems Modeling • Traffic Control Devices • Intelligent Transportation Systems • Geometric Design • Planning • Scheduling Algorithms • Transit Systems
<p>Other CVEN Research Areas: Coastal Engineering, Construction Engineering and Management, Environmental Engineering, Geotechnical Engineering, Infrastructure Management and Security, Ocean Engineering, Structural Engineering, Water Resources Engineering</p>	<p>Endowed Chair Holders 7</p> <p>Endowed Professorship Holders 8</p> <p>National Academy of Engineering Members 3</p>
	<p>Graduate Students 309</p> <p>Ph.D. 133</p> <p>Master's 176</p>
	<p>Undergraduate Students 1,099</p> <p>Average SAT Score 1222</p>

**source: Office of Institutional Studies and Planning*



MORE INFORMATION
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Student Profiles

**TEXAS A&M
UNIVERSITY**



ADAM PIKE pursued his graduate work at Texas A&M University and stayed on with the Texas Transportation Institute (TTI) as an assistant transportation researcher. A native of South Glens Falls, New York, Pike received his bachelor's degree in civil engineering from Clarkson University in 2004 and his master's degree in civil engineering from Texas A&M University in 2005. Pike worked as a graduate assistant with TTI on a two-year pavement marking project.

At TTI he is currently working in the Signs and Markings Program in the Transportation Operations Group. He conducts research in the areas of traffic signing, pavement marking and work zones with an emphasis on traffic engineering principles, visibility needs, human factors and safety implications. He feels his work experience at TTI as a graduate student prepared him for his current position.

As an undergraduate, Pike took an interest in transportation. "My professor recommended Texas A&M University because the university had a good engineering program and TTI was well known for its transportation research," says Pike.

Pike plans to become a Texas Professional Engineer (P.E.) in the near future. **R**

**GIG 'EM
AGGIES**



JUSTIN WINN used his training at TTI to join a consulting firm as a transportation analyst. Originally from Mesquite, Texas, Winn received his bachelor's degree in civil engineering from Texas A&M University in 2003, and his master's degree in 2005. He worked as a research assistant for TTI in his senior year and throughout graduate school.

Winn currently works as a transportation analyst for Wilbur Smith Associates in Dallas, Texas. The consulting firm mainly works with the North Texas Tollway Authority and the Texas Department of Transportation, performing studies on traffic and toll road revenue, traffic operations, travel demand modeling, and transportation economics.

Winn was well prepared when he entered the job market. "I had good engineering work experience at TTI," says Winn. "I worked for a professor in transportation economics, and that work was very similar to the job I have now." He was also able to work side by side with professionals in his field as an undergraduate and graduate student.

Winn was the president of the Texas student chapter of ITE in 2004 and obtained valuable leadership experience. **R**

**CIVIL
ENGINEERING**



GRANT SHULTZ pursued graduate degrees that ultimately led him to a professorship at Brigham Young University. Originally from Champion, Alberta, Canada, Shultz received his bachelor's (1994) and master's (1995) degrees in civil engineering from Brigham Young University. He received his doctorate in civil engineering from Texas A&M University in 2003.

While at Texas A&M, Shultz was a graduate assistant researcher working in TTI's Mobility Analysis Program and later the Transportation Operations Group. One of the projects he worked on helped the Texas Department of Transportation (TxDOT) determine the effects of North American Free Trade Agreement (NAFTA) truck traffic on highway bridge deterioration.

Shultz is currently an assistant professor in the Department of Civil and Environmental

Engineering at Brigham Young University in Provo, Utah. He teaches undergraduate and graduate transportation courses, and also performs research in the planning and safety areas.

"The experience I gained at TTI," says Shultz, "helped me get the position in teaching and research I have now." He also met contacts in the transportation profession, which helped him get his first job as a consultant and his current professorship.

Shultz was the Southwest Region University Transportation Center (SWUTC) Student of the Year in 2003. He also served as the president of the Texas student chapter of the Institute of Transportation Engineers (ITE) in 2002 and received the Outstanding Student Chapter Award. He is a Utah Professional Engineer (P.E.) and Professional Traffic Operations Engineer (PTOE). **R**



TTI's Tim Lomax and Katie Turnbull are lecturers in the Department of Landscape Architecture and Urban Planning.

Partnering for the Future

Texas A&M University and TTI team up

Planning, designing, financing, constructing and operating all aspects of the transportation system continues to grow more complex. One of the historic strengths of the Texas Transportation Institute (TTI) is bringing multi-disciplinary teams together to address critical transportation issues.

A key element of TTI's ability to respond to the diverse needs of sponsors is the Institute's strong working relationships with academic departments at Texas A&M University. These connections enhance the academic programs at the University. Students and faculty have the opportunity to participate in cutting edge research,

"Our relationship with TTI provides numerous benefits...It exposes our students and faculty to additional research opportunities. We look forward to expanding our relationship with TTI in the future."

Arnie Vedlitz,
Director of the Institute for
Science, Technology and
Public Policy at the George
Bush School of Government
and Public Service

and TTI researchers have the opportunity to teach and to interact with students. These relationships are based on both formal agreements and long-standing ties with academic departments. TTI has a Memorandum of Understanding with the Bush School of Government and Public Service and one with the College of Architecture. In addition to the Zachry Department

of Civil Engineering, TTI also has ongoing relationships with the Statistics Department, the Computer Science Department, the Recreation, Park and Tourism Science Department, and other departments on Campus. "We value our relationship with TTI," notes Forster Ndubisi, Head of the Department of Landscape Architecture and Urban Planning in the College of Architecture. "The Institute supports numerous gradu-

ate students working on research projects. Faculty and TTI staff collaborate on research activities. We have also benefited from having TTI researchers teaching classes in the Department."

TTI researchers Tim Lomax, research engineer, Katie Turnbull, associate agency director, and Dennis Perkinson, research scientist, are all lecturers in the Department of Landscape Architecture and Urban Planning and are members of the Texas A&M University Graduate Faculty. The three have taught graduate classes individually over the years and have recently team taught the Transportation in City Planning course. They also serve on Master's and Ph.D. committees.

Mike Teal, associate transportation researcher, has taught one of the landscape architecture courses and is a frequent guest lecturer in classes, as are other researchers in the Environmental Management Program. Recently retired Program Manager Harlow Landphair was a Professor in the Department and Ming-Han Li is an Assistant Professor in the Department and an assistant research engineer at TTI.

"Teaching provides a great opportunity to share our experiences with students," says Turnbull. "Working with students in the classroom and on research projects is rewarding," notes Lomax. "It is also a lot of fun," adds Perkinson.

The relationship with academic departments also provides opportunities to support guest lecturers, seminars and speakers. Interacting with national experts on a wide range of topics further enhances the education experience for students.

"Our relationship with TTI provides numerous benefits," notes Arnie Vedlitz, Director of the Institute for Science, Technology and Public Policy at the George Bush School of Government and Public Service. "It exposes our students and faculty to additional research opportunities. We have also co-sponsored a number of speakers and seminars. We look forward to expanding our relationship with TTI in the future." 



(Left): Kingsville students get ready to stress test their balsa wood bridge.
 (Center): El Paso students construct a computer.
 (Right): Weslaco STI students are briefed by TxDOT engineers on US 83 construction plans.

A National Problem, A Local Solution

TSTI Educates Students about Careers in Transportation

According to *TRB Special Report 275—The Workforce Challenge*, within the next 10 years over 50 percent of the workforce at state transportation agencies will be eligible to retire. The total transportation workforce in the U.S. makes up about 11 percent of the nation’s entire workforce, so failure to replace these outgoing workers will undoubtedly have national consequences.

“The nation’s projected shortage of transportation professionals is a growing concern at every level of the industry,” acknowledges David Tovar of the Texas Department of Transportation’s Civil Rights Office. “The buzzword for it is ‘workforce challenge,’ but essentially it boils down to not having enough young men and women interested in the transportation field as a viable career.”

The core mission of the Texas Summer Transportation Institute (TSTI) to encourage young people to pursue careers in transportation is vital to the continued development of Texas and the nation. With the donation of in-kind services by numerous private- and public-sector partners, the institute’s enrollment has nearly tripled during its eight-year lifespan. That’s a good thing.

Recognizing the need for programs like TSTI, TxDOT provided 60 percent of the program’s funding during the last calendar year. TxDOT’s investment follows a national trend in states like Florida and through programs like the National Cooperative Highway Research Program (NCHRP), both of which have recently recognized the need to recruit and educate tomorrow’s workforce. While the initiatives are state and national, the needs are local.

“It’s hard to recruit someone from a large city to go to college and then pursue a career in transportation in a small town,” explains Debbie Jasek, TSTI’s coordinator. “So TxDOT’s asking us to reach out to students in smaller towns in the hopes of inspiring them to go to college and

“Without an adequate workforce, the nation’s transportation system will suffer,” explains Tovar. “Historically, the health of our transportation system has mirrored that of the country. To keep America strong, our transportation system needs trained, dedicated individuals maintaining it.”



(Left): Members of Kingsville STI learn to make concrete test cylinders. (Middle): Dallas students boarding the bus to visit DART. (Right): El Paso STI team paddles their cardboard canoe.

study transportation, then return to work in their home towns.”

Jasek has learned over the past few years that, to adequately address the workforce challenge, a twofold strategy is needed. First, to meet the needs of the next five to ten years, initiatives should be targeted to those workers newly entering the workforce or, having been there a while, looking to make a change. Second, to provide a continual source of professionals, recruitment programs should target middle and senior high schools.

“Middle school is right when young people are starting to get motivated intellectually,” says Jasek. “If they get interested in transportation at that age, they can take the classes they need to prepare for a college curriculum in the field.”

The workforce challenge is particularly severe where women are concerned. While 51 to 52 percent of the

workforce is women, only 6 percent of engineers are women. That gets a little better in college, where 18 percent of those studying engineering are women. Thus, a key strategy for solving the workforce problem is to promote the engineering field to women (see sidebar).

“Without an adequate workforce, the nation’s transportation system will suffer,” explains Tovar. “Historically, the health of our transportation system has mirrored that of the country. To keep America strong, our transportation system needs trained, dedicated individuals maintaining it.” **R**



MORE INFORMATION

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<http://tsti.tamu.edu/>

U Go Girl!

Studies have shown that, in general, girls don’t pursue technical majors in college at the same rate as their male counterparts. TTI and its partners are trying to change that through the Go Girl! program.

A recent study indicated that women engineers choose their fields for one of two reasons: either they had a role model like Sally Ride, who inspired them, or they took part in a school project that fired their imaginations. “If we can get these girls interested early on, we can help to offset that projected shortfall of transportation professionals we know is coming in the future,” explains Debbie Jasek, TTI’s coordinator for the program.

So far Jasek and her partners—including the Texas Department of Transportation, Parsons Brinckerhoff, Brown and Gay, Walter P. Moore and Associates, Kimley-Horn and Associates, and many others—have presented four one-day workshops around Texas. One such event was presented at the Houston Museum of Natural Science and allied young women with female engineers to run mock



space shuttle missions in the Challenger Learning Center. Partnering these engineers-in-training with female mentors gives them the best of both worlds: hands-on activities and role models for inspiration.

“Programs like Go Girl! are exactly what we need to reach out to young girls when they’re just starting to think about their future careers,” affirms Becky Blatnica, scholarship chair for the Women’s Transportation Seminar. “More support for this kind of initiative will both improve professional opportunities for women in the transportation field and help us meet the workforce challenges of tomorrow.” **R**



I Believe I Can FLY

TTI's 2006 Texas Summer Aviation Academy

Participants in the Texas Summer Aviation Academy had the opportunity to sit in the cockpit of an Apache Helicopter (top) and Continental Airlines 767 (bottom left). Other hands-on activities included studying models (bottom right).

If it absolutely, positively has to be there overnight, you might need to keep your own pilot on retainer in the not-too-distant future. The pending shortage of transportation professionals facing our nation is particularly acute in the aviation sector.

“When we talk about the national transportation system, we tend to visualize a network of roads, with cars commuting back and forth to work or semi-trucks long-hauling goods to market,” explains Bill Gunn, director of the Systems and Training Aviation Division of the Texas Department of Transportation (TxDOT). “We sometimes forget the importance of aviation to the overall system.”

The Texas economy supports a large number of aviation jobs. Two large international, 27 commercial service, and 275 smaller general aviation airports comprise the state’s air transportation system. The state is also home to three major airlines and numerous military installations and defense contractors.

“You’d think that people, particularly young people, would think aviation jobs a romantic alternative to traditional doctor- and lawyer-type careers,” says Jeff Borowiec, coordinator for the Texas Transportation Institute’s (TTI’s) Summer Aviation Institute held in Conroe, Texas, on June 12-16, 2006. “But that’s often not the case. We’re still stuck in the mindset that aviation jobs are vocational in nature – flying or fixing airplanes and nothing more.”

The Summer Aviation Institute reached out to tenth and eleventh graders to promote career opportunities in aviation through hands-on activities, team-building exercises, and interaction with aviation professionals. Students got to see what students so often complain is missing from their education: just how math, science, and engineering are applied in the real world. For ex-

ample, the Federal Aviation Administration allowed students to tour airport security facilities, and the U.S. Army Reserve provided access to maintenance facilities for Apache helicopters. The young men and women even got to fly with certified pilots where they were exposed to the principles of flight and co-handled the controls of an aircraft in flight.

Thanks to sponsoring agencies like the Southwest Region University Transportation Center, TxDOT’s Aviation Division, and the Conroe Independent School District’s Academy of Science and Health Professionals, this initial program produced a core curriculum that can easily be replicated throughout the state. More funding is needed to continue and expand the program if it is to significantly impact the future scarcity of aviation workers.

As Borowiec sees it, the real problem is the perception that “aviation jobs” equate to blue-collar, vocational jobs. Yet, as technology has advanced and aviation systems have gotten more complex, more advanced, professional training is necessary to operate and maintain the system on all levels. Universities like Ohio State, Purdue, Arizona State, and the University of Nebraska have instituted educational curricula geared toward training aviation professionals. The state of Oklahoma, and the University of Oklahoma specifically, have multiple programs for this purpose.

“What we need is a different way of thinking about this issue,” says Borowiec. “Aviation provides an opportunity for students to get high-paying, secure jobs in a field that actually encourages you to fly. In aviation, literally the sky’s the limit.” **R**



MORE INFORMATION

For more information, please contact Jeff Borowiec at (979) 845-5200 or jborowiec@tamu.edu.

WEBINARS

A New Era in Workplace Training—TTI now offering online workshops

What's not to like about training workshops that are flexible, cost effective and allow employees to participate from the comfort of their own desks? The answer is very little, which is why web-based seminars (or "webinars") are taking off in popularity across the country and around the world.

The Center for Professional Development (CPD) at the Texas Transportation Institute (TTI) has joined this state-of-the-art method of training with the recent delivery of three workshops.

The first two workshops involved managed lanes, with more than 100 participating from the Texas Department of Transportation (TxDOT), Maryland DOT, North Central Texas Council of Governments and numerous other MPOs, transit agencies, regional authorities and engineering consultants. "Webinars are on the cutting edge of training sessions," says Gary Thomas, director of CPD. "They only require a computer with a

high speed internet connection and a telephone that you can call in on."

The managed lanes training sessions were instructed by TTI researchers Beverly Kuhn, Sue Chrysler and Ginger Goodin.

Dan Lamers, senior program manager with the North Central Texas Council of Governments participated in one of the Managed Lanes workshops. "The interaction between the audience and presenters was great. Several of the strengths of the course were that you were able to submit questions to the presenters and have them answered quickly, and the ability to have the PowerPoint graphics available the entire time."

The third workshop was for an audience in Mexico on the Advanced Warning for End-of-Green System (AWEGS) and was conducted by TTI Associate Research Engineer Srinivasa Sunkari.

In addition to workshops, webinars can be used to augment meetings. Instead of flying everyone in to a central location, the meeting is conducted in an online setting. "Some of these people are very busy and to travel somewhere like Washington D.C. for a meeting can take up three days of your time," says Thomas.

Thomas envisions the development of more webinar courses. "I would like to see us develop courses on the latest cutting edge research coming out of TTI and disseminating that to transportation professionals throughout the country and world." **R**



MORE INFORMATION

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

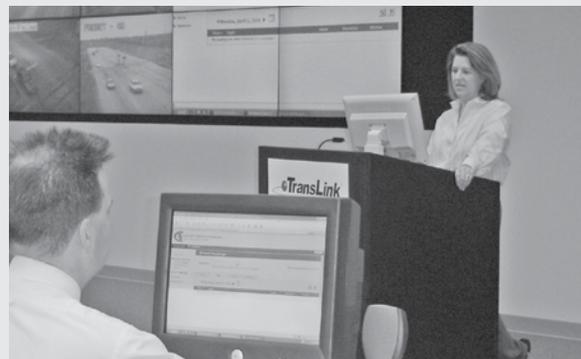
What is a Webinar?

Webinars are Web-based seminars. They also go by other names such as online workshops or web-based conferencing. Organizations throughout the country have begun to offer webinars as an alternative to traditional classroom, teleconference or videoconference seminars.

Webinars have many advantages. Participants do not have to travel, but can participate from the comfort of their own offices or even home. This helps a company's budget by saving travel expenses while continuing to expand professional development training.

Materials such as handouts are downloadable and can be printed and used for reference at a later time. And if an instructor has a website or new software to demonstrate, this can be done in real time without waiting.

In place of direct communication, webinars use discussion boards to exchange information and knowledge. This may seem difficult for traditional classroom users and instructors to get used to, but



TTI's Beverly Kuhn conducts a webinar as organizer Gary Thomas makes sure all the connections are working properly.

in many ways discussion groups are a more effective means of communication. Speakers usually participate in the discussion groups, and it remains online to review at any time and propagates in ways real-life conversations cannot.

Finally, because webinars are digital, the entire course, discussions and other features are easily archived for review long into the future. **R**

Texas Transportation Hall of Honor welcomes three new members

THREE LEGENDS OF TEXAS TRANSPORTATION WERE INDUCTED INTO THE TEXAS TRANSPORTATION HALL OF HONOR THIS FALL IN SEPARATE CEREMONIES. BELOW ARE SUMMARIES OF THEIR INDUCTION RECEPTIONS.

GORDON BETHUNE

Gordon Bethune, the former chairman and CEO of Continental Airlines who is credited with turning around the fortunes of the struggling airline, was inducted into the Texas Transportation Hall of Honor September 14. The ceremony was held at the Founders Lounge at the Hobby Center in Houston.

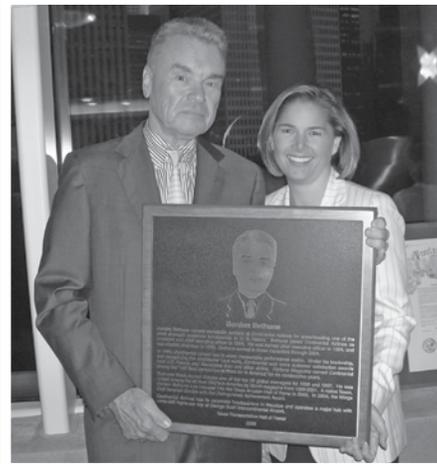
“Leading a workforce is one of the greatest honors one can have, and most of us have tried to emulate what Gordon accomplished,” said Houston Mayor Bill White. Mayor White also issued a proclamation declaring it “Gordon Bethune Day” in Houston.

In 1994, Continental ranked last in every measurable performance metric. Under Bethune’s leadership, and recognizing the employees’ hard work, Continental won more customer satisfaction awards from J.D. Powers and Associates than any other airline. Fortune magazine named Continental among the “100 best companies to work for in America” for six consecutive years.

Current Continental chairman and CEO Larry Kellner spoke of Gordon’s leadership during the 9/11 terrorists attacks and noted that the “nature of a true leader is their ability to lead a company in times of crisis.”

John White, chairman of the Texas A&M University System Board of Regents, also spoke as did former President George H.W. Bush via video. Bush praised Bethune in his remarks noting that he was “truly a great transportation leader” and “ran Continental Airlines with class and strength.”

“We are all inspired by Gordon Bethune’s ability to instill such a sense of teamwork and pride among the employees of such a large company,” said TTI Director Dennis Christiansen. “We are honored to have him in the Texas Transportation Hall of Honor among the true transportation leaders of our time.” ■



Hall of Honor Inductee Gordon Bethune with Nealan Kerwin, director of Emergency Management at Continental Airlines.



John White, chairman of the Texas A&M University System Board of Regents and TTI Director Dennis Christiansen at the Bethune reception.

COLONEL JOHN F. STRICKLAND

Colonel John F. Strickland was inducted into the Texas Transportation Hall of Honor at the Dallas Area Rapid Transit (DART) headquarters on October 30.

Born in 1860, Colonel J.F. Strickland traveled to Texas by wagon train in 1878. Strickland would create in central and north Texas the largest interurban rail system in the Southwestern United States. Strickland was responsible for the development of the interurban railway system in the Dallas area in the early 1900s.

“It is appropriate to induct Colonel Strickland into the Transportation Hall of Honor,” noted John Wilson, General Manager of Citibus in Lubbock. “Starting in 1908, Colonel Strickland’s electric railway companies developed an extensive interurban system that ultimately stretched from Waxahachie and Waco in the south to Sherman, Denison, and the Red River to the north.”

“DART is pleased to host this induction of Colonel Strickland,” noted Gary Thomas, DART President/Executive Director. “DART is continuing the legacy started by Colonel Strickland with the ongoing development of an extensive light rail transit (LRT) system. The plaque recognizing Colonel Strickland will be placed in a prominent location in the DART offices.” ■



TTI Director Dennis Christiansen, Hall of Honor Board Member and Lubbock Citibus General Manager John Wilson and President/Executive Director of DART Gary Thomas at the Colonel Strickland induction ceremony.



Lawrence Olson, executive vice president of the Texas Good Roads/Transportation Association and Douglas Smith, son of C.R. Smith.



(L-R) Gerard Arpey, chairman and chief executive officer of American Airlines; Dennis Christiansen, director of TTI; and Douglas Smith, son of C.R. Smith, stand in front of a restored American Airlines DC-3 located in the C.R. Smith Museum.

CYRUS R. SMITH

Aviation pioneer and longtime American Airlines Chairman Cyrus R. Smith was inducted into the Texas Transportation Hall of Honor on October 6. The ceremony was held at the C.R. Smith aviation museum in Fort Worth.

“Mr. Smith was the patriarch of the American Airlines family,” said Gerard Arpey, chairman and chief executive officer of American Airlines. “Without his

leadership, the American Airlines of today would not exist.”

A native Texan, Smith was born in Minerva in 1899 and attended The University of Texas at Austin. Smith became president of American Airlines in 1934. Over the next five years, he consolidated American’s route structure into a smooth, sensible network and standardized the company’s heterogeneous collection of airplanes with a fleet of new DC-3s. By 1941, Smith had helped American become the leading domestic carrier in the United States. As he led American Airlines for the next 34 years, he helped shape the entire airline industry.

Smith’s son Douglas attended the event and accepted the plaque for his father. “To my father, the airline was not something on a piece of paper, it was a collection of people who all had meaning to him.”

TTI Director Dennis Christiansen noted in his remarks that the C.R. Smith aviation museum “was a tremendous setting to give special recognition to a visionary transportation leader in our state and country.” ■

80th Annual Short Course Session Highlights Infrastructure, Planning and Funding

2006 TxDOT Award Winners

Dewitt C. Greer Award
Robert Louis Stuard
Austin District Deputy Engineer

Gibb Gilchrist Award
Paul E. Williams, P.E.
Northeast Dallas County Engineer

Luther DeBerry Award
Julie Brown, P.E.
San Antonio District Deputy
Engineer

Russell H. Perry Award
Robert L. Nichols
State Senator-Elect

Raymond E. Stotzer Award
Janelle H. Gbur
Houston District
Public Information Officer



Steve Simmons, Deputy Executive Director of TxDOT, addresses the Short Course audience.

The Annual Transportation Short Course, held on the campus of Texas A&M University, celebrated its 80th meeting in October. With almost 2600 transportation professionals attending the conference this year, the opening session began with a video honoring Texas Department of Transportation (TxDOT) employees who have served in Iraq and Afghanistan.

Sponsored cooperatively by TxDOT and the Texas Transportation Institute (TTI), Short Course offers engineers, researchers and industry professionals opportunities to share and learn about the latest developments in transportation tools, technologies, policies and programs. TxDOT also recognizes outstanding employees during opening session through its annual employee awards ceremony.

In a symbolic gesture, Director Herb Richardson handed over to then director-elect Dennis Christiansen the gavel used 6 years ago to signify the 50th anniversary of TTI. "I am especially pleased the successful candidate has been selected from within the Institute," Richardson told the Rudder Auditorium audience.

TxDOT Executive Director Mike Behrens thanked all of his employees for their hard work in the previous year. "The work of TxDOT, because of budget cuts, has changed by necessity," he said, "but we need to continue working to enhance the quality of life in Texas."

Break-out sessions had a heavy focus on public involvement and outreach, innovative financing, toll roads, and the Trans-Texas Corridor plans. Commissioner Hope Andrade said that communication and education are the keys to successfully moving forward any transportation project, pointing to the need to provide citizens with consistent, coordinated and clear facts.

Deputy Executive Director Steve Simmons spoke on the myths and facts surrounding Trans-Texas Corridor 35, and directed people to resources available on the Trans-Texas Corridor web site at www.keeptexasmoving.org as they work to fully engage supporters and deal with public perceptions and comments. Representatives of the Texas Turnpike Authority (TTA) Division presented an overview of design services that TTA will provide to districts as they implement various collection methods on new and existing toll facilities.

The Information Systems session focused on the move toward implementing new communications technologies to enhance business processes and improve public relations. A "hands-on" demo room provided attendees the opportunity to see and test first-hand the various hardware and software products being made available to TxDOT employees. 

Richardson Officially Steps Down



(Left): Former Special Assistant to the Director Penny Beaumont, Richardson and Associate Director Bill Stockton during the TTI “plaid day” lunch.

(Right): Texas A&M University System Regent Erle Nye speaks to the audience during Richardson’s retirement reception.

After 22 years of service to the Texas A&M University System, which included 13 years as TTI director, it is clear that the soft-spoken, mild-mannered Herb Richardson forged life-long friendships and earned monumental respect from the people he worked for and with. Heart-felt tributes dominated speeches given at several public events during Richardson’s last month on the job. Richardson stepped down on Halloween Day, Oct. 31.

“He has totally given of himself,” said Chancellor Emeritus Dr. Barry Thompson during Richardson’s retirement reception Oct. 11 at the Annenberg Presidential Conference Center. “In today’s world of very poor ethics—in today’s world of self-serving leadership—in today’s world where people are so divided in this country—Herb is a peacemaker and a consensus builder. It’s important to remember that there are only a few people like Herb in the world.”

Speaker after speaker showered the outgoing director with praise and admiration, highlighting his work ethic, intelligence, ability to motivate and humble personality. “Whenever he came into my office, you knew you were going to get the truth,” said State Senator Steve Ogden. New Director Dennis Christiansen told the crowd, “He genuinely cares about the people

of TTI. We will look back at Herb’s tenure and know that TTI had the right leader at the right time.”

Trinity Industries Senior Vice President Mark Stiles summed up all of the speakers’ remarks this way: “You are a remarkable man...and thank you for being our friend.”

After being inundated with glowing remarks from all seven speakers, the unassuming Richardson brought the crowd to laughter after he approached the podium and told his well-wishers, “I was sitting there thinking this must be a dream and I’m dreaming I’m attending my own funeral.”

Ogden and State Representative Fred Brown unveiled plaques with resolutions from both the Texas Senate and House of Representatives honoring Richardson’s career. Vice Chancellor and Dean of Engineering Dr. Kem Bennett revealed that over \$200,000 had been raised to endow

the Herbert H. Richardson Faculty Fellowship, designed to attract faculty members who show special promise in teaching and research.

And in one of his last public appearances as director, Richardson was guest of honor at an Institute-wide farewell barbecue Oct. 27 at the Brazos Center in Bryan. Employees were served up brisket, sausage, chicken, potatoes, beans, coleslaw and a couple of hours of humorous skits and speeches that drew attention to Herb’s driving skills, use of the alphabet and love of plaid shirts. (At least half of the employees wore plaid to the event in his honor, but ironically, Herb elected to wear a striped shirt.)

As a gift from employees, Richardson received a stainless steel backyard grill emblazoned with the TTI logo.



Richardson had his own gift for his replacement, Dennis Christiansen: a plaid shirt.

In final remarks to the hundreds of employees in attendance, Richardson said, “The best job I’ve ever had was being director of TTI. I thank you, and we’ll be in touch.” **R**

'Teens' Wins National Award

The American Association of State Highway and Transportation Officials (AASHTO) has presented TTI's Teens in the Driver Seat (TDS) with its National President's Safety Award. The honor was given to TDS team members representing TxDOT and TTI at AASHTO's Annual Meeting in Portland, Oregon, Oct. 28.

"This national recognition will go a long way in ensuring the continuing success of Teens in the Driver Seat," said TDS Program Director Russell Henk. "It has been an honor and privilege to lead our team in the effort to save the lives of teenagers. This AASHTO award is the result of a lot of hard work from a lot of people in TTI representing a wide range of disciplines."

TDS is a peer-to-peer education program aimed at alerting teens to the preventable causes of car crashes, the number one killer of teenagers. Local TDS programs are organized and operated by the teenagers themselves



Accepting the AASHTO National President's Safety Award are (L-R) TDS Team Leader Russell Henk, TDS Team Member and Commissioner Assistant Shawna Russell, Transportation Commissioner and TDS Coalition Chair Hope Andrade and TxDOT Executive Director Mike Behrens. Also posing with the TDS group is the 2006 AASHTO President Harold Linnenkohl.

at their individual high schools. Studies have shown that teens will be more influenced by their peers, than by their parents.

The TDS program is now being deployed in more than half of TxDOT's

25 districts at nearly 60 individual high schools. Dozens of other schools will initiate programs this school year. The latest schools that joined the TDS effort are in the Austin, El Paso, Lubbock and Tyler areas. ■

In Memoriam

TTI Associate Research Engineer David Fenno passed away October 13 after a decade-long battle with cancer. During his fight he inspired those who knew him with his never give up attitude and determination to live.

Fenno joined TTI in the Houston Office in 1993 after completing his Master's Degree at Texas A&M. His work focused on HOV lane management and operations. He is survived by his wife Monica and his son William. ■

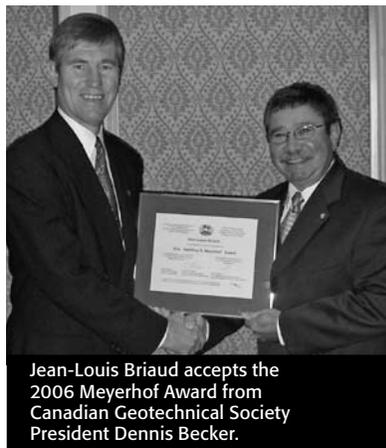


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Hosted by the Texas Transportation Institute*



Jean-Louis Briaud accepts the 2006 Meyerhof Award from Canadian Geotechnical Society President Dennis Becker.

Briaud Receives Prestigious Meyerhof Award

TTI Research Engineer Jean-Louis Briaud is the recipient of the 2006 Meyerhof Award for Excellence in Foundation Engineering, presented at the 59th Annual Canadian Geotechnical Conference held Oct. 1-4 in Vancouver.

Briaud received the award for his work and innovative solutions involving various foundation problems. The award was named for the first president of the Canadian Geotechnical Society, Geoffrey Meyerhof.

Briaud received his Ph.D. from the University of Ottawa in 1979 before joining the Zachry Department of Civil Engineering at Texas A&M University. He is a professor in the Construction, Geotechnical and Engineering Division. ■

Richardson to Receive TRB Honor



Richardson

Only weeks before his retirement, Director Herb Richardson was notified that he is the recipient of the 2006 Roy W. Crum Distinguished Service Award—one of the Transportation Research Board's (TRB) most prestigious honors. The Crum Award recognizes outstanding achievement in transportation research and will be presented at the Chairman's Luncheon at the TRB Annual Meeting in Washington, D.C. Jan. 24, 2007.

"The recipients of the Crum Award are among the most influential leaders in transportation research," says TRB Associate Executive Director Suzanne Schneider. "Herb is a standout in that group, and he is most deserving of this recognition."

The Crum Award was named after the director of the Highway Research Board (now TRB), who served in that position from 1928 until his death in 1951. Crum was the posthumous recipient of the Highway Research Board Distinguished Service Award in the year of his death. The award was renamed in his honor the following year.

"I am honored and humbled by my selection for this prestigious award from the Transportation Research Board of the National Academies," says Richardson. "To count my name among past recipients...giants in the field of transportation... is truly a highlight of my career." ■



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TTI Joins International Road Federation

It is a pretty safe bet to say that TTI Researcher Carlos Chang-Albitres owes much of his career to the International Road Federation (IRF). Since 1948, the IRF provided graduate school scholarships to 1,150 transportation students from around the globe. In 1997, Chang-Albitres was a private-sector employee in his home country of Peru, working in the field of materials and pavements. That's when he was nominated and selected in a worldwide competition to be an IRF Fellow to attend Texas A&M University.

Since then, he received his master's degree, worked part-time at TTI, went back to work in Peru for three years and came back to TTI fulltime. Chang-Albitres is currently an associate transportation researcher who is crafting international projects for TTI and is in the final stage to receive his Ph.D.

"Being involved with the Fellowship Program helped me grow substantially in my professional career," said Chang-Albitres. "I would not have been able to

accomplish these things without having received IRF support. So, yes, IRF made all of these things possible."

When TTI became a member of the IRF in October, it was a homecoming of sorts for Chang-Albitres. IRF's Deputy Director General Michael Dreznes visited and toured TTI, while showing key employees

how membership could benefit the Institute. Chang-Albitres was by his side.

"IRF really opens the door to worldwide transportation contacts with our members from 90 countries on six continents. It serves as a catalyst for public and private partnerships to organize, promote and develop international road programs," Dreznes said. "And our crown jewel is the Fellowship Program."

Meanwhile, Chang-Albitres will work with the IRF as its regional coordinator



Carlos Chang-Albitres with International Road Federation Deputy Director General Michael Dreznes.

in Latin America for the Fellows Alumni Association. "I know first hand how the IRF can change the lives of people through the Fellowship Program. But the potential for TTI to grow internationally because of its partnership with IRF is just as promising." ■



TECHNICAL REPORTS

"Effective Message Design for Dynamic Message Signs," by Conrad Dudek, **0-4023-5**, May 11, 2006.

"Computerized Proof-of-Concept Prototype to Assist DMS Message Design," by Conrad Dudek, **0-4023-P3**, September 26, 2006.

"Durability of Preformed Thermoplastic Pavement Markings for Horizontal Signing Applications," by Susan Chrysler, **0-4471-3**, May 8, 2006.

"Development of a Rigid Pavement Forensics Knowledge Management System to Retain TxDOT Corporate Knowledge," by Paul Krugler, **0-4505-1**, May 8, 2006.

"Water Quality Characteristics and Performance of Compost Filter Berms," by Beverly Storey, **0-4572-1**, May 15, 2006.

"Evaluation of External Station Survey Methodologies for High Volume Locations," by Ed Hard, **0-4869-1**, June 5, 2006.

"Evaluating Criteria for Adapting HOV Lanes to HOT Lanes: Development and Application of HOT START Software Tool," by Bill Eisele, **0-4898-1**, June 2, 2006.

"Guidebook for HOV to HOT Lane Adaptation: HOT START Software User's Guide," by Bill Eisele, **0-4898-P1**, October 11, 2006.

"Recommended Practices for Hurricane Evacuation Traffic Operations," by Andy Ballard, **0-4962-P2**, June 8, 2006.

"Evaluation of the Clearview Font for Negative Contrast Traffic Signs," by Andrew Holick, **0-4984-1**, July 13, 2006.

"HOT START, HOV to HOT—Strategic Analysis Rating Tool," by Nauman Sheikh, **0-5210-1**, June 6, 2006.

"Support for the Implementation of a Longitudinal Joint Density Specification for Hot-Mix Asphalt Concrete," by Cindy Estakhri, **5-1757-01-1**, May 11, 2006.

"Asphalt Pavement Performance Analysis Tool: TTI VESYS5W," by Fujie Zhou, **9-1502-01-5**, April 20, 2006.

CDs

"Computerized Proof-of-Concept Prototype to Assist DMS Message Design," by Conrad Dudek, **0-4023-P4**, May 30, 2006.

"HOT START, HOV to HOT—Strategic Analysis Rating Tool," by Bill Stockton, **0-4898-P2**, October 11, 2006.

"Tube Suction Test Training: March 2005 at Cedar Park, Texas," by Tom Scullion, **5-4114-01-P2**, May 3, 2006.

"Model Calibration with APT Data and Implementation for Solutions to NAFTA Problems," by Fujie Zhou, **9-1502-01-P6**, March 24, 2006.

PROJECT SUMMARY REPORTS

"Effective Message Design and Display for Dynamic Message Signs," by Conrad Dudek, **0-4023-S**, July 10, 2006.

"An Overview of the Development of a TxDOT In-Service Performance Evaluation Process for Roadside Safety Features," by Ida Van Schalkwyk, **0-4366-S**, September 21, 2006.

"Short, Portable Concrete Barrier Simplifies Maintenance Operations," by Roger Bligh, **0-4692-S**, September 15, 2006.

"Development of a Texas Congestion Index," by Tim Lomax, **0-4853-S**, October 5, 2006.

"Evaluating the Adaptation of HOV Lanes to HOT Lanes: Summary of Development and Application of HOT START Software Tool," by Bill Stockton, **0-4898-S**, September 24, 2006.

"Wireline Communications Workshop for Intelligent Transportation System Applications," by Bob Brydia, **0-4969-S**, August 9, 2006.

"Clearview Font on Negative Contrast Traffic Signs: Summary Report," by Andrew Holick, **0-4984-S**, July 26, 2006.

"Investigation of Spall Repair Materials for Concrete Pavement: Summary Report," by Dan Zollinger, **0-5110-S**, August 30, 2006.

"Loop 49 Environmental Re-Evaluation for Tolling," by Tina Collier, **5-4055-01-1**, May 10, 2006. (Project Status Report)

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