



# The RD & T Newsletter

A Publication of the South Carolina Department of  
Transportation Research and Materials Laboratory

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## SCDOT Holds Second Research Peer Exchange

States are required to hold Research Peer Exchanges on a periodic basis as a condition for approval of FHWA planning and research funds for RD&T activities. A Peer Exchange Team is assembled composed of individuals familiar with DOT research programs or research activities in general. The members, selected by the host state, can be from other state DOTs, the FHWA, other Federal, State, regional, or local transportation agencies, universities, or industry. The purpose of the Peer Exchange is to share information or best practices for improving research programs and management processes for all involved.

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The SCDOT held its second Research Peer Exchange November 12 through 14, 2002. The exchange, hosted for the Department under contract by the Transportation Technology Transfer Service (T<sup>3</sup>S) at Clemson University, was held at the Madren Center on the Clemson campus. The Peer Exchange Team was composed of the following individuals:

- ◆ Dr. Mrinmay (Moy) Biswas, North Carolina DOT (Team Leader).
- ◆ Mr. Randy Battey, Mississippi DOT.
- ◆ Mr. Lamar Caylor, Georgia DOT.
- ◆ Mr. Jeffrey Smith, Maryland DOT.
- ◆ Mr. Mike Sanders, South Carolina DOT.
- ◆ Mr. David Law, FHWA Division Office, South Carolina.

Others in attendance from the SCDOT included Mr. Danny Shealy, Director of Construction, Mr. Milt Fletcher, Research and Materials Engineer, and Mr. Terry Swygert, Research Coordinator. Also, Dr. Jim Burati, Director of T<sup>3</sup>S, and Ms. Sandi Priddy, Program Manager of T<sup>3</sup>S, were present throughout the Exchange.

Four focus points were identified for the Peer Exchange. They were:

1. Research Project Selection and Development Procedures to Improve and Expedite the Process
2. Tracking and Documenting the Implementation of Research Results

3. Methods for Evaluating Principal Investigators
4. Performance Measures for Evaluating Research Projects and the Program

Team members gave presentations on their research programs and management processes. Discussions were held on each of the focus points. Time was included in the agenda for report preparation after each point was discussed. This

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aided in capturing thoughts that were expressed during discussions and in reducing report preparation time at the end of the process. The group also toured Clemson University's Asphalt Rubber Technology Service (ARTS) and Wind Load Test Facility (WLTF). Presentations on the facilities were made, some of the equipment demonstrated, and

discussions of research being conducted at the sites were held.

The Peer Exchange was very beneficial to the SCDOT's research program and hopefully to other team members' organizations. Numerous points were made that should aid the Department in improving the research management process and the program in general.

**If you would like a copy of the Peer Exchange final report, please contact Mike Sanders by phone at (803) 737-6691 or e-mail [sandersmr@scdot.org](mailto:sandersmr@scdot.org).**



**Peer Exchange Participants.** Front Row, left to right: Lamar Caylor, Jeff Smith, Moy Biswas, Randy Battey. Back Row, left to right: Jim Burati, Mike Sanders, Milt Fletcher, Terry Swygert, David



Participants Tour Clemson University's ARTS (left) and WLTF (right) Facilities during the Peer Exchange

## University of South Carolina Completes Research Study on SCDOT's Economic Impact on South Carolina



The University of South Carolina (USC) recently completed SPR No. 638, "The SCDOT and Its Economic Impact on the State of South Carolina." The main purpose of this study was to provide a detailed report on SCDOT's contribution to the State's overall economic activity.

Adequate infrastructure is vital for economies everywhere. Whether in terms of supporting and expanding existing economic activity or enticing new activity, successful economic development depends on a strong infrastructure. Infrastructure can refer to many factors, but perhaps the most critical is an economy's transportation system. Investments in transportation enhance an economy's stock of infrastructure, and such actions are necessary for economic development and economic growth.

SCDOT holds the primary responsibility for transportation investment in South Carolina. SCDOT pursues many activities that enhance the State's transportation network. In dollar terms, the primary activity of SCDOT is the construction and maintenance of South Carolina's highway system. However, other areas of concern for SCDOT relate to mass transit projects, projects and campaigns designed to increase traffic safety, programs to assist local governments with transportation services, and more.

All of these activities of SCDOT work to enhance the overall transportation system across South Carolina. These enhancements to the infrastructure of South Carolina entail many different kinds of economic benefits for the State, both in the

short- and long-term. Among the short-term, quantifiable economic impacts of SCDOT revealed by the report are:

- \$ SCDOT supports a total of \$2.1 billion of economic output annually. Of this total, \$1.6 billion is attributable to highway construction and maintenance projects.
- \$ \$768.6 million in labor income for South Carolinians each year can be linked to the activities of SCDOT. This amounts to roughly 1.1 percent of total labor earnings statewide.
- \$ SCDOT's annual operations support a total of 24,360 full-time equivalent jobs distributed across all regions and sectors of the South Carolina economy.
- \$ A total of \$91.6 million in annual, recurring tax revenue for South Carolina is supported by SCDOT's activities. Of this total, \$79.3 million flows to the state's general revenue fund, while \$12.3 million is directly allocated to education via the Education Improvement Act.

Over the long-term, the South Carolina economy benefits in many more ways from SCDOT's enhancements to the transportation network. While these benefits are difficult or impossible to quantify, the State undoubtedly benefits from SCDOT's transportation investments in terms of the positive impacts on:

- \$ Business costs and productivity.
- \$ Labor market access.

- \$ Economic competitiveness.
- \$ Attractiveness to new business, residents, and tourists.
- \$ Property values.
- \$ Long-term tax revenues.

Overall, the report demonstrated that the activities of SCDOT can have substantial benefits for the state economy, both in the short-term and—as importantly—in the long-term. Taken in the context of concerns over inadequate funding of transportation investments in South Carolina, these benefits demonstrate what the State stands to lose if a stable and adequate funding source is unavailable to SCDOT. However, these also represent benefits that can continue to grow over time and continue to contribute to the South Carolina economy if the funding concerns are properly addressed.

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### ***The problem with cell phones***

Driving while talking on a cell phone may be as dangerous, or more dangerous, than driving and drinking.

Cell phones are very intrusive because they present four types of distractions: visual, auditory, mental, and physical.

Researchers at the British Transport Research Laboratory tested cell phone users in a driving simulator. They found that reaction time for cell phone users was 30 percent slower than for drunk drivers and 50 percent slower than for sober drivers.

## **National Research Advisory Committee Meeting Held July 14–17, 2002**

The Montana Department of Transportation hosted the National Research Advisory Committee (RAC) meeting in Kalispell, Montana on July 14 through 17, 2002. There were over 100 participants including representatives from state DOTs, the FHWA, TRB, universities, and other organizations.

Activities started on Saturday evening, July 13, with “RAC 101,” an orientation for new RAC members. This was a very beneficial session for all that attended, even those who have been involved with the Committee for several years. On Sunday, transportation was made available for a trip to nearby Glacier National Park. The scenery was truly outstanding. Registration and a reception were hosted that evening.

Meeting topics in the general sessions beginning Monday, July 15, included: reauthorization, research performance measuring, and transportation information management, among many others. In addition, there were briefings on the future phase of the Strategic Highway Research Program (FSHRP), University Transportation Research Centers’ programs, and an NCHRP update. There was also time allotted for a breakout session for the Regional RACs to discuss items resulting from the meeting or business from within their areas.

The Montana DOT did an excellent job hosting the meeting and all those involved in developing the agenda are to be commended.

## **New seat belt systems to encourage increased use**

Dr. Jeffrey Runge of the Highway Traffic Safety Administration makes increasing seat belt use a top priority. He says that if everyone used a seat belt, it would make a big dent in the 41,000 annual deaths in the U.S. from motor vehicle accidents.

Runge recommended that car makers examine Ford Motor's Belt Minder. It produces a chime and a light every 30 seconds for five minutes until drivers buckle up. It increased seat-belt usage by 5 percent over cars without the system.

At General Motors, a spokesman said they would be offering a system in 2004. Interviewed by The Wall Street Journal, he couldn't say at this time how it would work.

Chrysler Group says it will have a more-aggressive reminder system in all vehicles over the next couple of years. Their spokesman says the systems are annoying, and they try not to annoy customers. But they want to increase belt use, so the systems will go in next year.

The push for buckle-up buzzers and other reminders is necessary because about 75 percent of Americans buckle up. That's better than in 1980 when only 10 percent did, or even 1996 when only 61 percent did, but it's not very good when compared with the 90 to 95 percent belt-use in Canada and Western Europe.

## ***English or Metric?***

“English” measurements had some interesting, if inexact, origins. For example:

**The Foot.** This unit of measurement was determined by the length of King Charlemagne's foot and modified in 1305 to be 36 barley-corns laid end to end. (No measurement for the barleycorn is given.)

**The Inch.** The width of King Edgar's thumb was officially designated as an inch. It was three barleycorns across.

**The Yard.** The distance from King Henry I's nose to his fingertips. The distance is also twice as long as a cubit.

**The Mile.** In the Roman legionary, the mile was the distance covered by 1,000 double steps. Queen Elizabeth added more feet so the mile would equal eight furlongs.

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***Research Projects Started Between July 1, 2002 and December 31, 2002***

SPR No. 641: *Investigation into ASR Potential of Aggregate in Upstate Area of South Carolina*  
Principal Investigator: Dr. Prasada Rangaraju, Clemson University

SPR No. 642: *Frequency and Time-Distribution of Rainfall for Various Regions in South Carolina*  
Principal Investigator: Dr. Nadim Aziz, Clemson University

SPR No. 643: *Prime Contractor Prequalification and Annual Performance*  
Principal Investigator: Dr. Lansford Bell, Clemson University

SPR No. 644: *Customer Input Concerning Highway Maintenance*  
Principal Investigator: Dr. Sandra Teel, University of South Carolina

  
***Research Projects Completed Between July 1, 2002 and December 31, 2002***

SPR No. 581: *Evaluation of Pavement Marking Materials On I-20, Lexington County*  
Principal Investigator: Terry Swygert, SCDOT

SPR No. 591: *Development of Hydraulic Computer Models to Analyze Tidal and Coastal Stream Hydraulic Conditions at Highway Structures—Phase III*  
Principal Investigator: Ayres Associates, Inc.

SPR No. 595: *Evaluation of Retroreflectivity of Interstate Markings*  
Principal Investigator: Dr. Wayne Sarasua, Clemson University

SPR No. 611: *Impact Assessment of the New Cooper River Bridge, Charleston, SC*  
Principal Investigator: Dr. Arthur Felts, College of Charleston

SPR No. 613: *Technology Transfer Programs for Concrete QC/QA Certification of Contractors and SCDOT Personnel*  
Principal Investigator: Dr. M. Hanif Chaudhry, University of South Carolina

SPR No. 624: *Establishment of Foundations Inspector's and Earthwork and Base Course Inspector's Certification Courses*  
Principal Investigator: Dr. Serji Amirkhanian, Clemson University

*If you would like a copy of the final report for any of these projects, please contact:*

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## Comments and Suggestions

The *RD&T Newsletter* is published on behalf of the SCDOT by the SC Transportation Technology Transfer Service at Clemson University (T<sup>3</sup>S).

If you have suggestions, comments, or article submissions for the newsletter, please contact Mike Sanders at 803-737-6691, or mail them to:

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### ***Engineering Humor 101***

Normal people believe that if it ain't broke, don't fix it.

Engineers believe that if it ain't broke, it doesn't have enough features yet.

—*Scott Adams, The Dilbert Principle*

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**The Furlong.** The length of a furrow a team of oxen could plow before resting. A furlong is 220 yards.

**The Acre.** The amount of land a yoke of oxen could plow in one day.

**The Fathom.** The span of a seaman's outstretched arms; 880 fathoms make a mile.

The National Geographic News Service, which collected this information, says the metric system has a more scientific origin, though the common person may think it almost as difficult to understand!

**The Metric System.** Based on the meter, which is defined precisely as 1,650,763.73 wave lengths of orange-red light emitted by the krypton-86 atom, or originally one-ten-millionth of the length of the longitude from the North Pole to the equator. The meter is exactly 39.37 inches. Or it measures about 118 barley-corns!

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