



Greenville goes green

Miss. town shows how new asphalt recycling process saves time, money

By definition, the Re-HEAT process is an on-site, in-place pavement rehabilitation method that consists of heating the existing pavement with a thermal transfer of up to 600°F, removing the aged and distressed surface course asphalt, adding a polymer-modified asphalt-rejuvenating emulsion, mixing the material uniformly in an on-board mixing drum and re-laying the recycled material. The train is followed by conventional compaction equipment. Once conventional compaction equipment compacts the 2- to 3-in.-thick layer of fresh recycled asphalt, traffic can begin to use it immediately. Unlike other methods of in-place recycling, such as heater-scarified hot in-place and cold in-place recycling, this method does not require a final wearing course such as microsurfacing or HMA paving.

Rebuilding and saving

The city of Greenville, Miss., has grown into a prosperous place perched between Vicksburg and Memphis. Located in the heart of the Mississippi Delta, Greenville is a town of spirit that has survived flood, fever and fire. In many ways the city has not changed. It is the same city led by the spirit of men who built it, those weary men who, returning from the Civil War, found their homes in ashes and rebuilt.

The 130-year-old city is now confronting another rebuilding of sorts, not unlike that of its ancestors. The largest port on the Mississippi River, Greenville has a plethora of aging infrastructure and 150 miles of roads that require rehabilitation. The mayor, Heather

McTeer Hudson, and her city engineer, Lorenzo Anderson, P.E., make an exemplary case study of how any city or county can save millions by implementing a solid pavement management, recycling and preservation program. The U.S. DOT has long since proven that this type of three-legged-stool approach can save agencies millions by using green recycling techniques coupled with life-extending pavement preservation techniques.

A green challenge

Several years back, Mayor Hudson challenged her staff to come up with methods of rehabilitation for their infrastructure that would not only save money but also be more energy efficient and sustainable.

“Going green and the economy are synonymous. Lorenzo brought great ideas to the table, including job creation, costs savings and benefits for the community,” Hudson said. The mayor also gave the city engineer the go-ahead to purchase MicroPAVER pavement-management software. Her staff then loaded pavement distress survey data into the computer software. Their average network-level pavement condition index (PCI, with 0 being impassable and 100 being new or having major rehabilitation) was in the high 50s.

“Once we settled on the Re-HEAT method as the most suitable means of in-place rehabilitation for our streets we started the bid process,” Anderson said. “As we were the first agency in Mississippi to implement this hybrid type of hot in-place recycling work, we called agencies

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such as the Florida Department of Transportation and Ohio DOT to obtain historical information on their experiences with this process and guidance. Since we do have a local paving contractor in the city, we also allowed for the option of a 2-in. mill and inlay bid in lieu of the Re-HEAT process at the time of the letting."

"Based on the competitive bids that we received, we were pleasantly surprised to see that with the Re-HEAT process we could plan to do 43 city streets instead of the original 20 that we had budgeted with the conventional mill and inlay process used in previous years," Hudson said. "With the 50% savings we are getting we can do over twice as many roads. This is great for our people, businesses and growth in our city. Now I can say that green is the new green. When the equipment arrived on the first section of work, and we all went out there to see it, touch it and watch it in action, we couldn't believe how fast and efficient Re-HEAT turned it [the old road] over into a new street without the long line of trucks and noisy, dusty milling equipment.

"In fact the local statewide paving company CEO visited the jobsite and got a vision of how everything was going to go and got a good idea that recycling is the way to go. During a trip to France last year, I saw firsthand how advanced some European agencies are when it comes to asphalt recycling and sustainability. We have a great opportunity with our city to get everyone on board and be at the forefront of it. With Re-HEAT it is good for the community, environment and the future by using our resources most wisely."

According to Anderson, the Re-HEAT method has been used on a few streets in Greenville, including Robertshaw from Highway 1 to Colorado and Trailwood from Reed Road to Anne Stokes Street. The typical cross section of the road is 24 in. wide and has 3 in. of asphalt and 8 in. of crushed stone.

7-point solution

Recently appointed to chair the Environmental Protection Agency's (EPA) Local Government Advisory Committee (LGAC), Hudson said the fact that the Re-HEAT train emits 65% less emissions

than a stand-alone asphalt plant and has an 80% smaller carbon footprint means a lot to her and the colleagues that are part of the committee. The in-place process eliminated the trucking of more than 30,000 tons of millings and asphalt on one job alone. That equates to more than 2,000 truckloads of resources that will not be driving over other streets and damaging them to get to and from the project.

"Our network PCI ratings are increasing about 7 points a year since we implemented the MicroPAVER pavement evaluation and management system and combined it with asphalt recycling," said Anderson. "While we do some of our worst streets with a reclaiming, our biggest cost savings comes with the Re-HEAT train. Once the road is hot in-place recycled, we reset the PCI in our software to 100, and fully expect to see a 12- to 15-year life cycle similar to that of a mill and inlay at half the cost."

It is worth noting that streets typically fall about three PCI points per year when left unattended, so the fact that Greenville streets are going up 7 points a year on average is a huge testament to their overall approach. Anderson planned to implement other pavement-preservation techniques such as microsurfacing and thin overlays in the future once their backlog of poor condition roads are rehabilitated with the Re-HEAT process.

For the past few years, Anderson has been using asphalt millings to make his gravel roads last longer and full-depth

reclamation for his roads with PCIs under 50. He also plans to use the Re-HEAT process beyond the initial contract.

"I especially like the idea that the Re-HEAT layer offers twice the crack mitigation against the underlying cracks versus a conventional mill and inlay," Anderson said.

A good neighbor

Combining a solid pavement-management program such as MicroPAVER, asphalt recycling and pavement preservation has certainly helped Hudson save Greenville millions of dollars.

"This is an easy way to make a big difference with our environment," Hudson said. "We were the first city in Mississippi to use the Re-HEAT process to recycle our roads in place without a wearing course. I will be telling anyone who will listen, the LGAC members, county commissioners, city politicians—this is a no-brainer for us.

"This process takes so much less time and we are in and out of neighborhoods quickly.

"The time savings is not something that everyone talks about, but community members are well aware of the long delays, limited access to driveways, messy tack coat, dust, lines down and noise from conventional mill and inlay projects. They appreciate what we have done so far." **R&B**

This article was written by Blair Barnhardt. Barnhardt is CEO of the Barnhardt Group LLC, Kennesaw, Ga.



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Custom parts

Reid Supply has announced a state-of-the-art precision tool components and machining company to create industrial products on demand for clients via their sister company Total Quality Machining (TQM). TQM is able to fully customize many standard industrial parts and create new products, allowing customers to get exactly what they need. The machine shop uses high-end computer numerical control equipment and the company's vast library of CAD drawings to provide reproducible accuracy and precision for both small and large batch orders. **Circle 907**



Efficient hopper

Featuring a larger hopper and mixer, the Powercreter 20, by Allentown Shotcrete Technology, makes projects more efficient by accommodating larger amounts of material. The 2011 model is ideal for mid-range pumping requirements and uses the sturdy Thom-Katt frame and control box. The hopper has a maximum capacity of 9.5 cu ft and the machine is rated up to 17 cu yd per hour. It features a Deutz TD 2011L04i diesel engine, and maximum concrete pressure is up to 2,000 psi. **Circle 908**



Rugged tablet

Using the rugged 7-in. touch-screen tablet, Trimble Field Link can dramatically improve productivity by giving field personnel more information readily at their fingertips. Contractors working with Building Information Modeling (BIM) can now view 3-D DWG and DXF design, allowing field crews to make more informed decisions when problems arise. Because it is a full-functioning PC, contractors also can run additional business applications. **Circle 909**

High intake drainage system



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Bobcat's BLR2 laser receiver and deluxe instrument panel are now available on the 600, 700 and 800 platform M-Series compact track loaders. The laser-operated attachment line also has been expanded to 96-in. and 108-in. graders. With the in-cab panel, the operator is given a number indicating how much material needs to be removed or added for grade. Operators also can make changes from inside the cab and can change the grade in 0.1-in. increments for a total of 2 in. up or down. **Circle 910**



Compact demolition robot

Husqvarna's newest remote-controlled demolition robot, the DXR 140, is the smallest and lightest unit to date. The DXR 140 is available with a 14.75-hp or 20.12-hp engine and allows the operator to utilize up to 100% of the breaker's force. Because of its compact size, the robot can work in restricted spaces where the substrate requires a lightweight machine. The 30-in. body even makes it agile enough to get through doorways. The unit has a maximum reach of 12 ft and is controlled with a Bluetooth remote. **Circle 911**



More light

Doosan has announced the newest addition to its line of portable light towers with the LightSource Compact (LSC). Four 1,000-watt metal-halide floodlights provide a NEMA 6 x 7 beam spread for better light distribution and area coverage, and the steel tower can extend from 12 to 30 ft. At full mast and with all four outrigger/jacks secured, the tower can withstand winds up to 65 mph. The LSC also comes equipped with a Mitsubishi L3e Tier IV Final engine and 27-gal fuel tank for up to 52 hours of continuous operation. **Circle 912**

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Circle 780





Stable drum

The Lane Changer traffic drum, from Work Area Protection, features a new design for more stable and efficient performance. New 5-in.-wide antirotation claws keep the drums stable and reduce the need for repositioning. They also are designed to minimize stacking height, so that more drums can be brought to the jobsite per trip. An antiroll bottom also helps the drum resist rolling after an impact. Recessed reflective tiers and the sheeting edge protector guard against wear and tear during stacking and transportation as well. It also meets MUTCD, NCHRP 350 and sheeting configuration requirements. **Circle 913**



Storm-water design guide

Cultec's newest "Stormwater Management Design Guide" includes the latest product, design and technical information for the company's Contactor and Recharger plastic chambers. It also includes manual system sizing calculations, instructions on how to use the Stormwater Design Calculator and StormGenie, as well as modeling tips for HydroCAD, ICPR, PondPack and StormNET software. The guide also has model-specific pages for easy reference. **Circle 914**



Tough curb

The XLP, by Tuff Curb, is a low-profile, high-performance curbing system designed to withstand damaging high-speed, high-impact applications. It is made from solid-colored, UV-resistant, high-density polyethylene and is designed to withstand 20,000 lb of static pressure—double the federal single-axle vehicle maximum for a single wheel. The XLP provides superior strength and fewer pieces, decreasing installation time and cost. It also surpasses federal mandates for reflectivity. The features and benefits are perfect for HOV lanes, city streets, turn restrictions, bridges, tunnels and parking structures. **Circle 915**

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Wireless testing

The Pile Integrity Tester (PIT)-X2 looks exactly like the PIT-X, acquiring data from two accelerometers that are coupled to a small wireless transmitter and work with a small, handheld hammer. While routine integrity tests may be performed with one accelerometer, a second accelerometer becomes necessary to test piles under existing structures, determine concrete wave speed, evaluate unknown foundation length and to better analyze the records of relatively large piles. **Circle 916**



Problem detectors

Keep the job running by detecting potential problems before they happen with the Hilti PS 30 and 35 ferrodetectors. The detectors are capable of locating reinforcing bars in concrete, CMU or brick up to a depth of 4¾ in., as well as copper or aluminum pipes up to 3 in. deep—all with an accuracy of ± 3/8 in. The PS 30 can determine whether rebar or piping is beneath the surface to avoid destroying drill bits or cutting through structurally relevant concrete. The PS 35 can show the depth of the object. **Circle 917**



Surface profiler

Topcon Positioning Systems' RTP-300 real-time profiler collects surface data at speeds up to 65 mph and creates an exact model of the existing surface. The system uses three lasers to profile the road. That, combined with data from Topcon's GNSS dual-constellation satellite receiver system, can accurately determine the various degrees of roughness or smoothness of the road surface. The data file can then be used in any standard CAD software made for design applications. The entire system can quickly be attached onto any vehicle with a trailer hitch. **Circle 918**



High reach

JLG has announced a new model in its line of boom lifts, the 340AJ. It features a lift height of 34 ft, a horizontal reach of 20 ft, and a 17-ft up-and-over reach. The lift can hold up to 500 lb and also has an environmentally friendly Tier IV diesel engine. A gas/liquid propane engine also is available. In addition, it also is easy to service and has steel hoods for increased durability. **Circle 919**



Rugged controller

The Trimble TSC3 is a rugged handheld controller for heavy and highway contractors. With built-in GPS, 3G, Wi-Fi and a 5-megapixel digital camera, construction professionals can get accurate positioning and digital design information. They also have the ability to locate, measure and record information anywhere on the construction site. It features a 4.2-in. sunlight-readable touch-screen display, ruggedized bumpers and a long battery life. With the controller, issues and work can be photographed and sent back to the office overlaid on the site map, allowing for instant decisions. **Circle 920**



Mobile light and generator

Doosan's Ingersoll Rand L20 is a combination light tower and mobile generator. The 32-hp Mitsubishi diesel engine and 20-kw generator offer enough power to light a wide area while providing up to 16 kw of energy for trailers, tools, heaters and more. The light has four 1,000-watt metal halide lamps mounted to a telescoping mast that can extend from 12 to 30 ft. The light can rotate 360°, and the unit features an easy-to-use control system. **Circle 921**

— edited by Todd Loesch