



*In Charleston County, Slurry Pavers, Inc. places micro surfacing*

# Charleston County Mends Preservation with PMS

By Ellie Payne



**T**he word is out, and governments across the country see pavement preservation as a crucial component of modern pavement management systems (PMS).

Charleston County, which encompasses the City of Charleston, is located in eastern South Carolina and is following this trend,

adopting a proactive preservation approach to maintain and advance its PMS.

This preservation through PMS activity complements one of the largest and most underfunded road systems in the country, that of the South Carolina Department of Transportation, and will spend county taxpayer dollars more wisely.



As a rookie in the field of pavement preservation, Charleston County sees education as the key to the successful implementation of its pavement preservation program.

### REALLOCATING FUNDS

Richard Turner, pavement manager for Charleston County Transportation Department, advocates this movement. Pavement preservation is only one of three categories of funding within the PMS, but by reallocating some money from the Rehab and Reconstruction funds, the county will be able to improve more miles of roadway for the same amount of money, this according to the Charleston County Transportation Committee's website [www.charlestonctc.org](http://www.charlestonctc.org).

"Choosing the right treatment for the right road is what we are learning now by completing pilot projects and meeting with vendors and industry professionals," Turner said. "One fuels the other; by meeting with industry leaders, we learn what techniques could be successful in the Charleston area."

Engineers then design pilot programs that put these techniques to use in Charleston's uniquely structured system. What might work on high-volume roads may not be the answer for the county's mostly low-volume road system.

*The right treatment on the right road at the right time* can be a fine line to walk, said Turner. "If you place a preservation treatment on a road that is a little too far down its life cycle, then the treatment will not last very long, and the effectiveness will not be realized," he said.

Pilot programs help identify the right tool to use for a particular project. By continually evaluating techniques and products, the county will stock its "tool box" with cost effective practices for pavement preservation.

### EVALUATING TECHNIQUES

Among the techniques recently evaluated for integration within the PMS are *ultrathin lift asphalt overlays, crack sealing, asphalt rejuvenation, fog sealing and micro surfacing*.

The trials do not get a pass or fail mark, but rather are used to test the limits of a particular treatment given different variables such as age, service load and pavement distresses.

For instance, Charleston County cut maintenance costs for some of

its low-volume, weathered roads by using a combined treatment of cracking sealing with an ultrathin overlay instead of the typical 1.5-in. layer. After crack sealing using a liquid rubberized asphalt material, it applied an ultrathin, warm mix asphalt overlay.

Though the cracks reflected through the surface after a few months, the project was considered a success in that the combined treatment effectively sealed the



South Carolina DOT staff observes placement of Reclamite rejuvenator in Charleston County





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cracks and the surface from harmful elements, and provided a new, smooth and quiet wearing surface. The engineers learned that the combined technique provides a good quality treatment, but has its limits and may be better suited for roads with less cracking.

#### **REJUVENATOR TESTED FOR FIRST TIME**

In another pilot program, Charleston County partnered with SC DOT to test, for the first time on Palmetto State public roads, Reclamite asphalt rejuvenator.

Testing began in October 2012 on five test sections throughout Charleston County. Pavement Technology, Inc is the authorized contractor for Reclamite and John Schlegel, the operations manager, was onsite for the demonstration.

"Reclamite is a maltene-based pavement rejuvenator that actually combines with the asphalt cement in the pavement and changes the chemical properties in that asphalt



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*In May 2013, the county completed a test section utilizing Tire Rubber Modified Surface Seal*

cement, giving it a higher penetration number and lower viscosity number," Schlegel said. "This is a chemical treatment of the asphalt road which reconstitutes the binder that is in the top quarter-inch of that pavement, to help seal it against the oxidation and the elements it's exposed to, and maintain the fines and the gravel that's in the roadway."

The product basically gives the asphalt a new lease on life, and testing confirmed the assertion; Reclamite asphalt rejuvenation is a fast and affordable way to delay the aging process of a road.

#### **FOG SEAL TOOL OF CHOICE**

For roads between five and 10 years old, fog seals have become Charleston County's tool of choice for pavement preservation.

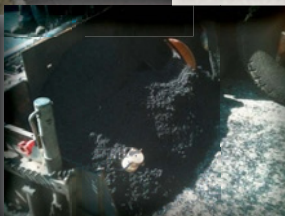
In May 2013, the county completed a test section utilizing Tire Rubber

Modified Surface Seal (TRMSS) by Wright Asphalt Products. The project was a success and provided a great learning opportunity for both the county and local contractor, Truluck Construction Co., which is exploring opportunities of a pavement preservation service line.

Research and analysis established that the TRMSS is an acceptable method to seal roads. By using recycled tire rubber, engineers can seal a road providing resistance to weathering, UV degradation and oxidation. Additionally, for every lane mile of the TRMSS placed, approximately 18 tires are recycled. Moving forward, the county will pursue opportunities to further explore the use of fog seals and complete the first fog seal contract in the Charleston County.

Benefits abound for testing modern approaches to pavement preservation, and the new Pavement Preservation Certification Program offered at Tri County Technical College, near Anderson, S.C., ensures

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engineers can identify the appropriate preservation treatment for a particular road. It's the first course of its kind in the United States, according to the National Center for Pavement Preservation.

It's a part of the SC DOT's Technician Certification Program, and Charleston County is the first municipality in the state to certify engineers in pavement preservation.

"With pavement preservation finally in the spotlight, we cannot afford to have failures," said Jim Feda, PE, director of maintenance for the SC DOT. He's a huge proponent of certification and indicates that by July 2013 all preservation projects were to require a certified technician on-site.

"It is good to see that Charleston County is taking the initiative to have its employees complete the pavement preservation certification, but this does not really surprise me because I have always thought that Charleston County had a

good pavement management and preservation program," Feda said. The college currently offers three certifications in preservation, through which Charleston County has certified four employees.


#### STAYING ON CUTTING EDGE

Turner believes that knowing what other industry professionals are up to allows Charleston County to stay on the cutting edge. As a member of both the Georgia-Carolina Pavement Preservation Council and the Southeast Pavement Preservation Partnership, he is able to keep the county in the conversation. "Sharing ideas, successes, failures and new products are all part of learning more and becoming more effective and efficient," Turner said.

Though the county's Pavement Preservation Program is in its beginning stages, the condition of the pavements in Charleston County roads are still above average for the state of South Carolina.

In fact, the American Public Works Association (APWA) just awarded Charleston County's Transportation Department accreditation for going above and beyond requirements for public service.

The county intends to lead the way in innovation when it comes to pavement management and pavement preservation. As pilot programs continue, the county will compile an arsenal of preservation techniques to combat the inevitable effects of aging and service on all types of roads before the road requires rehab or reconstruction.

Currently, 27 miles of roadway are marked for micro surfacing for 2013, and the county is currently working on a project for asphalt rejuvenation on 20 miles of roadway. The county hopes to have pavement preservation fully integrated into the PMS for the fiscal year of 2014. 

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