



DRIVER

Message from our President

I'm pleased to bring you the summer edition of *The Driver*. I hope you take the time to read through it to see all the South Carolina Section has been up to the first half of the year and to mark your calendars for the rest of the year.

In March, we held a technical session in Columbia on the new Highway Safety Manual. In April, over 20 members traveled to Louisiana for the Annual Southern District Meeting, where several South Carolina Section members presented.

Several students from our section also received awards for their technical papers and the South Carolina Section was selected as the runner up in the "Group II Outstanding Section of the Year" competition. In May, the semi-Annual Vendor Day in Columbia brought a record turnout. Just last week, the section met in the Greenville area for a session on transportation issues in economic development and to take a tour of the BMW manufacturing plant.

We've had a busy year so far and have some great ideas for the rest of the year. Be sure not to miss the annual golf tournament coming up soon on September 8. Thanks again to all those that help organize our activities, present at technical sessions, contribute to this newsletter, or simply come to the meetings. ITE is a great organization only because of your involvement and participation.

I hope summer is going well for everyone and I look forward to seeing you all in Columbia next month.



Jeff Ingham, PE, PTOE



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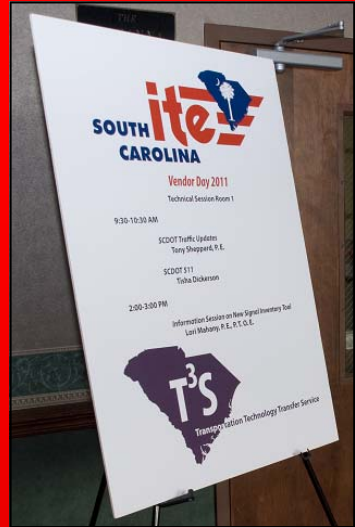
**2011 dues
are now
over due.
Please
pay
Jennifer
Bihl
ASAP.**

Jeff

SCSITE VENDOR DAY GREAT SUCCESS

Vendor Day 2011 was a great success. We had **150** folks from all over the state attend the event at Seawells in Columbia to view the **26** safety equipment, signs and markings, work zones, signals and ITS equipment and Software Vendor displays. The Vendors graciously sponsored a Free lunch for all attendees and provided door prizes. In between Vendor display time Technical presentations were held. SCSITE would like to thank the following professionals for speaking during Vendor Day.

- Mr. Tony Sheppard, P.E.** -SCDOT TRAFFIC UPDATES
- Mr. Dan Campbell and Mrs. Tisha Dickerson** – SCDOT 511
- Mrs. Jennifer Bihl, P.E.** (Kimley Horn), **Mr. Ken Fink, P.E.** (Kimley Horn), and **Mr. Colin Kinton, P.E.** (Beaufort County)- *Traffic Responsive Signal Operations in Beaufort County*
- Mrs. Lori Mahany, P.E., P.T.O.E.** (Stantec)- *Information Session on New Signal Inventory Tool*
- Mr. Sreekanth “Sunny” Nandagiri, P.E., P.M.P.** (AECOM) and **Mr. Ryan Eckenrode, P.E., P.T.O.E.** (AECOM)- *“ROAD SAFETY AUDIT-Methodology and Best Practices in the Southeast”*



Vendor Day Budget	
Event Venue	(\$4,163)
Vendors	\$6,200
Clemson T3S gift	\$1,000
Total	\$3,037

SCSITE would also like to thank Clemson Transportation Technology Transfer Service for co-hosting the event. They took care of the online registration, nametags, and audio visual equipment during the event. They also donated \$1000 to SCSITE following the event. Thank you Clemson T3S!!!



2011 SCSITE SCHOLARSHIP GOLF TOURNAMENT

Its time to start finalizing your foursome for the Annual SCSITE Scholarship Golf Tournament to be held **Thursday September 8th 2010**. Once again, the tournament will be held at Northwood's Golf Course in Columbia. The Don Turner Championship Jug is up for grabs. At the end of the newsletter is the official flier and registration form. The cost will once again be \$50 per player which includes golf, cookout, snacks & beverages. You can purchase a mulligan and red tee for \$5. We netted over \$7,000 last year, so let's keep it going!

We are off to a great start on hole sponsors and golfers. Spots are filling up quickly, so get your info to me as soon as possible. We could still use a couple of volunteers for helping at the course with the check-in table, beverages, etc. Drop me a line if you can help.

Remember, golfers of all ability are welcome in this tournament. I look forward to seeing you all in September. Try to get there at 10:30 to socialize and start the lunch line at 10:45. ITE meeting will start at 11 AM with a shotgun start for the tourney at NOON. We are going to do everything within our power to have all groups back to the clubhouse by 4:30 this year, with awards starting promptly after.

Mike Ridgeway
803-252-1799



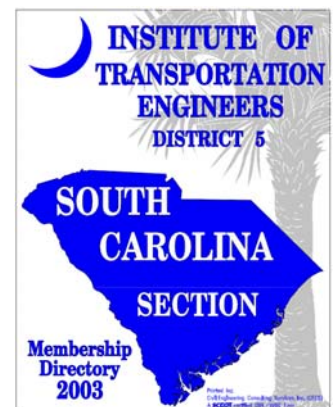
**The Coveted Don Turner
Championship Jug**

SCSITE DIRECTORY—UPDATE

Electronic Copies will be available very soon!

If you information has changed recently please email Jennifer and she'll update it.

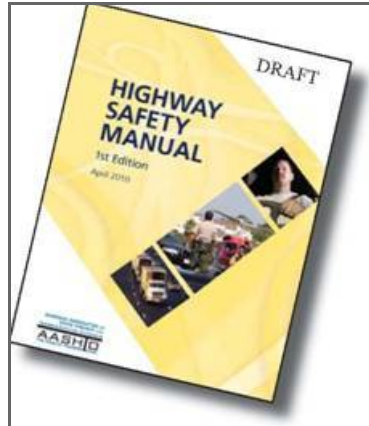
jennifer.bihl@kimley-horn.com



SCSITE Spring Meeting—Highway Safety Seminar

On March 22nd, 2011, in Blythewood, we learned all about the Highway Safety Manual at our Spring Meeting. Over 40 members attended and we had a full room at the Highway Patrol/DMV building.

Martin Bretherton with HNTB and Joey Riddle with SCDOT reviewed the Highway Safety Manual and SCDOT's safety projects across the state.



SCSITE Summer Meeting and BMW Tour

Last week, our summer meeting was very exciting - lunch at Joe's Crab Shack followed by an hour and half tour of the BMW Manufacturing Plant in Greer. Over 40 members attended from across the state.

During lunch, Jerry Howard, the director of the Greenville Area Economic Development Corporation educated us on key points of economic development and how transportation and access to sites is very important!

Following lunch with safety glasses on, the group toured the entire production line of the assembly plant including flying sparks during the welding process to the first start of a brand new car. If you missed it ask fellow members about it, it was very cool.





Treasurer's Report

Checking Account: \$14,646.27

The scholarship balances, and of 6/30/11, are as follows:

Rowe	\$23,785.34
Staf. Clark	\$26,658.36

If you have not paid dues for 2011, please mail your payment to Jennifer at the following address:

Jennifer Bihl, PE
Kimley-Horn and Associates, Inc.
710 Boundary Street, Suite 1D
Beaufort, SC 29902



Jennifer Bihl, PE



**Kimley-Horn
and Associates, Inc.**

Legislative Update *Gaye Sprague*

With such priorities as budget, restructuring government, voter ID, and immigration, the legislature did not spend much time on transportation last session, but there are five bills regarding texting while driving that have been introduced. Senate 0225 made it out of the Judiciary Committee with a favorable report and is waiting to get on the Senate floor calendar. The bill would prohibit sending or reading texts on phones or any electronic device while driving, and points would be assessed against your license if you are caught. The similar House bills--H3119, H3160, H3115, and H3542 have been referred to House committees, but no action has been taken.

We're heading into the second year of a two-year session, meaning if these bills are not passed and signed into law by June, 2012, they will have to start all over. They need champions--citizens and legislators--to encourage them through the process. That could be one of our members! Please think about whether or not you think this is important to traffic safety in our state. Our organization cannot lobby, but our members can! To find listings for the bills and look up further links to the texts, go to http://scstatehouse.gov/cgi-bin/web_index.exe. An individual can make a difference! Call me if you are interested in discussing. Gaye - 864/346-3106



Gaye Sprague, PE

Sprague & Sprague
CONSULTING ENGINEERS

Boeing Welcomed to North Charleston

Bryan Webb, PE, PTOE, Davis & Floyd & Rick Day, PE, Stantec

In 2009 the announcement was made that Boeing would develop a second assembly line for the Boeing 787 Dreamliner aircraft in North Charleston, SC. This aircraft is different from other commercial airliners as it is manufactured with mostly composite materials, making it lighter and more fuel efficient. Currently airlines from across the world have ordered approximately 825 Dreamliners, each costing between \$185 and \$215 Million. Naturally, South Carolina and especially the Charleston area were very excited to learn this news. Boeing wasted no time executing a design-build contract to construct the mammoth hanger-type building where the Dreamliner will be assembled. This site is in North Charleston just north of I-526 between I-26 and International Blvd.

Boeing has already ramped-up employment in the area significantly. (If you live or work in the vicinity of the airport, it's now hard to go anywhere for a cup of coffee or lunch without seeing at least a person or two with a Boeing employee badge or a Dreamliner insignia on their shirt.) The company anticipates continuing to increase employment until the middle of 2013, when it expects to employ 6200 workers. At this employment level, Boeing will be producing three planes per month. With this influx of workers to the vicinity, Charleston County Economic Development Committee contracted with Davis & Floyd, Inc. to perform an area-wide traffic analysis to identify any needed improvements. Stantec supported Davis & Floyd as sub consultants in this effort.

Project Scope

The project scope for this traffic study was not significantly different from your typical Traffic Impact Analysis, other than the size of the study area and the coordination required. The study area was bounded by Ashley Phosphate Road to the north, Dorchester Road to the west, I-26 to the east and I-526 to the south. Overall 26 intersections and a similar number of road segments were analyzed.

Due to the study's size and many interests involved, the project naturally had many involved parties. The following were considered "stakeholders" in the traffic study and were regularly briefed throughout the study effort:

- Charleston County Aviation Authority
- City of North Charleston
- Charleston County
- SC Department of Transportation
- Berkeley Charleston Dorchester Council of Governments
- Joint Base Charleston
- Boeing
- Charleston Area Regional Transit Authority (CARTA)
- BRPH (Boeing Site Designer)



The study evaluated existing traffic conditions and future travel demands. Traffic was estimated for years 2013 (when Boeing is expected to be fully staffed) and 2020. An existing traffic deficiency was immediately noted along International Blvd. and Michaux Parkway, the location for primary access to the Boeing plant. While both of these roads are entirely on Charleston Airport property and built for the exclusive aviation related use, in reality these roads were being used as an east/west arterial street, connecting Dorchester Road with I-526 and The Tanger Outlet/ Coliseum area. This non-aviation traffic had become so large that The Federal Aviation Administration had recently ruled they would not pay for maintenance of these roads because their primary purpose was no longer to serve the Charleston Airport.

Recommendations

After an evaluation of approximately six different improvement scenarios, it was determined the best strategy was to “move” the non-airport traffic along International Blvd. and Michaux Parkway to another new facility and thereby provide adequate access capacity for the Airport and Boeing through International Blvd. A second major project that resulted from the study was the Charleston Airport Connector which would extend South Aviation Avenue northward to connect with Palmetto Commerce Parkway at Ashley Phosphate Road. In addition to providing an improved second access to Boeing, this Connector would provide improved access to Charleston Air Force Base. Currently Charleston Air Force Base’s primary access is on Dorchester Road and is very congested. The cost for the Montague Ave Realignment / I-526 Interchange Improvements and the Charleston Airport Connector was estimated to be \$150 million.

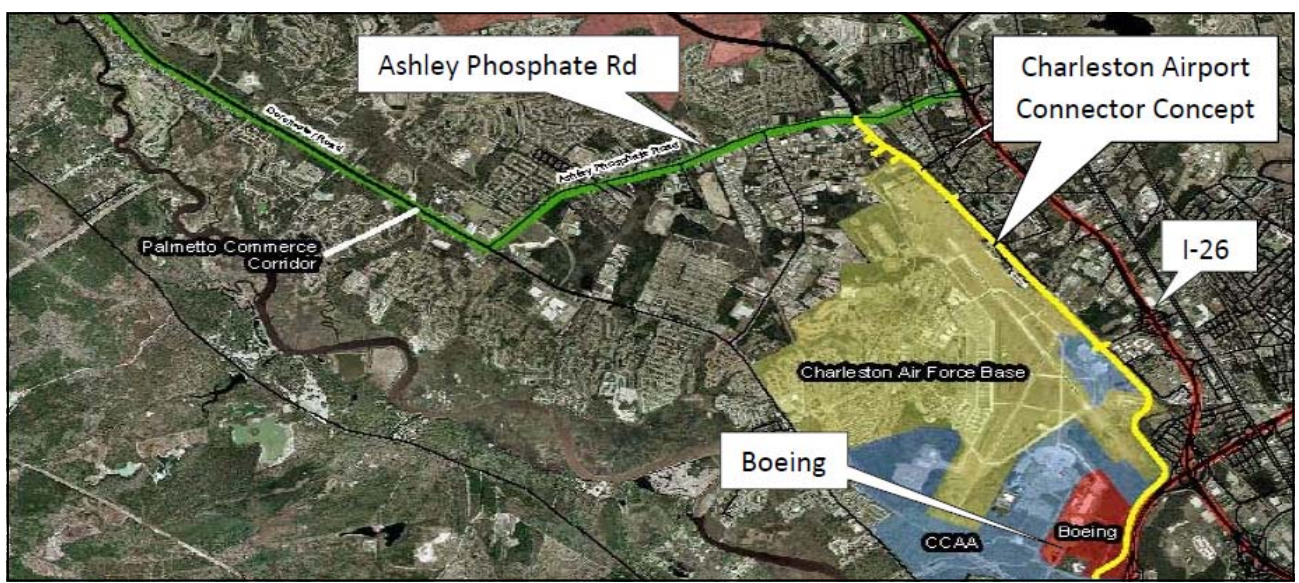
Next Steps

The magnitude of the study’s recommendations will take time and money to make these a reality. Meanwhile, the Boeing facility is close to being completed and will soon employ 6200 workers. Therefore the study also recommended the following intersections for immediate improvement (prior to the plant opening):

- Ashley Phosphate at Cross County Rd
- Dorchester Rd at W. Hill Blvd.
- Dorchester Rd at Michaux Parkway
- International Blvd/Michaux Pkwy/Boeing Entrance
- International Blvd/I-526
- S. Aviation Ave at Remount Rd
- S. Aviation Ave at N. Aviation Ave

The analysis indicated these short-term fixes will provide enough additional capacity for the plant to open. Charleston County has accepted the study’s long-term and short-term solutions. The design of the seven intersection improvement projects has been completed and most are under construction. The County is currently pursuing funding for the two long -term projects.

The Charleston area is excited about having Boeing as one of its newest corporate citizens. We can’t wait to see the first Charleston-built Dreamliner to lift off.





Lori Mahany, PE, PTOE



Southern District ITE Annual Meeting Highlights

The Annual Meeting of the Southern District of the Institute of Transportation Engineers was held in Lafayette, Louisiana in April. As with previous Southern District meetings, the South Carolina Section was well represented with all officers and several members and student members attending the meeting. The meeting provided an outstanding program of educational sessions as well as opportunities to socialize with other ITE members from around the Southeast. The South Carolina Section very actively participated in the meeting with several members giving presentations, submitting papers and participating in the Traffic Bowl.

Here are some specific meeting highlights:

2010 SDITE Section Award Winners Recognized

The Southern District has divided the eight Sections into two groups based on size for the Section Award competition. Group 1 is comprised of Alabama, Deep South, Kentucky and South Carolina. Group 2 is comprised of Georgia, North Carolina, Tennessee and Virginia.

The Section Award Winners are as follows:

- 2010 Outstanding Section Award (Group 2) – Alabama Section
- 2010 Outstanding Section Runner-Up Award (Group 2) – South Carolina Section**
- 2010 Outstanding Section Award (Group 1) – Georgia Section
- 2010 Outstanding Section Runner-Up Award (Group 1) – North Carolina Section

2010 SDITE Student Awards Winners Recognized

Winners of the 2010 SDITE Awards for students and student chapters were announced at the Annual Meeting in Lafayette. In addition to representing the South Carolina Section in the District Traffic Bowl competition, the Clemson University Chapter took both chapter and individual honors.

Best Student Chapter Award – Clemson University

Outstanding Undergraduate Student Paper Award – Jennifer Johnson from Clemson University for her paper entitled “Electric Vehicle Infrastructure Issues and Opportunities”

Outstanding Graduate Student Paper Runner-Up Award – Katerina Bartman from Clemson University for her paper entitled “Transit System Evaluation Process: From Planning to Realization”

2010 SDITE Officer Elections

Election of officers for 2012 SDITE Officers was held at the Annual Business Meeting in Lafayette on April 12th. The results of the election were as follows:

- President – Becky White (Alabama)
- Vice President – Martin Bretherton (Georgia)
- Secretary/Treasurer – Kirsten Tynch (Virginia)
- International Director – Rick Day (South Carolina)**



Rick Day Elected to International Board as Southern District ITE Representative

Rick Day, Elected for Southern District ITE Representative to International Board

Every three years, the membership of the Southern District ITE (AL, GA, KY, LA, MS, NC, TN, SC and VA) elects a representative to ITE's International Board of Directors. This individual meets three times a year with the International ITE leadership to help determine the direction of the organization.

Rick Day was elected to serve as the Southern District Representative to the International Board of Directors at the Southern District ITE Annual Meeting. This is an honor for Rick and our Section as the Southern District has recognized one of our members as a leader in the Southern District. Gaye Sprague is the only other SCSITE member to have served in this position.



Stantec

Rick has been active in ITE since he was a student member and has served in numerous committees and councils at the section, district and international levels. He has served as Secretary/Treasurer, Vice President and President for SCSITE from 1983-1985 and the Secretary/Treasurer, Vice President and President of the Southern District from 2002-2004.

Congratulations Rick!

Clemson Student Katerina Moreland wins ITE's Student Paper Award

Katerina Moreland from Clemson University was chosen by International ITE as the winner of the 2011 Daniel B. Fambro Student Paper Award. Her submission was titled, [Transit System Evaluation Process: From Planning to Realization](#). The paper previously won the Southern District's Outstanding Graduate Student Paper Runner-Up Award. The award will be presented at the International ITE 2011 Annual Meeting in August in St. Louis.

The purpose of the Daniel B. Fambro Student Paper Award is to encourage ITE student members to conduct and report on independent and original research and investigation of transportation engineering subjects and to provide a means for recognizing outstanding accomplishments in this area.

ITE 2012 International Officer Election Results

Congratulations to Rock E. Miller, P.E., PTOE (F) and Zaki Mustafa, P.E. (F) on their election to serve as ITE International President and International Vice President, starting January 1, 2012.

2012 Call for Abstracts

ITE invites you to submit an abstract to be considered for a paper, poster, or discussion presentation at the ITE 2012 Technical Conference and Exhibit, "Managing Operational Performance...Exceeding Expectations" to be held in Pasadena, CA and/or the ITE 2012 Annual Meeting and Exhibit to be held in Atlanta, GA. To submit an abstract go to www.anvildataworks.com/ite or www.ite.org. The deadline to submit abstracts is August

Call for Data: Trip Generation, 9th Ed. & Trip Generation Handbook, 3rd Ed.

ITE is planning to develop the 9th edition of its widely used informational report *Trip Generation and the 3rd edition of the recommended practice Trip Generation Handbook*. To produce this valuable reference, ITE relies on the voluntary submittal of data from the transportation community. ITE is asking that you consider submitting all types of land-use specific trip generation data.

Please submit data on the data collection form found on the ITE Web site or in Volume I of *Trip Generation*, 8th Edition. Data for this publication are being collected continually; however, to ensure data are considered for inclusion in the 9th edition of *Trip Generation* and the 3rd edition of *Trip Generation Handbook*, please submit data/materials by September 1, 2011 to Jina Mahmoudi, Planning and Engineering Projects Director, ITE, 1627

Proposed Revision of the 2009 Manual on Uniform Traffic Control Devices

On August 2, 2011, a Notice of Proposed Amendments was published in the Federal Register, proposing to revise Section 1A.09 and 1A.13 of the 2009 MUTCD to clarify the definition of standard statements in the MUTCD and clarify the use of engineering judgment and studies in the application of traffic control devices. The deadline for comments to the docket is October 3, 2011. The Federal Register notice, which provides detailed discussion of the FHWA's proposal, can be viewed [here](#). To view the proposed text for this revision of the 2009 MUTCD, click [here](#). Comments on the NPA can be submitted electronically at www.regulations.gov.

**ITE 2011 Annual Meeting
and Exhibit**
August 13-16, 2011
America's Center
St. Louis, Missouri, USA



Project Work Plan *Sreekanth Nandagiri, P.E., PMP*

A **project work plan**, according to the Project Management Body of Knowledge (PMBOK), is "...a formal, approved document used to guide both *project execution* and *project control*. The primary uses of the project plan are to document planning assumptions and decisions, facilitate communication among *stakeholders*, and document approved scope, cost, and schedule *baselines*. A project plan may be summarized or detailed, depending on requirements.

Some industries and groups also refer the project work plan as project plan. To be created at the project inception, the project work plan at a minimum, a project plan answers basic questions about the project:

Why? - What is the problem or value proposition addressed by the project? Why is it being sponsored?

What? - What is the work that will be performed on the project? What are the major products/deliverables?

Who? - Who will be involved and what will be their responsibilities within the project? How will they be organized?

When? - What is the project timeline and when will particularly meaningful points, referred to as milestones, be complete?

To be a complete project plan according to industry standards such as the PMBOK, the project plan must also describe the execution, management and control of the project. This information can be provided by referencing other documents that will be produced, such as a Procurement Plan or Construction Plan, or it may be detailed in the project plan itself, as is often the case for big projects. In a nutshell, it is a road map of the project, which would help entire project team, especially during any personnel transitions. As an example, based on the project value, AECOM has basic project work plans for smaller projects and a much detailed project work plans for bigger projects. Key elements of these plans include:

<ul style="list-style-type: none"> • Client and project basic information • Project organization and contacts • Communications and meetings • Project description and overview of project • Client goals and objectives • Scope of work • Deliverables due to client • Key milestones • Project budget and cost schedule 	<ul style="list-style-type: none"> • File index and filing procedures • Project issues, risks, and challenges • Quality assurance and quality control • Design criteria • Applicable codes and standards • Permits • Project safety and health plan • Construction services • Miscellaneous
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Author of this article is a licensed Professional Engineer in Eight States (including South Carolina) and is also a certified "Project Management Professional" (PMP). He is an active member of the South Carolina Section of ITE (SC-ITE) and is currently serving as a Technical Committee chair for the SC-ITE. Mr. Nandagiri works for AECOM as their Program Director.

Sources for this Article: *Project Management Institute's "Project Management Body of Knowledge" (PMBOK), 2000 and 2007 Editions, Wikipedia, and the AECOM's Project Management's internal training material.*



Sunny Nandagiri, PE, PMP



SCSITE SHIRTS FOR SALE

**Please contact Liz if you are interested
in ordering an ITE Logo Shirt**



NEWSLETTER ARTICLES WANTED!

Advertise job opportunities, announce new hires / promotions, discuss interesting projects, or tell the section of something interesting you have going on outside of work. Send all articles, questions, or comments to Jae Mattox at mattoxjh@scdot.org.

This newsletter is for the benefit of our section so please do your part to make it a success!

Ryan Eckenrode Relocates back to SC

In May 2011, Mr. Eckenrode relocated to Greenville, SC expanding AECOM's traffic and transportation engineering footprint in the Southeast. With over 45,000 global employees, AECOM has been ranked #1 in transportation for ten consecutive years in Engineering News-Record magazine's Top 500 Design Firms Survey. Mr. Eckenrode received his Master's (2006) and Bachelor's (2004) degrees in Civil Engineering from Clemson University and brings to South Carolina six years of experience in traffic impact assessment, data collection, transportation planning and safety studies, signal warrant studies, signal timing, signal design, and signal coordination.

Mr. Eckenrode is a licensed Professional Engineer in North Carolina, South Carolina, Georgia, Alabama, and Louisiana and has experience with the analysis of Diverging Diamond Interchanges, Superstreets, Single Point Urban Interchanges, arterials, and Roundabouts. Mr. Eckenrode is familiar with intelligent transportation systems and has also provided pavement evaluation/construction management services for pavement resurfacing projects. Having been involved with the North Carolina ITE section for the past 5 years in Raleigh, NC, Mr. Eckenrode is excited to transition that involvement with South Carolina's ITE section.

Ryan and his wife Amanda were blessed with their daughter Leanna in April 2011. With Ryan's wife spending the majority of her time at Greenville Memorial Hospital as a surgical resident, Ryan has quickly learned the joys of parenting and loves every moment of it!



R. Eckenrode, PE, PTOE



Alan Davis Earns Professional Engineer's License

Alan Davis earned his Professional Engineering License in April 2011. He obtained his Bachelors of Science in Civil and Environmental Engineering from The University of South Carolina in 2006. While at USC, Alan interned with SCDOT in Traffic Engineering, as well as SRS Engineering. After graduating, Alan began working with Dennis Corporation in Columbia, SC, focusing on the Expert Witness division of the firm.

Currently, Alan is an engineer with SCDOT in the Traffic Signals and Systems group, with responsibilities ranging from the design of signals and signal systems to project management of signal projects.

Alan is actively involved with SCSITE and specializes in the trivia page in each newsletter. Originally from Lexington, SC, he currently resides in Columbia, SC, and is an active member of his community and church. Alan also enjoys traveling any chance he can, and looks forward to Gamecock football this year, which will undoubtedly be their best season ever.



Alan S. Davis, PE



SCSU ITE Student Chapter News *Yuanchang Xie*



Yuanchang Xie, PhD
SCSU ITE Student
Chapter Advisor

Many exciting things happened at SC State in the past few months. Mr. Daniel Grate Jr., an ITS Specialist from the FHWA Resource Center in Atlanta, visited South Carolina State University on March 28. He also gave a talk on the USDOT's Five Year ITS Strategic Plan. Mr. Grate provided an overview of this plan and pointed out the focuses of future ITS applications such as safety, mobility, and environment.



SCSU ITE Student Chapter President, Mr. Philip Ngemegwai, Presenting a gift to Mr. Grate for his excellent presentation.

On May 2, Mr. Kertz Hare from the FEMA Region IV office gave a presentation titled "FEMA Logistics National Logistic Integrator Concept" to SCSU ITE members. Mr. Kertz Hare currently serves as the Regional Chief of Logistics for FEMA Region IV in Atlanta. He plans, organizes, directs, and coordinates all aspects of the Region's Disaster Logistics Program.



Mr. Kertz Hare is giving a presentation at South Carolina State University

SCSU ITE Student Chapter helped host a TRANSIMS training course on April 14-15. During this two-day training, Mr. Michael Hope and Dr. Vadim Sokolov from the Argonne National Laboratory demonstrated how to use TRANSIMS for transportation planning and large-scale transportation network simulation. Over twenty people participated in this training, including SCSU ITE Student Chapter members, SCSU faculty and staff, and planners from state and local agencies.



College Corner

News from the Citadel ITE Student Chapter *W. Jeff Davis*

The Citadel was named winner of the 2011 ASCE Richard J. Scranton Outstanding Community Service Award in recognition of exceptional student work on the ITE/ASCE “Battery2Beach” transportation engineering service project. The Citadel chapter was chosen from 281 ASCE student chapters at colleges and universities across the United States and from 11 countries. This is the second consecutive year The Citadel has received this award. Civil engineering students logged more than 1,000 hours of volunteer service on the Battery2Beach (B2B) Benefit-Cost Analysis

In conducting the Battery2Beach project, students partnered with Charleston Moves, the College of Charleston, and other organizations to conduct a benefit-cost study on a 30-mile pedestrian and bicycle route that will link Charleston’s Battery with Sullivan’s Island, Isle of Palms and Folly Beach. Twenty-five students collected data along the proposed route, analyzed traffic operations, developed proposed improvements and developed preliminary cost estimates. Additionally, students presented their study findings to Charleston Moves Board of Directors and the Coastal Conservation League.

“Battery2Beach (B2B) is a forward-thinking project that is gaining a great deal of traction with the public and community leaders because of its tremendous potential to make Charleston a healthier, and happier place to live and work. Our collaboration with Citadel students has resulted in a valuable contribution to establish a solid engineering basis upon which the B2B project is being planned, promoted, and developed,” said Thomas Bradford, executive director of Charleston Moves.

The ASCE award recognizes student chapter service activities with an engineering component that have a substantial and lasting impact to the community.

“Our students are doing more than conducting community service. They are engaged in service learning by using what they have studied in the classroom to solve real-world problems,” said Professor of Civil and Environmental Engineering William J. Davis, ASCE faculty advisor. “Students not only gain first-hand knowledge of engineering practice, but also actively contribute to the community through the service they perform.

Citadel students are wrapping up their analysis in preparation for an upcoming Charleston bicycle and pedestrian design charrette, Sept. 8-9, 2011, being sponsored by the Mayor Joseph P. Riley Leadership Institute. National bicycle and pedestrian experts, Mia Burk, former City of Portland, OR, Bicycle Program Manager, and Andy Clarke, Executive Director of League of American Cyclists, will be leading a two-day forum to development concepts and community synergies needed for Charleston to implement active living by design strategies on a more widespread basis. Students will participate in the charrette and provide a variety of technical material including: maps, cross sections, databases, cost estimates, and segment LOS analysis.



William J. Davis, PE, PhD
Citadel ITE Student Chapter Advisor





Nathan Huynh, PhD
University of South Carolina
ITE Student Chapter
Advisor

News from the Student Chapter

The first major event for the student chapter of ITE at USC will be the “New Student Day” held annually in the College of Engineering. This event allows for freshmen, transfer students and all of their parents to come out and meet faculty, department chairs and student organizations one-on-one. Attendance at this event by student organizations is critical for recruitment. It will allow us to meet these new students in one area. The new ITE officers led by President Daniel Baker are busy planning for this event. Their table setup will include traffic signs and equipment. These equipment have been graciously made available to the USC ITE chapter by Carol Jones, Traffic Engineering at SCDOT.



U N I V E R S I T Y O F
SOUTH CAROLINA®

Update from Tiger Town *Katerina Moreland, Chapter President*

This has been a rewarding spring for the Clemson ITE Student Chapter. Here are some of the highlights.

Saris Cycling Group 5th Grade Poster Competition

Throughout the Spring, Clemson ITE organized the South Carolina state 5th grade poster competition for the Saris Cycling Group national competition. 5th grade classes across the entire state were contacted to submit original artwork that represented the phrase "Bicycling is Fun... and Healthy too!" Over 20 posters were submitted for judging. The state winner, Zoe Hurst of LaFrance Elementary School in Anderson, SC received a Schwinn Bike, Planet Bike light, and a Lazer helmet and was submitted for judging among 16 other states to compete for a trip to Washington D.C. for the 2012 National Bike Summit. In addition to the personal winning, Hurst won a Saris bicycle rack complete with installation for her school. Although SC did not win the grand prize, Clemson ITE is still very proud of our winner and glad to have been a part of this competition.



Wayne Sarasua, PhD, PE
Student Chapter Advisor



Southern District ITE Meeting

Clemson ITE had another great showing at the Annual Southern District meeting in Lafayette, LA. We had 6 students and 2 advisors travel to Lafayette. Clemson ITE graduate students Joe Robertson and Katerina Moreland and undergraduate student Jennifer Johnson represented South Carolina in the William Temple Scholarship Challenge Traffic Bowl, but was unable to secure a win. The Clemson students were extremely prepared with knowledge, but were outmatched due to reflexes with North Carolina State University (the ultimate winners) in the first round. Clemson ITE was still able to represent SCSITE well as it won the 2011 Outstanding Student Chapter Award, the Undergraduate Student Paper Competition submitted by Jennifer Johnson, and the runner-up for Graduate Student Paper Competition submitted by Katerina Moreland. Recently, the chapter learned that Katerina will receive the Daniel B. Fambro student paper award at the 2011 ITE Annual Meeting and Exhibit in St. Louis. She will be the first Southern District ITE student to win this prestigious award in at least last decade. The chapter is really proud of all our students and is looking forward to International ITE Meeting in St. Louis, MO this August.

Last Good-Bye Luau for Dr. Priyanka Alluri

At the end of June, Clemson ITE hosted a "Last Good-Bye Luau" for one of our most active members and dear friends Dr. Priyanka Alluri. She recently accepted a full-time post-doctoral position at Florida International University working under Dr. Albert Gan. Priyanka has been a member of Clemson ITE since 2005. After finishing her Ph.D. last December, she has continued to assist with our chapter activities. Priyanka plans to assist the FIU ITE student chapter. To wish her safe travels and good luck in Miami, her friends and the ITE family gathered for this surprise party. Clemson ITE misses her already and wish her the best as her career progresses.

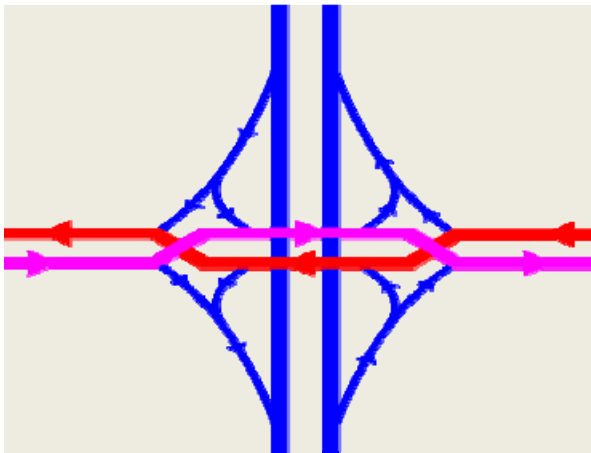
Clemson ITE Student Chapter is gearing up for a great Fall semester and is excited to have the Clemson ITE family back together soon!



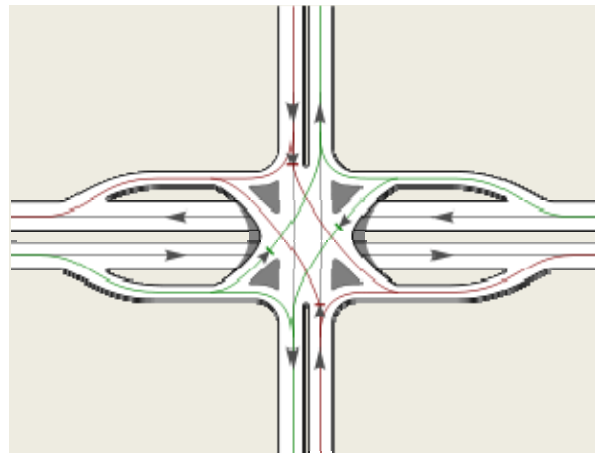
Diverging Diamond Interchanges Coming to the Carolinas

Ryan Eckenrode, P.E., PTOE-AECOM & Sreekanth (Sunny) Nandagiri, PE, PMP-AECOM

The Diverging Diamond Interchange's (DDI) unconventional design has become increasingly popular especially in place of the Single Point Urban Interchanges (SPUI). Today, Diverging Diamond Interchanges exist in the states of Missouri, Tennessee and Utah. Florida, Georgia, Idaho, Illinois, Indiana, Kansas, Kentucky, Minnesota, New York, North Carolina, Ohio, Oregon, Rhode Island, Vermont, and Virginia have DDI projects in various stages (planning, design and construction). The diverging diamond interchange also known as a "DDI", "Double Crossover Diamond Interchange" or "Quick Crossover" is designed to allow two directions of traffic to temporarily cross to the opposite side of the roadway providing easier access on and off the freeway. The DDI requires fewer traffic signal phases, decreases the number of conflict points, and moves high traffic without increasing the number of lanes.



Diverging Diamond Interchange



Single Point Urban Interchange

Safety Benefits

- Fewer conflict points (18 for DDI, 24 for SPUI, and 30 for conventional diamond)
- Increased sight distance at turns
- Difficult for wrong way entry onto ramps

Operational Benefits

- Increased capacity with unopposed left and right turns from all directions
- Left turn lane capacity (to and from the ramps) improved without adding lanes
- Delay reduced with two phase signals and potential shorter cycle lengths
- Reduced spillback between the ramp terminals

Cost Benefits

- Retrofitting existing bridge and right-of-way can usually be accommodated contributing to significant benefits as discussed in the example below.
- Reduced construction time and minimal detouring
- New interchanges requires less laneage and smaller bridge structure than other configurations



I-15 in American Fork, Utah

According to Jim Dunlop, P.E. (NCDOT Congestion Management Engineer) at the North Carolina Department of Transportation (NCDOT) Congestion Management, no new Single Point Urban Interchanges are expected to be constructed in North Carolina, unless there are other compelling reasons (such as other signalized intersections in the proximity or the need for less number of signals) . The cost savings is apparent with the I-77 at Catawba Avenue interchange in Cornelius, North Carolina. To retrofit an existing diamond interchange with a DDI is approximately \$3.5 Million, while the construction of a new SPUI was estimated at \$30 Million. The following DDI projects are currently planned/designed in North Carolina:

- **Asheville** (I-26 at NC 280 near Asheville Airport)
- **Concord** (I-485 at Mallard Creek Road, I-85 at Poplar Tent Road, and I-85 at NC 73)
- **Cornelius** (I-77 at Catawba Avenue)
- **Kernersville** (I-40 at Union Cross Road)
- **Lumberton** (I-95 at US-301 (Fayetteville Road))
- **Leland** (US 17 at NC 133 (River Road))

Mr. Eckenrode is a Professional Engineer working in the AECOM's Greenville, SC office. Mr. Nandagiri is a Professional Engineer working in the AECOM's Raleigh, NC office. AECOM has extensive experience working on the DDI projects all over the USA. Ryan and Sunny have been fortunate to work on the analysis of DDI's throughout the southeast. Currently, Ryan is analyzing a proposed DDI at the interchange of I-40 and SR 66, north of Pigeon Forge, TN using Synchro software, and Sunny is performing quality assurance on the analysis. An Interchange Modification Report (IMR) and a preliminary cost estimate are also performed as part of this project. This interchange is near the Smoky Mountains National Park with heavy tourist traffic. As part of the second phase of the project, the Tennessee Department of Transportation has asked AECOM to perform a VISSIM analysis of the proposed DDI. AECOM expects to complete both phases of the project by the middle of August. This is only the second DDI project in TN and is a very high profile project for the Tennessee DOT with a tight deadline making it challenging and fun for the project team members. AECOM will be presenting this project on October 12th at the NCSITE Signal System / SIM CAP Users meeting in Charlotte, NC.

Source for this article: North Carolina Department of Transportation. "Diverging Diamond Interchange." 2010 North Carolina ITE Annual Meeting Presentation, James Dunlop, P.E.

Politically Warranted Signals - A Case Study

Peter J. Yauch, P.E., Director of Public Works and Transportation, Pinellas County, Florida

The Manual on Uniform Traffic Control Devices (MUTCD) provides the basis for engineering studies to determine the need for a traffic signal installation. Using a series of engineering-based criteria known as "Warrants", potential signal installations can be evaluated to determine if they would be an improvement, or a detriment, to traffic flow and safety.

However, the public holds a general perception that traffic signals are a "cure all" for traffic problems of all kinds. The most frequent requests for a new signal installation come from drivers that use a minor street approach to a main highway and are concerned about excessive delays and personal safety when trying to enter the roadway. When an engineering evaluation determines that a requested location is not appropriate for signalization, an appeal to a political body is often the next step.

In general, politicians are not engineers, or at least not traffic signal engineers. The significance of the analyses included in the warrants is typically not understood; the concept of volume threshold is a little easier to comprehend than a delay or systems warrant. Perhaps the most misunderstood warrant is the "Crash Experience" warrant, as evidenced by the common cry "How many people have to die before you put in a signal?"

We, as traffic engineers, have not done a good job in explaining what happens when an unnecessary signal is installed. This paper presents a case study of a traffic signal that was installed, despite the recommendations of traffic engineers, because politicians wanted to solve a perceived safety problem.

Background

The subject location was a two way stop controlled intersection on a six lane north-south county road carrying approximately 52,000 vehicles per day. The east approach to the intersection served as the sole access point for a seniors only mobile home community of about 500 homes; the west approach served a medical office building. The location is approximately 850 feet south of an existing signalized intersection.

The location is within a municipality; under Florida Statutes 316.006, the municipality has traffic control jurisdiction. Our county has twenty-four separate municipalities, and therefore, over twenty years ago, the Metropolitan Planning Organization opted to review all new traffic signal requests to ensure the capacity and integrity of the major corridors. A technical committee reviews all signal requests and presents their recommendations to the MPO for their action.

The residents of the mobile home community had expressed concerns about delays and safety of the intersection since the widening of the arterial, and had convinced the municipality to have a consultant study the intersection. The consultant performed the warrant evaluation and concluded that, as no warrants were satisfied, a traffic signal should not be installed. The traffic crash analysis showed that, in the three prior years, a total of 17 crashes (three with injuries, none with fatalities) were reported, with an average crash frequency of 5.67 crashes/year. The number of "correctable crashes", as defined in the warrants, ranged between one and three per year.

However, the municipality's elected body felt that motorist safety was paramount, and presented their request for a signal to the MPO. The MPO's technical committee reviewed the consultant's warrant study and concurred with the recommendation to not install a traffic signal, and presented that recommendation to the MPO. An analysis using crash prediction algorithms predicted a 56% increase in crashes, should the signal be installed.

The MPO, when faced with a room full of residents and the elected officials of the municipality, voted to allow the signal's installation. Some referenced their own "familiarity" with the intersection, calling it "dangerous", and that something needed to be done. The signal was designed and installed and placed into service, at a cost of approximately \$ 300,000 for the study, design, and construction, and incorporated into a progressive traffic signal system, operated by the County, to minimize stops at the intersection.

Before and After Analysis of Intersection Safety

After three years of operation, a before and after safety review of the signal installation was completed by County staff. The findings are included in the table below:

Year	Crash #	Injury #	Fatal #	Comments
2004	3	0	0	1 right angle, 1 sideswipe, 1 rear-end
2005	4	2	0	3 right angle, 1 rear-end
2006	4	2	0	1 sideswipe, 1 left turn, 2 rear-end
2007 before signal activation	2 in just under three months	1	0	2 rear-end
2007 after signal activation	13 in just over nine months	11	0	1 right angle, 10 rear-end
2008	16	2	0	1 right angle, 1 sideswipe, 14 rear-end
2009	13	12	0	2 right angle, 11 rear-end

The crash frequency prior to signal activation was 13 crashes in 38.6 months, which relates to a crash rate of 4.0 crashes / year. After the activation of the signal, 42 crashes were reported in 33.9 months, for a crash rate of 14.9 crashes / year. Note that the primary change in crash frequency was a significant increase in rear-end collisions, while the right angle and left turn crashes (those deemed "correctable" with a signal installation) stayed the same. The crash rates at the adjacent signalized intersection stayed consistent during the before and after periods.

When the economics of the outcome of this signal installation are reviewed, the costs to the motoring public are significant. There was an increase in crash frequency of 10.9 crashes per year. The average cost of a crash on a facility such as this is \$ 130,385, according to the FDOT Highway Safety Improvement Program Guidelines. Therefore, the annual increased cost due to crashes has been \$ 1,421,200. When added to the \$ 300,000 cost to install the signal, the increased cost to society for the 3 ½ years since the signal was installed totals to over \$ 5.2 million.

And, the intended purpose of reducing injury was dreadfully missed. Before the signal was installed, there was an average of 1.55 injuries per year at the intersection. After the signal was installed, the intersection averaged 8.85 injuries per year...with a total of 25 additional injuries since the signal was installed.

Conclusions

The decision to install a signal at this intersection represents a failure to best serve the public. The approach was well-intentioned, but not factually sound. The installation satisfied a small vocal constituency at a much larger cost to society.

The location became an example for other citizens requesting a signal: "They got one, why can't we?" Calls to the politicians increased with requests for additional signals.

In general, but particularly in these days of limited resources, we must be able to communicate our engineering recommendations to the public and to our elected officials with sufficient logic and documentation to show that unwarranted signals are not desirable and should not be approved.

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Question 1:

Albert Coley is a fishmonger. He stands 6 feet 6 inches tall in his socks, takes size XXL in clothes and wears size 14 shoes.

What do you think he weighs?



Question 2:



An old fashioned 78 vinyl record has a diameter of 12 inches. The outside border is a 1/2 inch wide and the distance from there to the central hole is 5 1/2 inches. If you put the stylus down at the very edge of the playing area how far will the needle have travelled by the time the music stops? You can assume that there are 83 grooves to the inch.

Be the first to answer the questions correctly and you will be recognized in the summer newsletter and receive a \$5 discount at the next meeting. Email your answer to davisas@scdot.org.



Alan S. Davis, PE



Last Issue's Challenge

Congratulations to Valerie Holmes for solving the puzzle. Valerie works as a Traffic Operations Engineer for the City of Greenville.



Valerie Holmes, PE
City of Greenville

Question 1:

High Speed Rail has changed the world, and a train runs along the East Coast from Miami to Toronto.

One day, the train suffers a terrible accident EXACTLY on the border of the United States and Canada. According to international law, in which country should the survivors be buried?



Answer: Survivors aren't buried.

Question 2:

Which letter can complete this series?

A H I M O U V W X Y

Answer: T - All the letters can be reversed laterally and remain the same.



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About ITE

The Institute of Transportation Engineers is an international educational and scientific association of transportation professionals who are responsible for meeting mobility and safety needs. ITE facilitates the application of technology and scientific principles to research, planning, functional design, implementation, operation, policy development and management for any mode of transportation. Through its products and services, ITE promotes professional development of its members, supports and encourages education, stimulates research, develops public awareness programs and serves as a conduit for the exchange of professional information.

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We are on the web at
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Newsletter Information

"DRIVER" is the official publication of the South Carolina Section Institute of Transportation Engineers, the professional society for transportation engineers in South Carolina. It is affiliated with Southern District 5 ITE, as well as the International ITE.

Any suggestions on format or content are welcome. News on members, the section, or the profession should be submitted to Jae Mattox at mattoxjh@scdot.org.

SCSITE Scholarship Golf Tournament 2011



Northwood's Golf Course
201 Powell Road
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Thursday, September 8th

Cost: \$50 per player
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Cost includes cookout, golf, and refreshments.

- Two longest drive contests
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Contact: Mike Ridgeway
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801 Mohawk Drive
West Columbia, SC 29169
mridgeway@srsengr.com
Tel: 803-252-1799



It's that time of year again. Please join us **Thursday, September 8th** at Northwoods to raise money for the Scholarship Program. You won't find a more affordable, more fun tournament anywhere. I will guarantee a quicker round this year! Golfers of all ability or no ability are welcome.

Buffet Lunch will open at 10:45 AM with the ITE Meeting starting at 11 am. Shotgun start promptly at Noon. We plan on having all groups back to the clubhouse by 4:30 this year with awards to follow immediately.

Please complete form and send to Mike Ridgeway via email or regular mail (see contact info in left column). Please send in as soon as possible. Deadline **September 2nd 2011**. Make checks payable to **SCSITE**.

Registration Form

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			TOTAL	_____
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email	_____			
Player #1 & HCAP	_____			
Player #2 & HCAP	_____			
Player #3 & HCAP	_____			
Player #4 & HCAP	_____			