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pavement preservation *journal*

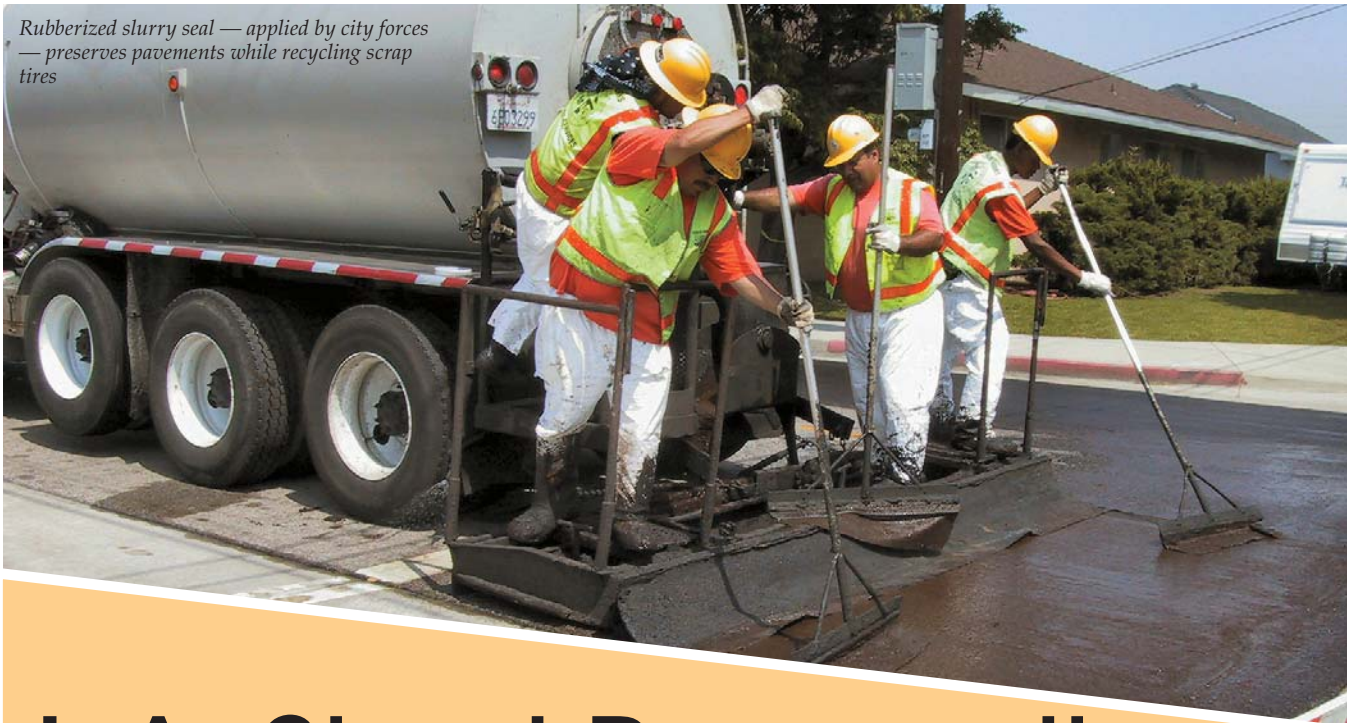
WINTER
2009



INTEGRATING PAVEMENT MANAGEMENT WITH PRESERVATION

FP² Restructures

Remembering
Jim Sorenson



Rubberized slurry seal — applied by city forces — preserves pavements while recycling scrap tires

L.A. Street Preservation: It's For, and About, the Public

By Nazario Saucedo

"They paint the roads black just before an election."

"They schedule road work according to the number of complaints or squeaky wheels."

"The councilman gets his road resurfaced first."

We have all heard these comments before, and depending on where you reside in the nation, they may or may not be true.

The City of Los Angeles, however, has a very different strategy. The city knows that investing in pavement preservation reduces the four-to-five times higher cost of rehabilitation. Furthermore, the city's street managers want residents, stakeholders, and the general public to fully comprehend the simple concept of "pay less now, or pay much more later."

By having an ongoing pavement preservation education program, the city has been able to convey the message to its communities. Neighborhoods clearly understand that the Bureau of Street Services (BSS) of the city's Department of Public Works has been very effective at giving the taxpayers the best value for their tax dollars. In return, residents have demonstrated a strong sense of support that has been instrumental in funding the city's pavement preservation program.

NATION'S LARGEST STREET NETWORK

Los Angeles has the nation's largest and most congested municipal street system. It is comprised of 28,000 lane-miles, many of which were built before World War II. Decades of insufficient maintenance and rehabilitation funding, increasingly heavy traffic and thousands of utility cuts per year have all left the streets in a mess.

The city's annual resurfacing program of 50 miles per year remained constant between World War II and 1987, despite the fact that the system grew from 2,500 to 6,500 centerline miles of paved streets. The problems were exacerbated by California's Proposition 13, which dramatically cut tax resources used for street maintenance; and yes, the city was also guilty of some of the charges cited at the beginning of this article.

In the mid 1990's, the BSS recognized the need to use engineering-based knowledge and technologies to address the street network challenges. The first logical step was to replace the old and subjective pavement management system (PMS) that was created in-house during the early 1980s with a state-of-the-art PMS capable of objectively determining pavement condition and



Los Angeles conducts base recycling program prior to overlays using own equipment

predicting future condition based on different budget scenarios.

The fix strategy subsequently included a commitment to a sustainable level of budget allocation for pavement preservation, a toolbox of treatments and rehabilitation techniques, an aggressive recycling program and a very ambitious public education program.

This “fix” would not be possible without the continuing support of the mayor, the city council and every employee of the BSS. The city has its own trained personnel to perform both maintenance and rehabilitation work; it also owns two municipal asphalt plants that produce both virgin and recycled hot mix. In addition, the city owns a large fleet of maintenance and resurfacing equipment as well as a state-of-the-art standards lab where all materials and procedures are meticulously tested to guarantee the best quality control.

Moreover, there is a strong emphasis on developing pavement preservation products and processes that are more cost-efficient and environmentally-friendly. To this end, the city has partnered with numerous private and public industry leaders as well as local universities.

Lastly, the BSS recognizes that public buy-in is essential to continue the dedicated sustainable funding. Neighborhoods continuously express their priorities to the elected officials. The better educated the residents are about an issue that interests them, the better the chance will be to get the elected officials to support their concerns and demands.

L.A. USES MICROPAVER

The BSS implemented MicroPAVER in 1998. MicroPAVER was originally developed by the U.S. Army Corps of Engineers for road and airfield pavement maintenance management on military bases. It uses inspection data to create a pavement condition index (PCI) rating from zero (failed) to 100 (excellent).

In addition to current pavement condition, MicroPAVER determines the type of maintenance or rehabilitation work required and the best time to perform it based on future pavement condition prediction.

The street network in Los Angeles network was broken down into 69,507 pavement segments (each one equivalent to one city block) that were inventoried and entered into a

computer database. The city manually routed all segments to optimize future inspection efficiency and accuracy, and implemented a three-year survey cycle.

A state-of-the-art automated van collects pavement condition data, which is analyzed by bureau staff to determine type, severity and quantity of distresses. In addition, the van is equipped with lasers that measure rutting and roughness, digital cameras to capture pavement surface images, and a computerized work station to ensure proper storage of data.

MicroPAVER software calculates the PCI and develops life cycle curves. Using a critical PCI, the software develops an optimum preservation and rehabilitation strategy based on different budget scenarios.

Acknowledging the limitations of current budgets, the City of Los Angeles has adopted a Save the Streets strategy that emphasizes the preservation of as many fair to good condition streets as possible so they will not fall into the “failed” category, and hence, require expensive rehabilitation in the near future.

MEET ‘PROFESSOR POTHOLE’

Perhaps the city’s most innovative and effective strategy to secure funding for its pavement preservation program is the public education program. Every three years, the BSS uses the information provided by the PMS to publish a *State of the Streets* report, which is available to all citizens. This report clearly explains the methodology of the PMS, the current PCI ratings of the network, and the funding required to optimize the quality and costs of the city streets.

It explains why taxpayers can “pay now, or pay much more later,” illustrating the points with graphs showing the decline in PCI over time with current funding levels, and depicting exactly what the funds will provide for the neighborhoods.

The BSS has also developed the *Professor Pothole* training courses and presentations to educate elected officials, workers and the public on basic road structure and pavement preservation principles. The presentations explain a historical overview of “how we got in this mess,” current efforts, technologies and treatments being used, and solutions.

Several times a week, the BSS takes these presentations to evening meetings of neighborhood councils, customizing them to show an assessment of the roads in those neighborhoods. The BSS has targeted the 89 certified neighborhood councils, elected officials and their staffs, the media, and local colleges and universities to spread their message. The State of the Streets report, the training presentations and continuously updated information all is available on the city’s web site.

Previously, the street preservation budget used to be divided among the 15 council districts, based on centerline miles in each council district. The new allocation formula factors in the pavement condition of the street, the pavement area, and the amount of bus and truck traffic. The purpose

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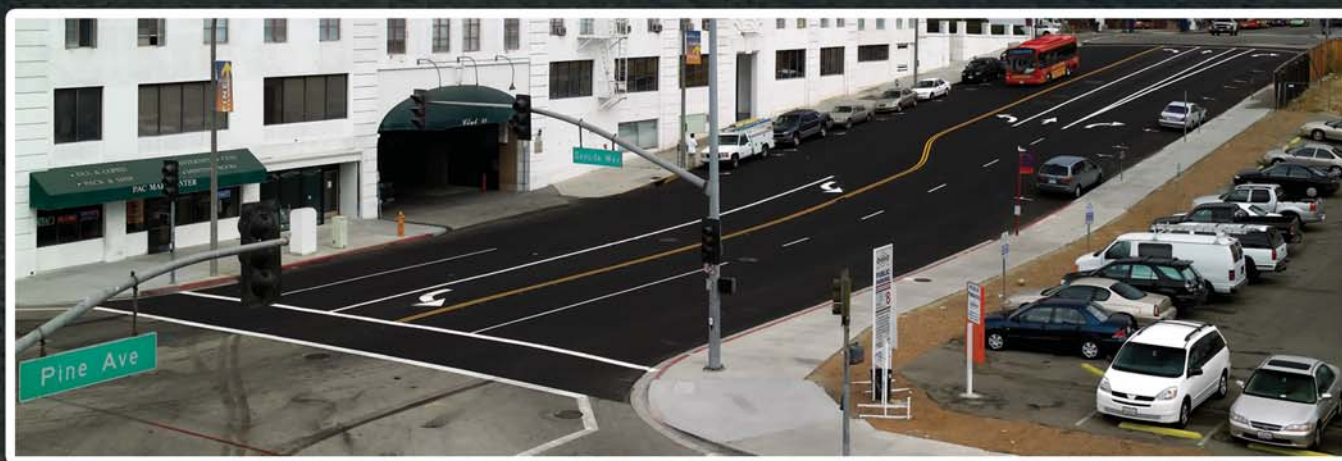
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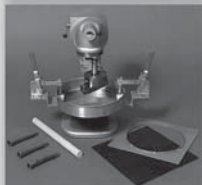
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of this new formula is to equalize the PCI of the street network throughout the entire city.

L.A.'S STRATEGIC PLAN

The city has optimized its street preservation strategic plan by subdividing it into three major programs: a *pavement management program (MicroPAVER)*, a *maintenance program* (pothole repairs, crack sealing, slurry sealing), and a *rehabilitation program* (asphalt overlays, resurfacing reconstruction, cold-in-place recycling, full-depth reclamation).

Operation Pothole hit a historical record in 2008 with over 386,000 small asphalt repairs. One hundred miles of crack sealing were completed as well, and 400 centerline miles of rubberized slurry seal were applied.

A decade ago, the city faced severe challenges with conventional slurry seal. Residents were unhappy with the invasive nature of the work — with stockpiles of sand and heavy equipment parked on streets — not to mention the strong odors and the dusty nature of the operations. The city also wanted a treatment with more reliable and consistent performance, and the BSS looked for a long-term solution.

After testing several possible options, partnering with Petrochem Manufacturing, Inc. (PMI), seemed to be a win-win situation for the BSS. The city would apply a pre-mixed rubberized slurry seal using their existing personnel while PMI would supply the plant mix consisting of latex polymer

solutions

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Approximately 25,935 waste tires are recycled for every 100 centerline miles of streets treated with REAS. Last year, the BSS applied 400 centerline miles; hence, over 100,000 tires were recycled.


To further cut costs, the city has launched an aggressive recycling program to increase the use of reclaimed asphalt pavement (RAP). Both municipal asphalt plants use an average of 20 to 25 percent of RAP in their new hot mixes.

Moreover, to address the streets in need of reconstruction, the city adopted cold-in-place recycling (CIR) technology in 2005. After three years, the BSS has determined that CIR is 25 to 35 percent more cost-effective than conventional reconstruction as well as less invasive to local neighborhoods. The city is committed to CIR and full-depth reclamation as part of a successful recycling program.

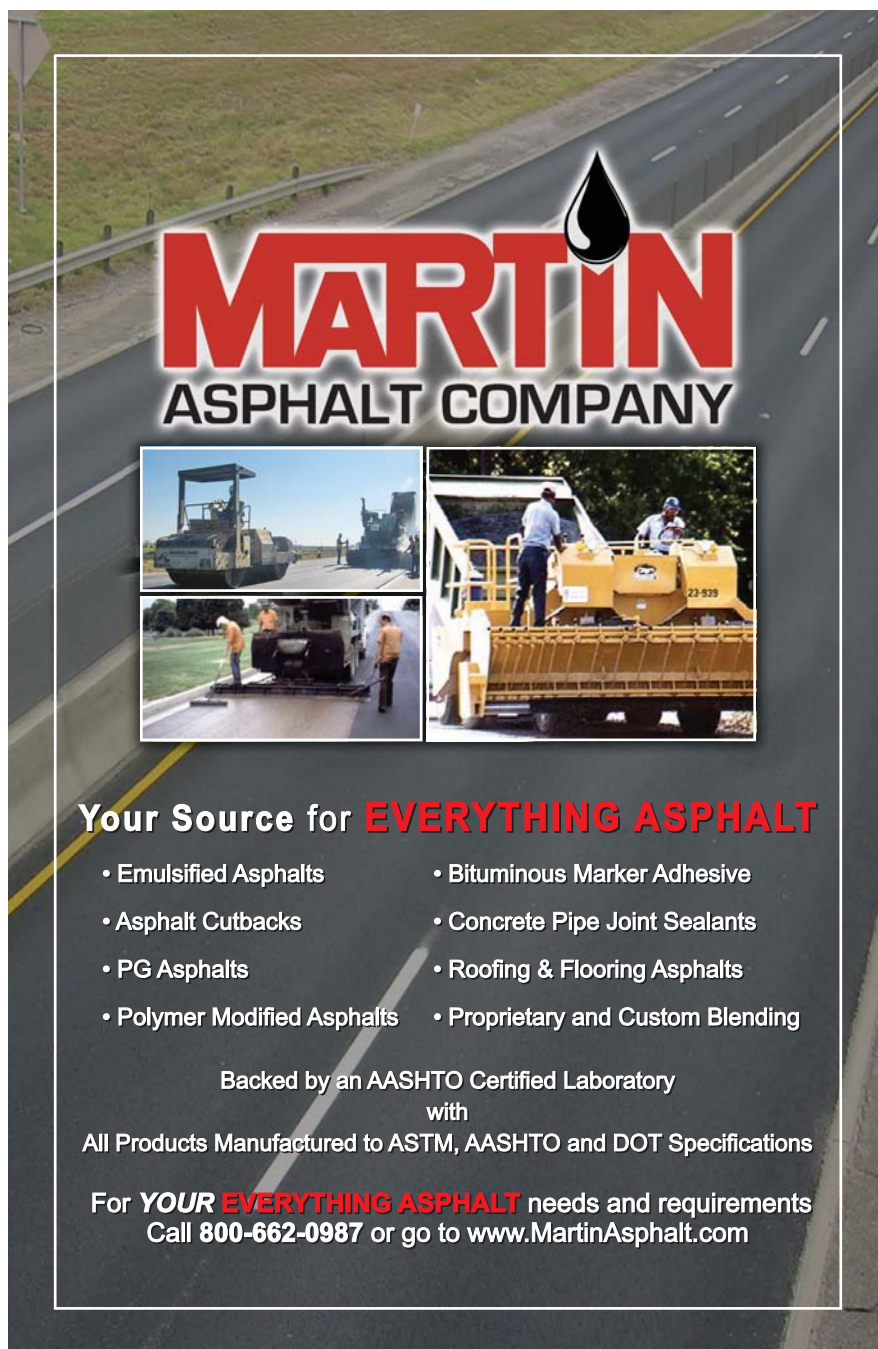
Thanks to the commitment of all involved from the mayor, to the dedicated crews working on the streets, the city is saving its pavements. In 2005, the Foundation for Pavement Preservation awarded

its first ever *Excellence in Pavement Preservation Award* to the city of Los Angeles. This award is presented to a public agency that has implemented a successful pavement preservation program by gaining the support of elected officials and the public.

In 2002, the city's combined crack sealing program, slurry seal program, and resurfacing program consisted of 310 center-line miles. During the 2007-2008 fiscal year, 675 centerline miles of city streets were treated or rehabilitated.

In 2008-2009, the city commenced a new and stronger commitment to pavement preservation. The new, sustainable four-year plan funds the maintenance and rehabilitation of 735 centerline miles annually, which ultimately will improve the average pavement condition index of the city-wide system for the first time since World War II. 

Sauceda is assistant director, Bureau of Street Services, Department of Public Works, city of Los Angeles.



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