

The RD & T Newsletter



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

Milton O. Fletcher
Research and Materials Engineer

Milton O. Fletcher Named Research and Materials Engineer

Milton O. Fletcher, of Columbia, has succeeded Richard Stewart as Research and Materials Engineer.

He is responsible for administering the operations of the Department's Research and Materials Laboratory in Columbia and the three District Laboratories in Greenville, Florence and Charleston.

Fletcher joined the Department in 1977 as a civil engineering associate I in the Lexington Construction office. He transferred in 1978 to the Research and Materials Lab as a research coordinator. He was promoted to Bituminous Materials Engineer in 1980 and to State Materials Engineer in 1997.



Milton O. Fletcher

He is a 1972 graduate of Airport High School, and received a Bachelor of Science in Civil Engineering from the University of South Carolina in 1976, and a Master of Engineering in Civil Engineering in 1982.

He is a Registered Professional Engineer in South Carolina and is a member of the AASHTO Subcommittee on Materials, the Association of Asphalt Paving Technologists, and the American Society of Civil Engineers.

He is married to the former Lynda Litton of Hartsville, and they have a 13-year-old son, Blake. Fletcher is a member of Platt Springs United Methodist Church.

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Fletcher is an assistant scoutmaster, and enjoys golf, walking and youth soccer.

Editor's Note:

This article was adapted, with permission, from *The Connector*, SCDOT, Winter 2001.

*Traffic Safety
Facts*



Did you know ...

- In 1999, one out of every 69 South Carolinians was injured in a traffic crash; a total of 55,322 non-fatal injuries were reported in crashes in South Carolina during the year.
- South Carolina's mileage death rate (the number of traffic deaths per 100 million vehicle miles traveled) climbed to 2.4 in 1999, while the nation's death rate dropped to 1.5; this makes South Carolina's mileage death rate 60% higher than the national average.

A Busy Time for Research!

The year 2000 was very busy for the Department's Research section as 12 new projects were initiated and 20 more were approved for funding. After receiving a record seventy-eight topics through last year's research project solicitation, the Research and Development Executive Committee (RDEC) met on June 21, 2000 and approved 18 new projects for funding. Since that time, two more topics were approved by ballot. The range of topics selected includes a wide variety of transportation issues.

One new area of research included in this year's approved projects list involves exploring ways to improve SCDOT services to the public. This was one of the main goals in the Department's updated 2000 Strategic Plan. Three projects, "Market Research to Improve Pavement Rehabilitation and Design Effectiveness," "Customer Input Concerning Highway Maintenance," and "Assessment of Public Opinion of the South Carolina Department of Transportation" will provide the Department with valuable information to help meet this goal.

As in recent years, several new projects were approved dealing with highway travel safety in South Carolina. Research projects, "Highway Capacity in Work Zones" and "Safety Considerations for Night-time/Week-end Construction Activities" will help further the Department's Strategic Plan commitment to reduce traffic accident fatalities. Other similar transportation safety research initiatives are expected in the future.

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Another new area of research included in this year's approved projects list involves long range cost estimating and funding options for the SCDOT. Two projects, "Long Range Program Cost Estimating Methodology," and "Funding Options for Meeting Transportation Infrastructure Needs in the State of South Carolina" will be of valuable assistance to the Department in this area.

Other research topics approved for funding include:

- "Investigation of Graded Aggregate Base (GAB) Courses"
- "Evaluation of South Carolina Aggregate Durability Properties"
- "Permeability of Portland Cement Concrete (PCC) Structures"
- "Investigation of Hot Mix Asphalt Temperature Segregation Using Infrared Technology"
- "Seismic Hazard Mapping for Bridge and Highway Design in SC"
- "Numerical Modeling of Abutment and Pier Scour"
- "Contractor QC/QA Project Management System"
- "High Performance Concrete (HPC) for Bridge Construction"

- "Estimating the Dynamic Properties of SC Soils for Ground Response Analysis"
- "Frequency and Time-Distribution of Rainstorms in South Carolina" and "Frequency Rainfall Data for Various Regions in South Carolina"
- "Revising SCDOT Flowable Fill Specifications"
- "Non-Destructive Evaluation (NDE) of Bridges"
- "Investigation of SCDOT's Central File System"



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 July 1, 2000 and December 31, 2000

SPR No. 614, "Bridge Rehabilitation Using Fiber Reinforced Polymer (FRP) Composites- Phase II"

Principal Investigator: Dr. Michael F. Petrou, University of South Carolina

SPR No. 615, "Review of Class E Concrete Bridge Decks in South Carolina – Phase II"

Principal Investigator: Dr. Michael F. Petrou, University of South Carolina

SPR No. 617, "Laboratory Mix Design and Field Evaluation of Modified Asphalt Binders"

Principal Investigator: Dr. Serji N. Amirkhanian

SPR No. 618, "Development of Profiler-Based Rideability Specifications for Asphalt Pavements and Asphalt Overlays"

Principal Investigator: Dr. Ron L. Baus, University of South Carolina

SPR No. 620, "Assessment of Public Opinion of the SCDOT"

Principal Investigator: Dr. Sandra J. Teel, University of South Carolina

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Research Projects Completed Between July 1, 2000 and December 31, 2000

SPR No. 572, "Development of a Quality Assurance Program for Asphalt Paving Mixtures in South Carolina - Phase II"

Principal Investigator: Dr. James L. Burati, Jr., Clemson University

SPR No. 580, "Investigation of Waste Tires In Landscaping Applications"

Principal Investigator: Mike Sanders, South Carolina Department of Transportation

SPR No. 599, "Modeling of Floods In Piedmont Streams"

Principal Investigator: Dr. M. Hanif Chaudhry, University of South Carolina

SPR No. 601, "Performance Evaluation of High Density Polyethylene (HDPE) Pipe"

Principal Investigator: Dr. Sarah L. Gassman, University of South Carolina

SPR No. 605, "Technology Transfer Programs for Aggregate and Concrete QC/QA Certification of Contractors and SCDOT Personnel"

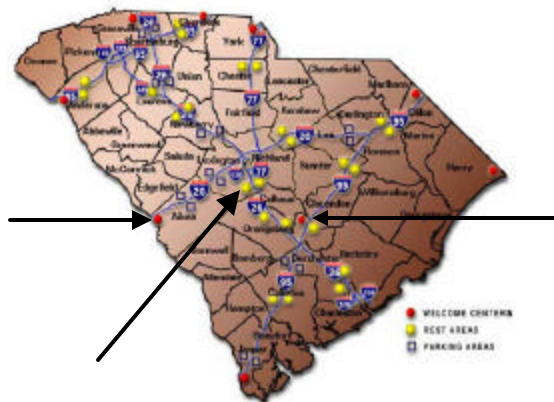
Principal Investigator: Dr. M. Hanif Chaudhry, University of South Carolina

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

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Field Evaluation of Waste Tire Landscaping Products Completed

Research Project No. 580, "Investigation of Waste Tires in Landscaping Applications," was completed in October 2000. The study monitored the performance of landscaping products made from shredded rubber placed at five (5) of the Department's rest areas and welcome centers as shown below.



Locations of the Test Sites.

Funds to purchase and place the rubber products were obtained by Three Rivers Solid Waste Authority through a grant provided by the South Carolina Department of Health and Environmental Control's Office of Solid Waste Reduction and Recycling. The existing mulch was removed at the sites by Department maintenance forces. The waste tire products, produced from ninety-four (94) tons of tires collected from illegal dumps in the Three River's area, were placed by the manufacturer. Loose mulch varying in size and color was placed around buildings and in flowerbeds. A landscaping fabric was used beneath the mulch

as a vegetation barrier. Mats, made from the loose rubber mulch mixed with a binding agent, were used around trees, light supports, and similar objects.



Loose Rubber Mulch Placed at a Test Site.

After three (3) years, the waste tire landscaping products were in good condition. The mulch did not deteriorate and little change in color was noted. Attendants at the facilities were pleased with the mulch stating that there was less upkeep with the rubber mulch and that it stayed in place after rains better than traditional wood mulch. The mats were also in good condition but those placed in isolated areas of the facilities received less maintenance and many were covered with soil and grass.

The initial cost of the waste tire mulch is considerably higher than traditional hardwood mulch. However, the Department replaces wood mulch yearly at its facilities. A cost comparison at the end of the study indicated that the rubber mulch would have to last four (4) to five (5) years to be cost effective. Though the material was only monitored for three (3) years, there was no indication that it would not last several more years. Also, the cost comparison did not give any credit for use of a waste material.

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(Waste Tire Products -- Continues from Page 5)

Some other positive and negative attributes of the waste tire landscaping products are:

Positives

- the loose tire mulch, particularly in the smaller sizes, had a very pleasing appearance and looked remarkably like traditional wood mulch;
- reported reduction in bug problems when rubber mulch used around buildings;
- use of a waste product that might have been placed in a landfill or disposed of illegally.

Negatives

- the materials had a rubber odor particularly strong on hot, humid days;
- steel strands from tires remained in some pieces of the large size loose mulch;
- summer flowers did not live in the rubber mulch in a couple of locations due to the heat but no problems were noted with shrubs and fall bedding plants.



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