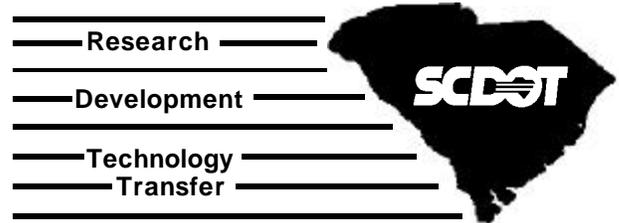


# The RD & T Newsletter



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

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## RDEC Selects Research Topics to be Funded in 1998

The Department's Research and Development Executive Committee (RDEC) held a special meeting on February 25, 1998 to select research topics to be funded this year. As reported in the last edition of the *RD&T Newsletter*, the Department had solicited research problem statements for new State Planning & Research (SPR) projects last summer. Solicitations were sent to 1) all major divisions in Department headquarters and field units, 2) state universities, and 3) Associations related to transportation. After all problem statements were received, they were separated into the different subject matters. The Research Unit then conducted a literature search (TRIS & the Internet) on all topics. The problem



*The Department's RDEC Committee Selects Research Topics to be Funded in 1998*

statements and all information gathered from the literature search were then sent to the appropriate areas of the Department for comments. A ballot was then prepared and sent to all RDEC members (along with problem statements, TRIS/Internet information, and comments from DOT personnel) to rate each topic on a scale of 0-5 (0 no need, 5 great need). The RDEC then met on February 25, 1998 for final prioritization of the topics. The following is a list of approved research topics:

- "Development and Validation of SHRP SuperPave Mixtures for SCDOT"

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- “High Performance Concrete (HPC) for Bridge Construction”
- “Evaluation of Retroreflectivity of Interstate Markings”
- “Investigation of SCDOT Asphalt Mixtures Using the Pavement Analyzer, Phase I - Laboratory Mixture Analysis”
- “Bridge Rehabilitation Using Fiber Reinforced Polymer (FRP) Composites”
- “Investigation of Roadway Rideability Equipment and Specifications”
- “Development of a Process to Forecast Construction Staffing Levels and Training Needs Based on Future Workloads”
- “Load Testing for Assessment and Rating of Highway Bridges”
- “Computer Models for Highway Waterways - Phase III” (Pooled-Fund Study)
- “Deer/Vehicle Accidents - Southeastern States” (Possible Pooled-Fund Study)
- “Performance Expectation of High Density Polyethylene (HDPE) Pipe”
- “Region 4 Fatal Crash Study” (Pooled-Fund Study)

## Research Project Initiated for Aggregate Quality Control Program

Currently, the South Carolina Department of Transportation (SCDOT) uses approved supplier lists in its acceptance of both fine and coarse aggregates. Yearly samples are obtained and tested to determine compliance with specifications. The problem with this practice is that the Department typically does not buy stone directly from the producer but rather buys in contractors’ products such as hot mix asphalt and Portland Cement Concrete. This process prohibits the Department from having direct control over the quality of aggregates used in the work. Samples are usually taken after the product has been shipped to the contractor and the Department’s testing can not determine if the problem is in the production or in the handling of the aggregates.

It was determined that a program is needed that will require aggregate suppliers to establish a structured quality control process to ensure contractors are continually supplied quality aggregates for use on Department projects. In response to this need, Research Project 582, “Development of a Quality Control Program for Aggregates in South Carolina,” was initiated with Clemson University. Dr. James L. Burati, Jr. is the Principal Investigator.

The study began April 6, 1998 and is scheduled to be completed by April 5, 2000. The objective of the study is to develop a quality control program for aggregate producers including allowable tolerances, sampling plans, and testing procedures.◆

## SCDOT Awards Study to Develop Concrete Quality Assurance Program to Transtec Consultants

In the past, the Department has used method-type specifications and state quality control testing to inspect and accept Portland Cement Concrete (PCC). This was the case for most DOTs. These types of specifications have always required considerable manpower to inspect concrete as it is produced as well as during placement and finishing. With the speed of modern construction operations making it imperative that material which does not meet specifications be discovered as quickly as possible, the manpower need has increased. Furthermore, the amount of waste and recycled materials being used in the construction industry has increased which requires additional quality control testing due to variabilities inherent in waste materials. The increased requirements coupled with a shortage of trained personnel and decreasing resources have prompted the Department to develop a better specification methodology.

In response, the SCDOT has initiated a research study to develop a comprehensive total quality management plan for the design and construction of PCC. The project was advertised through normal Department procedures and Transtec Consultants of Austin, Texas was selected to conduct the study. Work on SPR 583, "Development of a Quality Assurance Program for Portland Cement Concrete for South Carolina," was authorized to begin on June 8, 1998 with a scheduled completion date of June 7, 2000.

The objective of the study includes three (3) main points. First is the development of a quality control management and testing plan to be employed by the various contractors. Second is the development of specific performance oriented specifications to establish rational pay factors based on expected performance of the as-constructed PCC. Third is development of an independent assurance testing plan detailing how the Department can verify the validity of the sampling and testing for a project.◆

### *Recycling Facts*



Did you know ...

- ☺ Americans throw away 44 million newspapers everyday. That's the same as dumping 500,000 trees into landfills each week.
- ☺ If every household reused a paper grocery bag for one shopping trip, about 60,000 trees would be saved.
- ☺ In 1993, Americans recycled 59.5 billion aluminum cans, 3 billion more than in 1991, and raised the national aluminum can recycling rate to 2 out of every 3 cans.
- ☺ If each commuting car carried just one more person, we'd save more than 18 million gallons of gasoline and keep more than 360 million pounds of carbon dioxide out of the atmosphere.....every day.

## **SCDOT Implements AASHTO'S SiteManager™ Construction Management System**



Implementation of AASHTO's SiteManager™ Construction Management System continues at the SCDOT. In preparation, the Department has purchased over 500 ruggedized notebook computers for field personnel, has purchased a new server to process the main SiteManager database, and has completed major network upgrades. Virtually all of the hardware necessary for SiteManager™ should be in place by the end of 1998.

Second phase, or beta, testing of the software has been successfully completed by DOTs' in Virginia, Texas, and Iowa. SCDOT became one of the first eight licensees of the AASHTO SiteManager™ system in May 1998 at a cost of \$180,000. An Oracle database administrator has been hired by the Information Technology (IT) office to set up the necessary database structure and manage the database. Personnel from IT, Construction, Research and Materials, and Midlands Technical College have attended specialized training on the function of the SiteManager™ system.

In order to test the system, DOT personnel will be setting up a computer laboratory to simulate data entry and test the integrity of our installation. This phase is

expected to begin in late Summer 1998. Concurrent with the simulation phase, training on the system will begin for Laboratory, Construction Office, and a number of District personnel to prepare for the first pilot project to be conducted with SiteManager™. After the first pilot project is complete, the system will be rolled out into the other Districts. It is planned to have the system fully implemented sometime in late 1999 or 2000. ♦

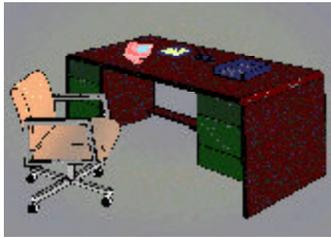
## **Meeting Announcement AASHTO National Research Advisory Committee Meeting**



**August 2-5, 1998  
Nashville, Tennessee**

**Hosted by  
Tennessee Department of  
Transportation**

# From the Office of Research:



## Research Visits To Other Units in the Department

In an effort to improve the research program, members of the Research Unit are holding meetings with various units in the Department. One purpose of the meetings is to make more people aware of the program in an attempt to broaden the scope of our research. In the past, research projects primarily focused on engineering topics. Therefore, little was known about the program by non-engineering units. Even though these units were included in solicitations for research topics, their lack of knowledge of the program and its capabilities deterred their participation. Also, it is anticipated that the amount of research funds available will be increased by the new Highway Bill. Therefore, non-engineering units need to be made aware of our research activities so they can become more involved and benefit from the research program.

Another purpose of the visits is to identify mid-level engineers and supervisors for inclusion on research project steering committees. Until recently, steering committees usually included directors and upper-level supervisors. With their job related

responsibilities, the demand on their time is often overwhelming which makes participation on steering committees difficult. Therefore, a conscience effort is being made to include more mid-level supervisors on steering committees that are directly involved in the topic being researched. The hope is that the visits with the units will not only provide the opportunity to identify these people but will also generate interest on their part in the research program.

At this time, meetings have been held with all major units in Headquarters. The next step is to begin meetings with field personnel to continue to promote research and better our program.

Mike R. Sanders  
Research Engineer



**If you have any suggestions for improving our newsletter or know of any topics that should be included, please contact Mr. Mike Sanders at (803) 737-6691. You may also send it to the RD & T Newsletter, SCDOT, Research and Materials Laboratory, P.O. Box 191, Columbia, SC 29202.**

## **Research Projects Started Between January 1, 1998 and June 30, 1998**

SPR No. 581, "Evaluation of Pavement Marking Materials on I-20, Lexington County"  
Principal Investigator: T. L. Swygert, SCDOT

SPR No. 582, "Development of a Quality Management Program for Aggregates in South Carolina"  
Principal Investigator: Dr. James L. Burati, Jr., Clemson University

SPR No. 583, "Development of a Quality Assurance Program for Portland Cement Concrete in South Carolina"  
Principal Investigator: Dr. B. Frank McCullough, Transtec Consultants

SPR No. 584, "Statewide Sign Management Implementation"  
Principal Investigator: Dr. Lansford Bell, Clemson University

If you would like additional information on  
any of these projects, please contact:

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