

### Three of Four '05 Meetings in TSITE's Books

*Top-notch turnouts at Spring, Summer Meetings*  
Following on the heels of one of TSITE's most attended meetings in recent years at Vandy, this Spring and Summer's Meetings have been equally successful. In May, roughly 35 Tennesseans crossed the state line to meet in Bowling Green with the Kentucky Section. Following a planning theme, members were updated on the Major Thoroughfare undertakings of the host city as well as congestion mitigation efforts in Lexington and Nashville. Our own **Fred Schwartz** provided a presentation on Nashville's mitigation processes.

After the meeting and lunch, sportsmen from both states took to the links for a round of golf. This tournament was KYSITE's annual scholarship fund raiser and members had a great time on a beautiful day in the bluegrass. TSITE expresses its appreciation to local coordinator Jeff Moore and KYSITE President Brian Aldridge for their fine hospitality.

In July, our annual Summer Meeting and Auction returned to Fall Creek Falls State Park for a weekend of fun and fellowship. Modifying the schedule a little placed three outstanding technical sessions Friday afternoon, led by **Bob Weithofer** and **Jonathan Cleghon** (Metro Public Works), **Preston Elliott** (Parsons Brinkerhoff), and **Kimberly Couch** (TTU). Zonda and the gang at the park hosted more than 80 TSITE members and family for a dinner on Friday night. The highlight of the meeting, as always, is the auction following the meal. Thanks to the generosity of those who contributed auction items as well as those writing the checks, TSITE raised \$3,880. Subsequent pledges from some unable to attend have put this year's scholarship contribution over \$4,000!

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### SDITE 2005

History tells us that when Tennesseans are called for, they'll be there. That was certainly the case at the Southern District Meeting held April 10-13 in Georgia's City of Squares. The TSITE delegation numbered somewhere around 65 members, spouses, and students.

Of course the technical program was outstanding, but the real draw was the social gathering and the setting of Savannah. Fun activities in Johnson Square and an evening on the Savannah River were highlights.

Tennesseans on the program included **Bob Murphy**, **John Van Winkle** and **Liz Smith**.

### Tennessee Takes First Prize

*Inaugural Traffic Bowl Crown Claimed by UT*  
In matching black t-shirts with "Road Scholar" printed on the back, three students from the University of Tennessee took their place at the quiz table alongside teams from Kentucky and Virginia in the final round. **Scott Beard**, **Manoel Castro-Neto**, and **Andrei Neiciulescu** are scholars indeed.

The trio fielded questions ranging from the original singer of "Leaving on a Jet Plane" (John Denver) to the current SDITE President (Bob Murphy) to the original committee drafting the 1914 design guidelines (I have no idea). It came down to a final wager question when the Vols' knowledge of road safety audits put them over the top and holding the giant \$3,000 check.



Time to...  
**CHECK YOUR CALENDAR!**

ITE Annual Meeting Melbourne, Victoria, AUS	Aug 7-10, 2005
TSITE Fall Mtg (w/ APA, ASLA) Knoxville, TN	Sept 21-23, 2005
TSITE/APWA/ SWANA Mtg Fall Creek Falls State Park, TN	Oct 15-18, 2005

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The following points of business were addressed at the Spring and Summer Meetings:

TDOT's long-range planning effort is coming to an end after about 18 months of work. TSITE has received a draft copy of the 25-Year Vision Plan and the 10-Year Strategic Investments Program. The board has drafted and submitted formal comments to TDOT staff. Public review of the proposed plan should be out within a few weeks. We'll make sure you're aware when it's available.

The TSITE Operations Manual is currently under update. If you have any comment on the way we do business, feel free to contact Jeff Hammond to have it considered for inclusion into the current manual.

Don't forget to pay your dues! Delinquent members may be dropped from TSITE roles – meaning, of course, they would no longer receive stellar publications such as this one. So, don't be a delinquent!

## AWARDS!

TSITE wishes to congratulate the winners of this year's Student Scholarship and Student Paper Competitions.

**Beth Pfohl** of the University of Tennessee took this year's William L. Moore, Jr. Student Scholarship. Beth is a graduate student and currently an intern with Knox County Department of Engineering and Public Works. Her award is \$1,500 and she accepted this in person at the Summer Meeting.



**Salvatore Sarcona** of the University of Tennessee claimed the second Student Scholarship. He is a master's degree candidate in Civil Engineering and is currently President of the UT Chapter. Sal's \$1,500 award was also accepted personally at our Summer Meeting.



First Place Winner for the 2004-2005 TSITE Student Paper Competition was **Scott Beaird** of University of Tennessee, Knoxville. Scott submitted a student paper entitled, "Signal



Timing at Diamond Interchanges: A State of Practice". Scott received \$250 dollars for his first place paper.

The Second Place Student Paper Winner was **Kimberley Couch** of Tennessee Tech University. Kimberley submitted a student paper, entitled, "Activity Based Forecasting" and gave an outstanding presentation on the subject at the Summer Meeting. Kimberley received \$100 for second place.



The Robert Stammer Student Chapter Award was also presented at the Summer Meeting. The University of Tennessee again took the premier student chapter spot just edging outstanding entries from Vanderbilt and Tennessee Tech. This means that UT will again represent TSITE at the Temple Scholarship Challenge in Biloxi, 2006.

## Member Memos

- Congratulations to **Jeff Hammond** who received the Joseph Thomas Outstanding Young Member Award at the District Meeting.
- Tennessee will once again be represented on the SDITE Board for the next three years. **Craig Hanchey** was elected as incoming Secretary-Treasurer. Congratulations!
- We welcome new members **Basil Hall** (Stansell Electric), **Rich Desgrosielliers** (Lakeway Area MPO), **Stan King** (Florence-Hutcheson), **Carl Stoppenhagen** (Gibson County Highway Dept.), **Lee Mathis** (City of Dickson), **Jeff Baines** (City of Lebanon), and **Bill Hart, Michael Brown, Rick Knoll, and Brandon Darks** (TDOT).

*From Page 1.*

Saturday morning brought our business meeting, board meeting, and a trip to the Stansell's cabin just outside the park for lunch. Special thanks to the Stansells and their team who host TSITE members every year.

Thanks to all who attended one or both of these outstanding meetings. We hope we've saved the best for last as the Fall Meeting is expected to send the 2005 slate of meeting out in a great way! Read more about this later in the newsletter.

## Officers-Elect Announced

Utilizing the web for our first TSITE E-lection, the following candidates were announced as our 2006 officers-elect:

President: **Steve Allen**

Vice President: **Greg Judy, P.E., PTOE**

Secretary-Treasurer: **Steve Meyer, P.E.**

[Mr. Meyer has been a member of ITE since 1976. He graduated Magna Cum Laude from the University of Tennessee at Chattanooga with a Bachelor of Science Degree in Engineering with a concentration in Mechanical Engineering in 1974. He received his MSCE in 1976 from the University of Minnesota. He spent five years as an Assistant Traffic Signal Systems engineer for the City of Minneapolis. He moved back to Chattanooga in 1981 worked for Hamilton County government as the County Traffic Engineer, Director of Engineering and County Engineer. Since 1996 Mr. Meyer has worked with Volkert & Associates where he is currently an Assistant Vice President in charge of Traffic Engineering and ITS Design for the Chattanooga Office. He has published several articles for the ITE Journal, Traffic Engineering and Control, London England and the American Society for Engineering Education. Steve has four children and two grandchildren.]

Section Representative ('06-'08): **John Sexton, P.E.**

[Mr. Sexton is a Senior Transportation Engineer with Wilbur Smith Associates in Knoxville, Tennessee. His primary responsibilities include a wide range of traffic engineering and transportation planning studies, traffic signal design, signing and pavement markings, and traffic control plans. John's experience includes 12 years as an engineering consultant and two years with the East Tennessee Development District. He also has 12 years experience as a Baptist minister at churches in Kentucky and Tennessee. He received the BS from UT-Knoxville in 1979, the Master of Divinity from the Southern Baptist Theological Seminary in 1982, and the MS from UT in 1994. In his spare time he enjoys camping, bicycling, reading, and home improvement projects.]

Affiliate Director: **Renny Stinson**

Congratulations to all and thanks for your willingness to serve Tennessee's ITE!

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## WORD ON THE STREET

### CURRENT ISSUES IN TRANSPORTATION

*We've heard a lot about the operational efficiency of our traffic systems lately. From the National Traffic Signal Report Card to signal coordination efforts in our state, this is a hot topic that should remain on the forefront of municipal decision-makers' mind – particularly in budget season. Word on the street is that these improvements can make a huge difference for a little dough.*

#### **NATION'S POOR OPERATION OF TRAFFIC SIGNALS AFFECTING COMMUTERS NATIONWIDE**

*Traffic Signal Timing Grade of D- Adds up to Congestion—More Investment Needed*

WASHINGTON, DC—Traffic congestion, frustrated commuters and polluted air are just three effects that demonstrate the need for changes in how our nation supports the operation of traffic signals. The nation's poor grade shows that not enough money is allocated for traffic signal timing, and therefore, local traffic agencies cannot keep up with demand. The nation scored an overall grade of D- according to *The National Traffic Signal Report Card*, issued today by a group of transportation associations.

"It's not just about signals turning green, yellow and red," states Institute of Transportation Engineers Associate Executive Director for Technical Programs Shelley Row. "Just because the signals change color doesn't mean they are operating efficiently. The problem runs much deeper and can be fixed. With as little as a \$4 investment per car each year, or 1 percent of funds spent annually on transportation, agencies can reduce delays—your commute time—and improve their grade to an A."

The group of associations known as the National Transportation Operations Coalition (NTOC) sent out self-assessment surveys last fall to localities across the country. Grading themselves in five areas, 378 agencies in 49 states completed the self assessment and received the composite grades shown in the figure.

Washington, DC Mayor Anthony A.

Williams comments, "This report card on traffic signal timing should be a wake up call for all mayors. In DC, we are updating our signals and timing to improve traffic flow and to lessen congestion. As president of the National League of Cities, I urge my colleagues to do the same in their cities."

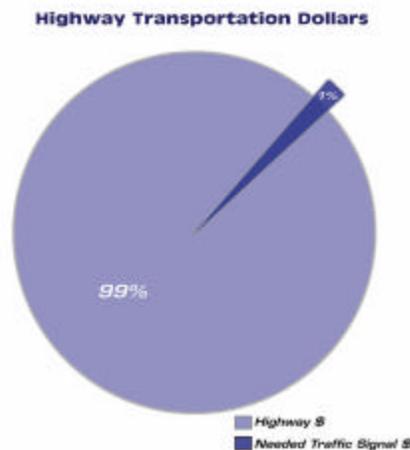
Studies around the country show that the benefits of investments in signal timing outweigh the costs by 40:1 or more. Those benefits include:

- 1) Shorter commute times;
- 2) Improved air quality;
- 3) Better fuel efficiency; and
- 4) Decrease in driver frustration.

NTOC is calling for more support for traffic signal timing, including funding, staff and attention from public leaders. Coalition members are asking citizens to demand more from their local elected officials in this area.

"We depend on these signals to get us to our destination, not put the brakes on our progress," states Gordon Thrall, Vice President of Sales and Marketing, Guernsey Office Products Inc., a Chantilly, VA based office product company with 150 employees and \$40 million in gross annual sales whose success relies heavily on well-timed traffic signals.

A full copy of the National Traffic Signal Report card can be found at [www.ite.org/reportcard/](http://www.ite.org/reportcard/).



*In this discussion with ICDN Editor Jerry Werner, Shelley Row, Associate Executive Director for Technical Programs for the Institute of Transportation Engineers (ITE), shares the "inside scoop" on the signal report card. In particular, she lays out what practitioners and agencies can do to promote this issue in their jurisdictions.*

ICDN: How did the idea for the National Traffic Signal Self-Assessment and National Signal Report Card come about?

Row: When the National Transportation Operations Coalition (NTOC) formed, we identified several key areas where we felt there was a need for national attention in the short term, and that there was the potential to make a difference. In our first meeting, the NTOC members identified 4 or 5 topic areas, and traffic signal systems was one of them. Representatives from the various associations "raised their hands" for which topics they wanted to participate in. That's how we formed the "Action Team" around signal operations. That Action Team then met and concluded that it was important to have a benchmarking tool -- that's how the self-assessment tool came about. Then they talked about the historical problem that signal systems just don't get enough attention -- signals are so low key. That's when we said, "what if we got some national attention around this issue?" That thought led into the National Report Card.

ICDN: I understand that you first made the Self Assessment available in August 2004. What was the process for completing it?

Row: The survey was primarily conducted over the web. The NTOC associations alerted their members about its availability and provided a web link. The self-assessment itself was hosted on the ITE website as it still is. Practitioners simply completed the survey on the web, pressed the "submit" button, and the results came to us electronically.

ICDN: How many responses have you received to date?

Row: 378 different people have responded so far, covering 49 states. There were more than 60 responses from people in state DOTs. That number of responses is higher than the number of states, of course, because in some cases we

received responses from multiple districts within state DOTs.

ICDN: Have you made any overall conclusions so far about those Self Assessment scores?

Row: What we have said publicly is that overall the national score is low, and it isn't a surprise. As practitioners, for years we have tried to advocate for more resources and attention to be paid to signal optimization and signal timing, [but] practitioners just haven't had the resources available to them.

ICDN: When you say that the overall national score is "low," compared to what? How do you know that it's low?

Row: In developing that self-assessment we created a benchmarking tool. If you marked your score a "5" across the board, that meant that you had an outstanding signal operation. That's what "low" is compared to -- the best signal operation that we could conceive within rational boundaries.

ICDN: What results did you find surprising, if any?

Row: The Self-Assessment contained six sections: proactive management, individualized signal operations, coordinated operations, detection, maintenance, and there was one section for specialized operations that we're not counting in the overall score. The nationwide aggregate score for the proactive management category was lower than what we would have guessed going into the process. "Proactive management" means that agencies have a documented approach, philosophy, and/or concept of operations for their signal systems. They consciously and proactively manage their signal systems activity. It's very much like an asset management approach, where you're actively managing the system, as opposed to an approach where resource constraints mean that you have to just fight fires.

ICDN: And in the Self Assessment results you could tell the difference between firefighting and a proactive approach? You get a clear indication of what side of the fence they were on by the way they answered the questions?

Row: Yes. We didn't specifically ask "do you fight fires with your resources?" It wasn't that

definitive, but reading between the lines in several sections, again and again, you see the same pattern repeating itself. At the highest level you can see that individualized intersections scored much higher than coordinated systems. You'd like to think that, particularly in metropolitan areas, the scores would be reversed.

ICDN: Why do you think that individual intersections scored relatively higher than coordinated systems?

Row: It's because these agencies are fighting fires. They're putting most of their efforts into keeping individual intersections functioning at some minimum level of functionality. That's one example at the highest level, but in each section you get a feel that they're doing the best they can with the resources that they have available.

ICDN: These results may also be quite useful to present to City Councils, won't they?

Row: Absolutely. These results will hopefully give state and local traffic engineers ammunition to make better cases before their own Councils or State Legislatures or whichever bodies set priorities and funding.

ICDN: What is your hope and expectation from this national event, once it's over and the dust is settled?

Row: I and the other NTOC members are hoping that the issue of optimizing the nation's traffic signal systems is higher in people's priorities -- that's the big-ticket goal. As a result of both the national and local efforts, we would love to see more support for signal improvements, and support through staff time, attention, and money. We would also like to see a better-educated population about the value of signal systems. It's not just about signals turning green, yellow, and red.

ICDN: In your recent presentation at the Talking Operations webcast on traffic signal optimization, you talked about what a miniscule amount of dollars today goes into traffic signal retiming when compared with the overall national surface transportation budget. Did I capture your observation correctly?

Row: Actually, what I said was that what we need is a miniscule amount. What we have is even less than miniscule. Our estimates are that to get an "A" score, a billion dollars a year nationwide needs to go into signal resources, including hardware updates, timing updates, and maintenance staff. Today, over \$100 billion is spent in state, local, and federal moneys on highway transportation. We need less than one percent of that amount to get an "A."

## Nashville Undertakes Optimization Study

*Contributions from Jonathan Cleghon*

This project includes the development and implementation of optimized countywide signal timing plans for 221 signalized intersections along 7 major corridors during the peak hour and midday traffic conditions in Metropolitan Nashville. During the course of this project, new signal timing plans will be implemented with the intention of making the traffic signals perform at their maximum efficiency. The result will reduce unnecessary vehicle stops and delays that result from inefficient signal system timings. In addition, the project will include explicit evaluation of the improved systems in order to document air quality and fuel consumption benefits. This is a \$750,000 project totally funded by CMAQ federal funds.



The corridors to be evaluated during the course of this project include Gallatin Pike, Murfreesboro Pike, Bell Road in the vicinity of Hickory Hollow, Nolensville Pike / Harding Place, 21st Avenue South / Hillsboro Pike, West End Avenue / Harding Road, and Lebanon Pike.

Travel Time / Emissions Study Results Corridor 4: Nolensville Pike / Harding Place												
	AM Peak				Mid Peak				PM Peak			
	Travel Time	No. of Stops	Avg. Speed	Total Delay	Travel Time	No. of Stops	Avg. Speed	Total Delay	Travel Time	No. of Stops	Avg. Speed	Total Delay
% Change	-14%	-16%	23%	-24%	-21%	-29%	26%	-40%	-25%	-51%	39%	-40%
% Change	VOC	NOx	CO		VOC	NOx	CO		VOC	NOx	CO	
	-17%	-7%	-7%		-9%	-4%	-1%		-12%	-6%	-5%	

Some preliminary results of this project from the Nolensville Road corridor are shown here:

Economic Analysis Results Corridor 4: Nolensville Pike / Harding Place						
Time Frame	Benefits				Cost	B:C Ratio
	Delay Reduction	Emissions Reduction	Fuel Consumption	Total		
1 Year	\$6,478,400	\$34,562	\$163,878	\$6,676,840	\$112,500	59 : 1
3 Years	\$19,435,100	\$103,686	\$491,634	\$20,030,520	\$112,500	178 : 1

### From the National Report Card...

The overall national score was 62. (D-)

Overall, the scores are low. This is not a surprise to most traffic engineering professionals. Traffic engineers have known for years that resource constraints prevent the use of traffic signals to their full potential.

Scores are remarkably similar across the country and across jurisdictions. While there may be some high performing signal systems, on the whole, the vast majority of systems across the country have the potential for greatly improved performance.

Individualized intersections is the highest scoring section no matter the size of the signal system or the agency type. At first glance, this is surprising. Particularly for larger systems, coordinated operations would be expected to receive the most attention since signal coordination is a highly effective method for improving performance of the transportation system and reducing delay. However, after further consideration and analysis of responses throughout the self assessment, it appears that in situations with limited resources and staff, agencies are forced to address problems as they occur at individual intersections. This reflects a reactive approach to managing the signal systems which is necessitated due to limited resources. In short, agencies are forced into a “fire fighting” mode of operation rather than the preferable proactive management role.

Another surprise is the comparatively high score in maintenance. This is historically an area that struggles to obtain adequate resources and yet it scored second only to individualized intersections. Again, after reflecting on the analysis further it became clear that for safety and liability reasons, agencies must ensure a

basic level of operation of the traffic signal system so that signals continue to turn green, yellow and red. The signals may not function efficiently for traffic or pedestrians, but, technically, the signals are working and that is what people see. However, the uniformly low scores indicate that, for the most part, people consistently experience poor traffic signal performance and, as a consequence, their expectations are low. The pattern, once again, is one where agencies are forced to use their resources to deal with critical maintenance issues when they arise rather than proactively. Signal systems are managed to simply ensure base levels of performance.

Very small signal systems (less than 50 signals) score markedly lower (overall score = 53) than larger systems (overall score = 65). Small cities and towns tend to operate fewer traffic signals than large metropolitan areas. On one hand, the few number of signals means that there are fewer signals to manage and should therefore show better performance; however, many small cities have no traffic engineering staff. Traffic signals, in many cases, are the responsibility of a public works department, which must spread attention between traffic signals, water systems, sewer systems and roadway maintenance. Staff responsible for traffic signals in small cities are more likely to be a “jack-of-all-trades” than to have specialized training in traffic signal operations or to have time to focus on traffic signal operations.

Overall, large traffic signal systems scored better (65) which is likely an indication of increased staff resources. However, large signal systems represent a considerable investment in traffic signal infrastructure. Additionally, large signal systems have the potential to impact—positively or negatively—the travel of significant numbers of people. Therefore, a score in the mid 60s leaves much room for improvement.

National scores by signal aspect:

Proactive Management = 58 (F)

Coordinated Systems = 61 (D-)

Individual Intersections = 72 (C-)

Specialized Operations = Too variable to report

Detection Systems = 53 (F)

Maintenance = 67 (D+)

More on each of the aspects can be found in the technical document at:

[www.ite.org/reportcard/NTS\\_TechReport.pdf](http://www.ite.org/reportcard/NTS_TechReport.pdf)

# Tennessee Conference of Planning, Landscape Architecture and Transportation Engineering



September 21-23 are the dates for TSITE's biggest meeting of the year – our Fall Meeting held with the Tennessee chapters of the American Planning Association and American Society of Landscape Architects. This Knoxville meeting will bring together 300 engineers, architects, and planners for an outstanding meeting targeted toward learning from the successes and shortcomings of the past as we direct our state's current development trends.

Several national industry leaders will be present to share and inspire meeting attendees in shaping the growth of our communities. Associated vendors will also be on hand to showcase the latest in traffic, streetscaping, and architectural technology and materials. Concurrent daily sessions feature 42 of Tennessee's professionals discussing the past and current trends in different aspects of improving our state. Mobile workshops will highlight old and new development and transportation around Knoxville. Several social outings also promise to be an enjoyable way to bring our related professions together.

We believe this will be the premier meeting for Tennessee's development leaders and hope you'll make plans now to attend!

Registration forms have been mailed and emailed out. The form as well as other conference information can be found on the web at [www.knoxmpc.org/tncon05](http://www.knoxmpc.org/tncon05). Here are some of the other details:

**Hotel:** Crowne Plaza Summit Hill 888-303-1746

**Hotel Rate:** \$89-99 (held until August 21)

**Member Registration:** \$150 (until August 5), \$175 (August 6-September 7), \$225 (after September 7). Non-member, student/retiree, and single-day registrations also available.

**Vendors:** Contact Jeff Hammond at 615-383-8420 or Katie Guenther at 615-793-7694 for sponsorship opportunities.

## TENNESSEE TRANSPORTATION NEWS

C/O Jeff Hammond  
Neel-Schaffer, Inc.  
210 25<sup>th</sup> Ave. N, Suite 800  
Nashville, TN 37203