

THE UTCA SIGNAL

VOLUME 4, ISSUE 1

AUGUST 2006

RESEARCH BRIEFS AND TECHNOLOGY TRANSFER

UTCA AND HOMELAND SECURITY

UTCA has responded to the events of September 11th by supporting research in the arena of Homeland Security and transportation. Over the past five years, there have been seven homeland security-related projects.

Projects ranged from studies of evacuation routes to advanced planning for protection and reconstruction of trans-

portation facilities. Projects have also included work on cyber security and explosive detection as well as training on the protection of transportation infrastructure.

Additionally, UTCA sponsored incident management-related projects prior to Sept. 11th that have interesting homeland security applications.

UTCA is also working with two other organizations, the University Homeland Security Center for Alabama and the CARE Research and Development Laboratory (<http://care.cs.ua.edu>), to foster security-related research and education throughout the State. For more information on UTCA and HS, contact Dr. Dan Turner at (205) 348-9925

PRELIMINARY ANNOUNCEMENT

- *The UTCA Research Symposium is back on for this year.*
- *It will be held in Tuscaloosa on November 13th.*
- *UTCA researchers can expect a call for abstracts in August.*
- *This year the Symposium will include research from other UTC's around the country as well as a job fair.*
- *If you have questions, please contact Steven Jones 205.348.5859 or sjones@eng.ua.edu*

FREEWAY RAMP METERING IN ALABAMA

UTCA Researchers investigated the pros and cons of introducing ramp metering on freeways in Alabama. The study, UTCA Project 04203, examined the idea of using traffic signals to meter the flow of traffic onto freeways from on-ramps. First, the project summarized the current state of the practice of freeway ramp metering. It included a survey of states with established ramp metering programs as well as

examined a few key case studies. The survey reported on such diverse topics as public perception, installation and maintenance costs as well as enforcement issues. The study also employed detailed microscopic traffic simulation to examine the several scenarios of potential ramp metering applications. Benefits and costs associated with ramp metering implementation in the Birmingham area were

also determined. The study concluded that ramp metering is an effective tool for addressing congestion in the Birmingham region and its implementation is justified. For more information please contact Dr. Virginia Sisiopiku at (205) 934-9912 or by e-mail at vsisiopi@uab.edu. The final report can be viewed at the UTCA website under the "Projects" tab at the top of the screen.

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EMERGENCY RECONSTRUCTION OF CRITICAL TRANSPORTATION INFRASTRUCTURE (PROJECT 06211)

ATTENTION UTCA RESEARCHERS

TECHNOLOGY
TRANSFER
SUCCESS STORY?
REALLY GOOD
FEEDBACK ON
RESEARCH
PROJECT?
SOMEONE USING
SOMETHING YOU
DEVELOPED?

SEND US A
SUCCESS STORY

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Recent hurricanes have demonstrated the potential for enormous property damage and loss of life as well as disruption of government and other institutions in Alabama. Similar damage could result from terrorist attack. Due to the low probability of terrorist attacks and uncertainty where disasters or attacks may occur, it is difficult to justify contingency planning dollars for the repair or replacement of specific facilities. Nevertheless, the urgency of such situations requires efficient contracting processes for engineering design and construction. A sound emergency reconstruction strategy aimed to insure that quality and scope of design; value engineering; material and service procurement;

contractor selection; worker compensation and safety; and government oversight are in proper balance and taxpayers are receiving fair value requires an appropriate degree preparedness planning. Developing new ideas for strengthening the traditional approach to transportation infrastructure emergency reconstruction is an important step in the formulation and testing of a comprehensive preparedness planning process. The project consists of four work tasks. The first task is a compilation of available data describing the recovery and reconstruction experiences of transportation infrastructure facilities after accidents or natural disasters. The second task is a study of potential approval,

procurement, contracting, funding and scheduling processes associated with recovery and reconstruction from disaster events. The third task will be the formulation of recommended contingency planning processes for recovery and reconstruction operations. Ultimately, the project will contribute to the security management of Alabama's transportation infrastructure through proactive plans and procedures for the management, control and oversight of the Construction Industry during the recovery and rebuilding operations.

For more information, visit the UTCA website or contact Dr. Bill Hitchcock at wah@uab.edu or (205) 934-8472.

In 2005, UTCA opened its Traffic Management Center (TMC) and an Intelligent Transportation Systems (ITS) Development lab. The lab was developed under UTCA project 04116 and is a joint venture with the Tuscaloosa Department of Transportation (TDOT). It is one of only ten or so such university-based labs in the country. The lab is directly connected to the TDOT TMC and provides access to the traffic cameras throughout the city as well as the software used to monitor the City's traffic control equipment.

THE UTCA TMC/ITS DEVELOPMENT LAB



It will be used to introduce students to TMC and ITS concepts. Exercises have been developed and will be incorporated into both undergraduate and graduate courses this Fall. And it will offer excellent data collection opportunities to allow research into traffic signal system operations and performance measures.

For more information about the lab or to schedule a visit, please contact Steven Jones at (205) 348-5859 or by e-mail at sjones@eng.ua.edu

TRAVEL DATA FROM THE INTERNET (PROJECT 05302)

Household Characteristics

Address

Street Apt
 City State
 Zip

Income

Less than 15,000
 15,000 - 30,000
 30,000 - 50,000
 50,000 - 70,000
 70,000 and above

People in the household

#	Gender	Age	Race
1	Female	0-5	Skip

[Add another family member.](#)

Cars in the household

#	Type	Make	Year	Total number of Trips per day (one-way)
1	Passenger car	Acura	2006	

[Add another Vehicle](#)

Collecting travel data can be difficult and expensive.

For years, transportation planners have relied on paper surveys distributed by mail, telephone surveys and even roadside interviews to collect data on travel behavior and trip making characteristics. As in many other areas, the Internet has shown promise as a survey tool. Dr. Michael Anderson recently completed a project that explored the use of the Internet to collect travel data.

The project developed and tested a prototype Internet-based travel survey tool. The preliminary test was performed in the Huntsville area. The project was intended more to test whether the tool was useful and to gauge reactions and responses more than generating usable travel data at this point. A screenshot from the prototype survey is shown here.

The project resulted in a Master's thesis at UAH. A paper developed from the project is being presented at the Advanced Application of Transportation Technology conference being held in Chicago in August 2006. Another paper describing the results from other areas has been submitted for presentation at the 2007 TRB Annual Meeting in Washington, DC.

More importantly, the UTCA project was used successfully as a seed effort and ALDOT recently awarded UAH and UA a project to refine and conduct further pilot tests of the survey tool throughout the State. Results from the ALDOT project should be available by mid-2007.

For more information on visit the UTCA website or contact Michael Anderson at (256) 824-5028 or mikea@eng.uah.edu

NEWSFLASH:

UTCA APPOINTS NEW ADVISORY BOARD MEMBERS FROM FHWA AND THE SMART TRAVEL LAB AT THE UNIVERSITY OF VIRGINIA

TRANSPORTATION RESEARCH OPPORTUNITIES

Are you a UTCA researchers looking to expand your capabilities? Would you like to get involved with federally-sponsored transportation research? How about opportunities to attract and promote strong graduate students? Are you a transportation professional or student interested in pursuing graduate school or a career in research? If so, you might want to look into the Dwight D. Eisenhower Transportation Fellowship Program.

The graduate fellowships can be used to support undergraduate, master or doctoral level students. These students can work on projects established by the Federal Highway Administration (at the Turner-Fairbanks Highway Research Center in Virginia) or they can propose their own as part of their application package. Past projects have ranged from traffic operational and safety analyses to ones focused on transportation materials/structures and even environmental

aspects of highway transportation.

Participation in such programs not only provides opportunities for students it, raises the visibility of the work being performed within UTCA.

For more information on these and other opportunities to enhance grad student involvement visit the UTCA website (under Technology Transfer) or contact Steven Jones at (205) 348-5859 or sjones@eng.ua.edu

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UTCA

NEW FINAL REPORTS

- 03402 – Proof Load Testing of Concrete Bridges, Dr. Jim Richardson, UA
04210 – Low Cost Thermoplastic Treatments for Bridges, Dr. Nasim Uddin, UAB
04303 – A County Pavement Management System, Dr. Mike Anderson, UAH
04117 – Highway Drainage Conversation Practices, Dr. Robert Pitt, UA
04408 – Visualization of US 280 Access Management Alternatives, Dr. Steven Jones, UA
05305 – Summer Student Program at UAH, Dr. Kate Leonard, UAH

ON THE WEB

[HTTP://UTCA.ENG.UA.EDU/PROJECTS/](http://UTCA.ENG.UA.EDU/PROJECTS/)

SOME THOUGHTS ON TECHNOLOGY TRANSFER

A recent Synthesis Report (355) published by the National Cooperative Research Program offered the following definition of technology transfer: “activities leading to the adoption of a new-to-the-user product or procedure by any user or group of users. New-to-the-user means any improvement over existing technologies or processes and not only a recent invention or research result. Technology transfer includes research results implementation and product or process deployment. Activities leading to the adoption of innovations can be knowledge transfer, training and education, demonstrations and showcases, communications and marketing efforts, technical assistance, and more.”

Since its beginning in 1999, UTCA has maintained technology transfer as a theme. And according to the definition above UTCA has delivered. Many UTCA projects have encouraged the adoption of new procedures. UTCA has sponsored short courses on topics such as the new FHWA culvert management system (Project 04112)

and NPDES stormwater regulations and site design (Project 05209). Two upcoming courses will showcase new air quality models as well as a new traffic signal design and timing manual developed for the ALDOT. Events such as the 2004 UTCA Bridge Conference have provided opportunities for researchers to share their results with others in the field. Truly, UTCA has contributed to the transportation technology transfer in Alabama.

Still, there are technology transfer opportunities that may not have been seized or achieved full potential. The UTCA technology transfer is currently working on answers to the questions listed below. They are printed here for the purpose of seeking input from our technology transfer constituency. Ultimately, the intent is to elevate UTCA to national significance:

- What are UTCA researchers doing that may be of interest beyond Alabama?
- How can the tech transfer program help UTCA researchers promote their work outside the State?

- What are some areas of expertise within UTCA that can be marketed throughout the country as technical assistance sources?
- What are some research areas that could benefit from expertise outside Alabama? How can UTCA help?
- What research is going on that the results could be packaged and promoted in a multimedia format or online for distance delivery?
- How can UTCA build and maintain networks for itself throughout the country?
- How can UTCA capture and enhance professional development to reduce the learning curve for new employees in the transportation field?

As UTCA enters another year with a new round of projects, it is important to keep the technology transfer theme in mind. If you have any answers to the above questions or suggestions to make the program better, please let us know. (205) 348-5859 or sjones@eng.ua.edu