

# UTCA Newsletter

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for Alabama

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### UTCA

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## Technology Transfer Expansion Planned

UTCA is conducting a major project to evaluate and extend its technology transfer activities (UTCA project 03217). Steven Jones and David Eckhoff of UAB are working to expand the current technology transfer program to showcase the successes of the UTCA projects. Samples of the planned outreach activities follow.

### Steering Committee

A tech transfer steering committee was formed, and has conducted its initial meeting. The committee represents a broad cross section of practitioners, industry, and academia.

### Newsletter

The first issue of "THE SIGNAL" will be mailed in late August 2003. It is a technology transfer newsletter that disseminates the results of UTCA-sponsored projects, and provides information on technology transfer outreach activities.

### User Survey

An online survey will collect information on tech transfer expectations of transportation professionals in Alabama. It is essential that UTCA's expanded technology transfer programs meet the needs of the transportation community.

The steering committee is providing valuable insight and guidance, and the survey will point to targeted interests in UTCA projects and also identify "hot topics" for educational and training needs in the State. All survey responders will be placed on our distribution list for "THE

SIGNAL." We welcome your input, which can be provided at the UTCA Tech Transfer website at <http://www.eng.uab.edu/utca>

### Upcoming Seminar

"Traffic Signal Design, The ALDOT Way" is planned for October in Birmingham. It will provide an introduction to traffic signal timing and will cover specific requirements for designing signals for ALDOT.

The morning session will concentrate on fundamentals like signal timing concepts, will the afternoon session will cover ALDOT-specific information using a hand-on format. It will include example signal design plans, necessary supporting calculations, and interpretation of applicable standards and specifications. To register for this program please call 205.934.8994 or register on-line at [www.eng.uab.edu/epd](http://www.eng.uab.edu/epd).

### Research Results Symposium

Look for the First Annual UTCA Symposium in late fall. This one-day program will highlight scholarly work, published findings and technology transfer components of completed UTCA projects.

The symposium will feature 10-15 presentations delivered in multiple, to allow participants to learn the latest research results most beneficial to their individual careers. This will grow into an annual program, with 6.0 CEU credits for attending six or more presentations.

## First Annual Grad Student Conference

UTCA announces its first graduate student conference, to be held in September, at the UAB campus in Birmingham. Dr. Michael Anderson of UAH is planning and conducting the meeting through UTCA project 03308.

Conference attendees will include faculty members from all three campuses, transportation graduate students, and undergraduates research assistants.

The highlight of the conference will be presentations of papers by grad students, based upon their research. Students can qualify for paper presentation by submitting abstracts to a panel of faculty members on their home campuses. The best of the abstracts will be presented at the UTCA conference.

Each student who gives a paper at the conference will be rewarded with full travel funding to attend the 2004 Transportation Research Board (TRB) Annual Meeting, in Washington, D.C. (Many of these students are already co-authors of papers submitted to TRB, and we anticipate that several of them will also be making presentations at TRB).

After attending TRB, the "winning" students will prepare written summaries of sessions they attended, and will make presentations at student chapter meetings on their home campuses.

The major benefits of the UTCA conference include face-to-face interaction of UA, UAB and UAH students, experience gained from presenting research papers in front of peers, and an increase in professional relationships among students and faculty members.

Over time the conference should become a favored event among both students and faculty.

## New ITE Student Chapter

A Student Chapter of the Institute of Transportation Engineers (ITE) was established in December at the University of Alabama at Birmingham. The faculty advisor is Dr. Virginia Sisiopiku, an Associate Professor of Transportation Engineering. Mr. Jim Meads (a transportation engineer at Sain Associates, Inc.) is the liaison between the Chapter and the Alabama Section of ITE. The Chapter has grown rapidly and now has 19 student members.

In addition to regular business meetings, recent chapter activities included a field trip to the Tuscaloosa DOT Transportation Management Center, attendance at the Alabama Transportation Engineering and Construction Conference in Montgomery, and attendance at the Fourth Livable Cities Conference on Transit Alternatives in Birmingham.



Mrs. Jenny Grote, Past ITE International President, visits UAB Student Chapter

Chapter meeting speakers have included Mrs. Jenny Grote (Past President of International ITE), Mr. Bill Foisy (Director of the Regional Planning Commission for Greater Birmingham), and Ms. Becky White (Past President of Alabama Section ITE). More information about the Chapter may be found at

<http://www.eng.uab.edu/cee/ITE/homepage.htm>.



Ms. Becky White presents a certificate of recognition from Alabama Section ITE to Dr. Sisiopiku and Chapter Officers.

## Summer Institutes

### UAH

Dr. Kate Leonard of UAH has completed another "Gearing Up for Transportation Engineering" Summer Program (UTCA project 03305) of two week-long summer institutes for minority and female middle school students.



"All Girls" Week at the Institute

The Institute is now completing its fourth year, during which 150 middle school students have participated. Students have learned about basic transportation topics such as materials, structures, safety, and planning. Hands-on learning and mentoring by role models are used to maximize the educational experience.

The second session this year featured an "all girls" week. Girl Scouts of North Alabama attended from as far away as Geraldine, a 1.5-hour drive from Huntsville.

The following enthusiastic letter to Dr. Leonard illustrates how well the Institute was received.

*Hello,  
My name is Candy Richey. I am one of the mothers who transported girls from DeKalb County (Geraldine) to engineering camp every day. I helped to bring four girls to the camp. I just wanted to say thank you for all the hard work that was put into the camp.*

*My Girl Scouts thoroughly enjoyed every minute of each day. They each had many stories to tell and made many new and exciting things. They also had the opportunity to make new friends. This was such a good experience for all of them. I just wanted to say thank you for all the hard work and preparation in making this past week such a great success!*

**UA**

Dr. Dan Turner and Mr. Walter Anderson (graduate teaching assistant) conducted the second "Advanced Transportation Institute" in partnership with the Alabama Department of Transportation in Montgomery in June. It was attended by 23 rising juniors and seniors from high schools in Wilcox, Lowndes, Dallas, Montgomery, and Autauga counties.



The students were introduced to transportation careers through tours of the ALDOT headquarters complex, presentations by ALDOT managers, tours of laboratories and

shops, field trips, and design competitions.

The award dinner on Friday night was provided by the Institute's co-sponsors (the Alabama Road Building Association and the Alabama Asphalt Paving Association). The event was attended by the students, parents, teachers, staff members, and ALDOT managers.

**UTCA Supports MPOs**

UTCA has continued its support of Alabama metropolitan planning organizations (MPOs) in research applications and technology transfer efforts. The following success stories illustrate the range of support.

**MPO Tech Transfer**

Dr. Michael Anderson of UAH joined the Regional Planning Commission of Greater Birmingham to present an "Introduction to Modeling and Preparing Tranplan Batch Files" workshop in Montgomery in January.

The training focused on data development and entry for CUBE-Tranplan, the travel demand software designated for the planning process in Alabama. Workshop attendees included members of the Alabama Transportation Planners Association and employees of the Alabama Department of Transportation.

The software and training materials were developed in UTCA project 03415, "Transportation Modeling Support for the Metropolitan Planning Organizations within Alabama."

**Novel Regional Planning Project**

A talented team of UTCA researchers from UAB, UA and UAH is conducting a novel project for the Regional Planning

Commission of Greater Birmingham and the Northwest Alabama Council of Local Governments.

The project's objective is to assist cities, counties, and industrial development authorities adjacent to Corridor X in developing economic development programs.

The project will model traffic growth and changes in traffic operations along Corridor X, and will predict changed land use and economic development associated with the new highway. It will also estimate and categorize the amount and types of development that are most likely to occur.

**A team of UTCA researchers from all three campuses is working for two regional planning organizations, identifying future traffic levels, land use changes, and the most appropriate types of economic development for cities and counties along Corridor X. This is a bold concept that could have large paybacks for our state.**

Project results will allow cities, counties, and local industrial development authorities to target their industrial recruiting efforts towards the types of industries that are most suited for their individual locations.

Dr. Steven Jones of UAB is the project principal investigator, and is handling modeling, transportation planning and traffic operations. Dr. Mike Anderson of UAH is assembling a GIS database to support the research. Dr. Sam Addy of the UA's Center for Business and Economic & Research is modeling land use changes and predicting industrial development.

This project could be a prototype for future efforts to assess the economic development benefits of highway expenditures in Alabama.

## RFP for 2004 Projects

The Associate Directors of UTCA will distribute RFPs and the Annual Research Plan to faculty members on August 27. Faculty members should review the Plan to select their research topics.

Short pre-proposals are due to the campus Associate Directors by noon on Wednesday, October 27. They will be peer reviewed by external experts, the Advisory Board, and the Executive Committee.

The best pre-proposals will be developed into full proposals and evaluated for funding. January 1, 2004 is the start date for the new projects.

The UTCA Web site gives more details at <http://utca.eng.ua.edu>

## UTCA Advisory Board

We are grateful for the assistance of an accomplished advisory board. The members are highly successful in a wide range of transportation activities, and have been supportive and encouraging in providing their leadership to UTCA.

Donald Vaughn, CHAIR  
Deputy Director of Operations  
Alabama Dept. of Transportation

Randy Cole  
Shelby County Engineer  
Shelby County Highway Dept.

Drew Linn  
Chairman of the Board  
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Larry Lockett  
Materials & Tests Engineer  
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W Alabama Regional Commission

Steve Ostaseski  
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Regional Planning Commission  
of Greater Birmingham

Joe Robinson  
City Engineer/DOT Director  
City of Tuscaloosa

Mr. Joe D. Wilkerson (VICE CHAIR)  
Administrator  
Alabama Division FHWA



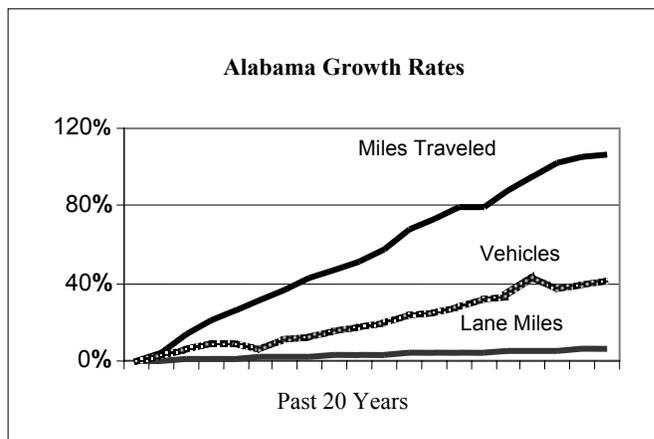
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# Alabama Needs Access Management

By Dan Turner

Access management preserves safe and efficient traffic movement while allowing reasonable access to adjacent property. In simple terms, it balances the two competing functions of roads – moving traffic and providing access to property. Over time, the land adjacent to urban and suburban highways changes to commercial development, increasing traffic flow to the point of congestion. This is part of the highway life cycle (see figure below). Unfortunately, this is occurring much too quickly for key highways in Alabama. All too soon, they lose their ability to move traffic safely and efficiently. The result is congestion, traffic accidents, and degraded property values. The key to preventing or delaying this condition is controlling access, starting from the day that the road is opened.



few lane miles of highway were built (6%). Two conclusions jump out from these statistics and the figure: (1) Alabamians are among the most mobile people in the nation, and (2) travel in Alabama is growing rapidly.

Highways are too expensive and take too long to build to keep up with the explosive growth of travel in this state. Road use is far outstripping the supply of new highways.

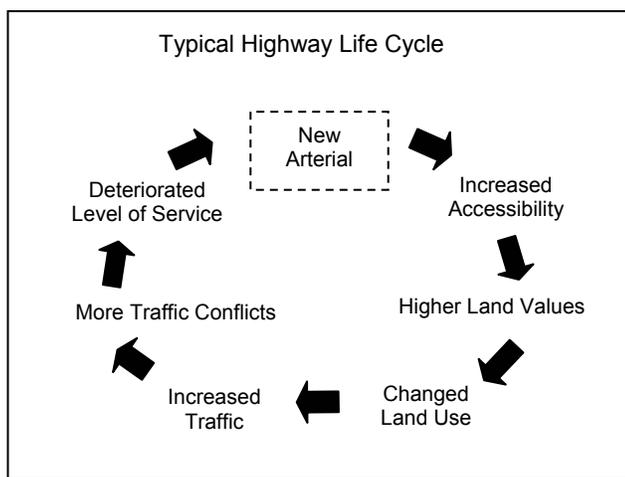
### What Can Be Done?

Alabama drivers have only three choices: (1) accept congestion and traffic accidents as a way of life, (2) provide massive additional revenues to build more roads, or (3) begin utilizing access management and similar procedures to make our highways last. In today's world, only one of these three options is viable – access management.

### Others Have Incorporated Access Management

Many transportation agencies have already turned to access management, as illustrated by the following examples.

The Maine Department of Transportation recognized that one-sixth of its traffic crashes were occurring in driveways or at driveway entrances, and that the state highway system (12% of roads carrying 62% of state traffic) was becoming clogged. To counteract these trends, an access management program was developed to perform the following functions:



### Alabamians Love Their Mobility

Alabamians love to travel, as illustrated by the following sample statistics from 2000:

- 3,960,149 registered vehicles (18th nationally)
- 1.02 vehicles per licensed driver (national = 0.87)
- 79.2% of Alabamians possess drivers licenses (3<sup>rd</sup> nationally)
- 12,716 miles traveled per capita (5<sup>th</sup> nationally)
- 0.53 miles traveled per dollar of income (3<sup>rd</sup> nationally)

Three measures of mobility growth are compared in the next figure. Over 20 years, the number of vehicles increased 42% and miles of travel increased 100%, yet

- Increase safety by assuring predictable, well-designed and highly visible locations for vehicles entering and exiting highways.
- Support economic activity by planning and designing driveways to avoid user costs associated with increased traffic delays and conflicts.
- Control public costs by improving safety and preserving the highway system’s ability to carry traffic.
- Promote community and environmental quality through strong local planning and access management.

The Colorado Department of Highways included the following statement in its access management code (Colorado, 1985),

*“The lack of adequate access management on the highway system and the proliferation of driveways and other access approaches is a major contributor to highway accidents and the greatest single factor behind the functional degeneration of highways in the state.”*

The leading American highway professional organization described the role of access management in the life cycle of highways in simple and blunt terms in the “Green Book” (AASHTO, 2001):

The failure to manage access is the major cause of highway obsolescence.  
AASHTO

From these few examples, it is clear that other states and local governments have found that there is much to gain from a good access management program and much to lose without it.

**Effectiveness of Access Management**

Many studies have demonstrated the effectiveness of access management. A National Highway Institute short course on (NHI, 2003) reviewed several studies of the effectiveness of access management applications, and compiled the indicators of success shown below.

Reduces crashes by as much as 50%  
Increases capacity 23-45%  
Extends highway life  
Treats permit applicants consistently  
Protects abutting property value  
Reduces travel time and delay by 40-60%  
Decreases fuel consumption by 35%  
Reduces vehicular emissions  
Reduces transportation costs

The table shows that access management can be highly effective. Obviously, any method that eliminates half of the traffic crashes is wonderful. Likewise, improving traffic capacity by 23% to 45 % is a substantial achievement.

**Access Management Techniques**

There are multiple access management techniques that can be applied to individual sites. The following are probably the primary ones applicable to Alabama:

- Limiting conflict locations
- Separating conflict areas
- Removing turning vehicles from thru lanes
- Reducing turning movements
- Improving arterial traffic operations
- Improving driveway operations

A good designer understands the relationship between good geometric design and good traffic operations principles in applying the following concepts to access management:

- Intersection functional area and sight distance
- Turn lanes
- Median openings
- Traffic signal spacing
- Driveway location and design

There is not enough space in this article to provide details of any of these, but interested readers can find many good workbooks through an Internet search. Also, reviewing state highway agency web sites will return a variety of effective policies.

**What Can Be Done Now?**

The Alabama Section of the Institute of Transportation Engineers (ALSITE) is conducting a service project to introduce access management principles to transportation professionals across the state. An introductory short course has been developed, and the pilot offering occurred in June in Gulf Shores. It was very popular, with 63 representatives from ALDOT, local cities, and planning agencies.

Transportation professionals in Alabama are encouraged to learn more about access management. Look for the short course to be taught at an ALDOT Division office near you, and make plans to attend. Readers are urged to join the movement. Access management is needed in Alabama, but it cannot happen until transportation leaders demand it. NOW IS THE TIME FOR ACTION.