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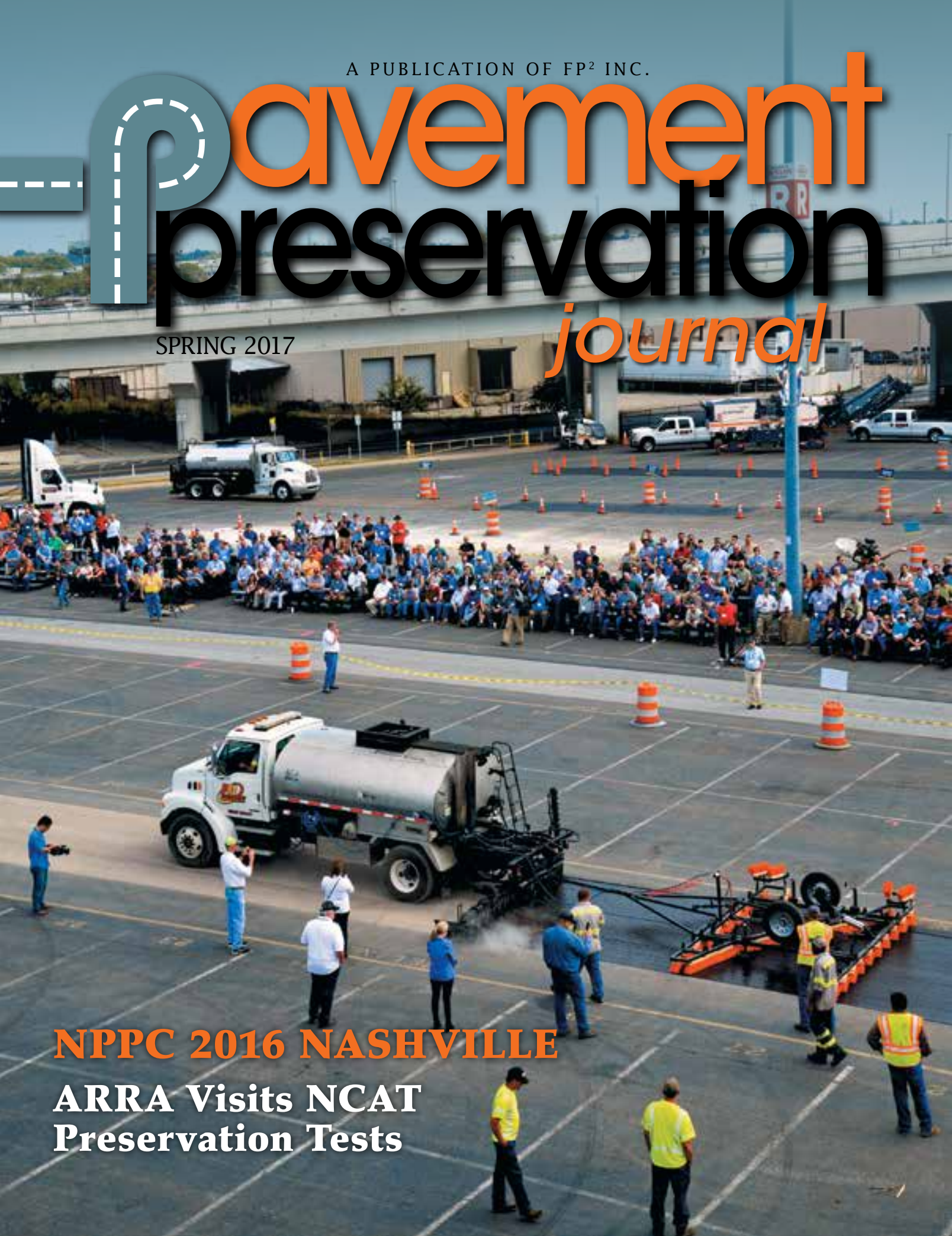
pavement preservation journal

SPRING 2017



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Pavement Preservation Journal

Spring 2017, Vol. 10, No. 1

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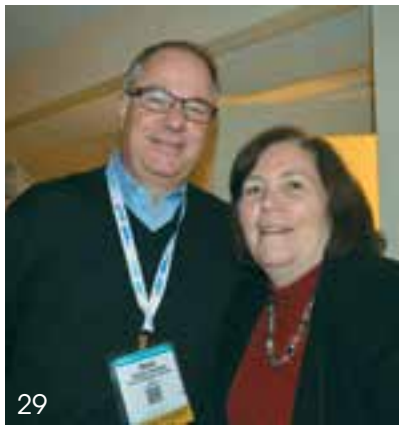

On the cover: Scrub seal is placed at field demonstration at NPPC 2016 in Nashville. See article beginning on p 14. PHOTO CREDIT: Tom Kuennen

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Editor:
Tom Kuennen
(262) 618-4819
expwys@expresswaysonline.com

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Project Manager Lori Glenn
Marketing Manager Taylor Hicks
Account Representatives
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Why Vance Brothers Contributes to FP² Inc.

The Importance of supporting FP² Inc.

Tim Harrawood, manager of the Southern Contracting Division, Vance Brothers, tells why his pavement preservation contracting business directly supports FP² Inc. with its financial contributions:

Vance Brothers has been in the asphalt business since 1923. We're family-owned, and our footprint reaches from Colorado to Texas, and Tennessee to Louisiana.

With two pavement maintenance contracting divisions, expanding pavement preservation products and services are of the highest importance for Vance. FP² helps us in this mission.

Because of FP² and its allies, pavement preservation is much more widely accepted today than just five years ago. FP² and the industry's theme of "the right treatment for the right road at the right time" has helped us secure a foothold in many markets, and grow that business.

More than that: the current "buzz" about pavement preservation is directly attributable to FP²'s efforts. If it weren't for FP²'s involvement in advocacy for pavement preservation, preservation language never would have made it into MAP-21. And as a direct result of FP²'s continued advocacy efforts, that preservation language was retained within the recent FAST Act reauthorization.

FP²'s support of pavement preservation research at the National Center for Asphalt Technology, and now the MnROAD test facility of the Minnesota DOT, has been absolutely critical for validation of the pavement preservation practice. Now, quantitative data coming out of NCAT are helping us justify pavement preservation to new customers.

The need for reliable research is why in addition to financially supporting FP² and the NCAT research separately, Vance Brothers was proud to be the contractor for preservation treatments in both the 2012 and 2015 research cycles at NCAT, and NCAT/MnROAD on the northern test installations in 2016.

FP² helped launch that research, and remains very active in the evaluation process, but so much more work has yet to be done. There's strength in numbers. The more contractor support FP² has, the better off the preservation industry will be. That's why I urge my fellow contractors to join Vance Brothers in supporting FP² and the NCAT/MnROAD research with their contributions.

Please consider joining leading industry businesses and national associations in supporting FP². **For more information, contact executive director Jim Moulthrop P.E. (PA, AZ) at 512.970.8865 or jimmoulthrop@gmail.com.**

More than Ever, FP² Delivers Value to Preservation Community

By Andrew Crow
President, FP² Inc.

As we move into 2017, I am proud to lead FP² Inc. as its new president.

FP² and the pavement preservation community owes a great debt of gratitude to our immediate past president, Rod Birdsall, P.E., All States Materials Group, for the spectacular contributions he has made. His commitment, his investment in time and tireless efforts and energy in representing FP² at high levels has moved us all onto a new playing field.

We thank him for his vision of where FP² needed to go, his leadership in blazing that trail, and the tremendous amount of work he put in to getting us there.

The token of appreciation with which the board of directors and I presented Rod as he stepped down as president in January in no way equals the contribution he made to FP² and the pavement preservation community. But it will have to do as we follow up on the policies he initiated and as we move FP² into new areas.

FP²'S MAJOR MISSIONS

FP² moves pavement preservation forward at a national level, underwriting and supporting the efforts of technology transfer institutions like the National Center for Pavement Preservation (NCPP) at Michigan State University, and other outreach efforts.

Its support also makes possible exciting technology transfer events like the recent National Pavement Preservation Conference held in October in Nashville. If you were there, you came home loaded with ideas on how to advance pavement preservation in your own ways; if you weren't, check out the article in this issue on page 14 and see what you missed!

FP² also supports research in pavement preservation. In my opinion, the No. 1 most valuable thing FP² is supporting is the ongoing preservation research at NCAT and MnROAD. That field research is something we as an industry talked about for years, but struggled to get done. Now FP² and its partners have made it happen.

This research is and will continue to be a powerful way to demonstrate to state DOTs and local road agencies just what preservation techniques can do for them. But FP² can't do it alone; we need to get other firms that will benefit from this landmark research to step up to the plate, support this work financially, and add their corporate logos to the page in this issue that lists supporters of the NCAT and MnROAD research.

Lastly, effective advocacy on behalf of the industry inside the Beltway is another tremendous service to the pavement preservation community that needs more support. Due to FP²'s efforts, we now have federal funding eligibility for pavement preservation, beginning with the MAP-21 and now FAST Act surface transportation legislation.

KEEPING PRESERVATION UP FRONT

But things continue to change, and as the new Trump administration ponders a staggering $1 trillion infrastructure revitalization effort, we have to make sure that maintenance and preservation aren't overlooked in the shadow of the big-ticket megaprojects that usually characterize such legislation. Our D.C. counsel, Tracy Taylor, principal at Williams & Jensen PLLC, already is on top of the issues and our lobbying efforts are just another benefit that FP² provides the industry. See her analysis on page 27 in this issue.

Because of its success in executing all of these critical industry needs, I see FP² as a great investment for my business, and for your business as well. I encourage everyone in the preservation industry to join Ingevity in supporting FP² directly, and the NCAT/MnROAD research as well. Let's all work together to keep FP² and its programs moving forward in 2017 and beyond.

At January board of directors meeting, new FP² president Andrew Crow (right) presents immediate past president Rod Birdsall with token of appreciation, both joined by FP² executive director Jim Moulthrop (left)

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ABOUT FP² INC.

FP² Inc. is a non-profit trade association organized under the Internal Revenue Code Section 501(c)6, and is supported by the pavement preservation industry, contractors, material suppliers and equipment manufacturers.

Formerly known as the Foundation for Pavement Preservation, FP² supports the adoption of pavement preservation at all levels of government, and works to ensure that pavement preservation becomes a part of road programs from coast-to-coast. It also supports valuable research in pavement preservation, and works in close cooperation with the Federal Highway Administration (FHWA), the National Center for Pavement Preservation (NCPP), and regional pavement preservation partnerships and state-based pavement preservation centers.

FP² also sponsors key promotional activity events, such as international and national pavement preservation conferences. It supports distribution of promotional information to support pavement preservation, such as brochures and the quarterly magazine *Pavement Preservation Journal*.

Please consider joining the leading-edge businesses and national associations above in making a financial commitment to the future of pavement preservation by supporting FP². For more information, contact executive director Jim Moulthrop, P.E. (PA, AZ), (512) 979-8865, jimmoulthrop@gmail.com.

*Displayed organizations and businesses are limited to those contributing in the last six months of 2015

Ohio Puts Preservation Ahead of Worst-First

For its detailed program of moving from "Worst-First" pavement maintenance to "Preservation-First" management, the Ohio Department of Transportation (ODOT) is the winner of the *2016 James B. Sorenson Award for Excellence in Pavement Preservation.*

The Sorenson Award is presented each year by FP² Inc. to recognize superior pavement preservation practice, usually to a city, county or state agency. It was presented this year to **Patrick Bierl**, design engineer, and **Eric Biehl**, P.E., asphalt materials engineer, ODOT, at an awards luncheon Oct. 13 during the 2016 National Pavement Preservation Conference in Nashville.

Faced with aging infrastructure, increased demands, and stagnant funding, ODOT developed a transportation asset management plan to coordinate management of its major assets of pavement, bridges and culverts.

ODOT's mission statement includes taking care of its capital assets, and making the system work better. What was missing were tools and methods to consistently manage its assets across the state. ODOT is divided into 12 districts, and there were 12 different methods of managing the assets.

While every district was meeting the goals set at the time, those goals encouraged a worst-first approach to managing pavements. In recognition of the challenges with funding and the realization that a worst-first approach may not be the best, ODOT's executive management in 2014 determined that a change in how it manages and measures its assets was needed.

Now, current projections show the preservation-first approach will save the department $300 million over the next six years while still meeting its condition goals.

CRITICAL SUCCESS FACTORS

One of the first changes made was creation of critical success factors (CSFs), designed to measure success. The pavement CSF, described below, was specifically designed to move away from the worst-first mentality. ODOT also needed to change the culture within the organization as well as educate the public and get the industry onboard.

In October at NPPC 2016 in Nashville, FP² president Rod Birdsall, P.E., presents 2016 Sorenson Award to Patrick Bierl, ODOT

Part of changing the culture included educating ODOT forces on successful preservation techniques used in other states. In addition to other achievements, a website was developed to house all the information and make it available to the public. The website can be found at http://transportation.ohio.gov/preservation.

To implement the change in philosophy, ODOT needed to change the culture within the organization, as well as educate the public, and get the industry on-board.

Part of changing the culture included educating ODOT forces on successful preservation techniques used in other states. A chip seal summit was held with experts from North Carolina and Washington State presenting best practices and success stories from their respective states.

For educating the public, a variety of brochures, fact sheets, and presentations were created. Finally, a website was developed to house all the information and make it available to the public.

Now, two years into this new process, there is greater buy-in both internally and with ODOT industry partners.

For example, the asphalt industry believes this is a long-term effort, and not just a flash in the pan. It's developed a *Thinlay* specification so asphalt concrete can better compete with micro surfacing and chip seals as a tool in the preservation toolbox.

Moving forward, ODOT will continue to monitor the overall condition of the system as well as the performance of all the various treatments. As it learns more, ODOT will make adjustments to its prediction models, cost estimates, and decision tree logic.

The current process is a more holistic view of the pavements from

planning through design, construction, and maintaining, from cradle to grave. ODOT believes its journey from worst-first to preservation-first embodies the principles Jim Sorenson promoted, and provides an excellent example for other states and entities to follow on their journey.

PAVEMENTS TARGETED

In the 1980s, ODOT developed a methodology to rate pavements called the Pavement Condition Rating (PCR) system. The PCR is a number from zero to 100 with 100 being the best. The PCR is calculated by performing a windshield survey of the pavement and assigning deduct values to the observed distresses. Typical distresses include raveling, rutting, bleeding, faulting, joint spalling, debonding, and various types of cracking. The deduct values are calculated based on the severity and extent of the distresses observed.

ODOT has collected PCR on the entire network annually since the mid 1980s. The historical data include not just the PCR number, but all the individual distress data as well. Having these historical data allowed ODOT to learn how pavements perform over time.

To assist district personnel responsible for programing projects, the Office of Pavement Engineering developed decision trees. The decision trees used variables such as pavement type, traffic volume, PCR, and individual distresses.

The decision trees placed each section of pavement into a "bin." Each bin had one or more possible treatments such as do nothing, chip seal, microsurfacing, repair and overlay, etc. By following the decision tree logic, a designer could determine an appropriate treatment based on the most recent PCR.

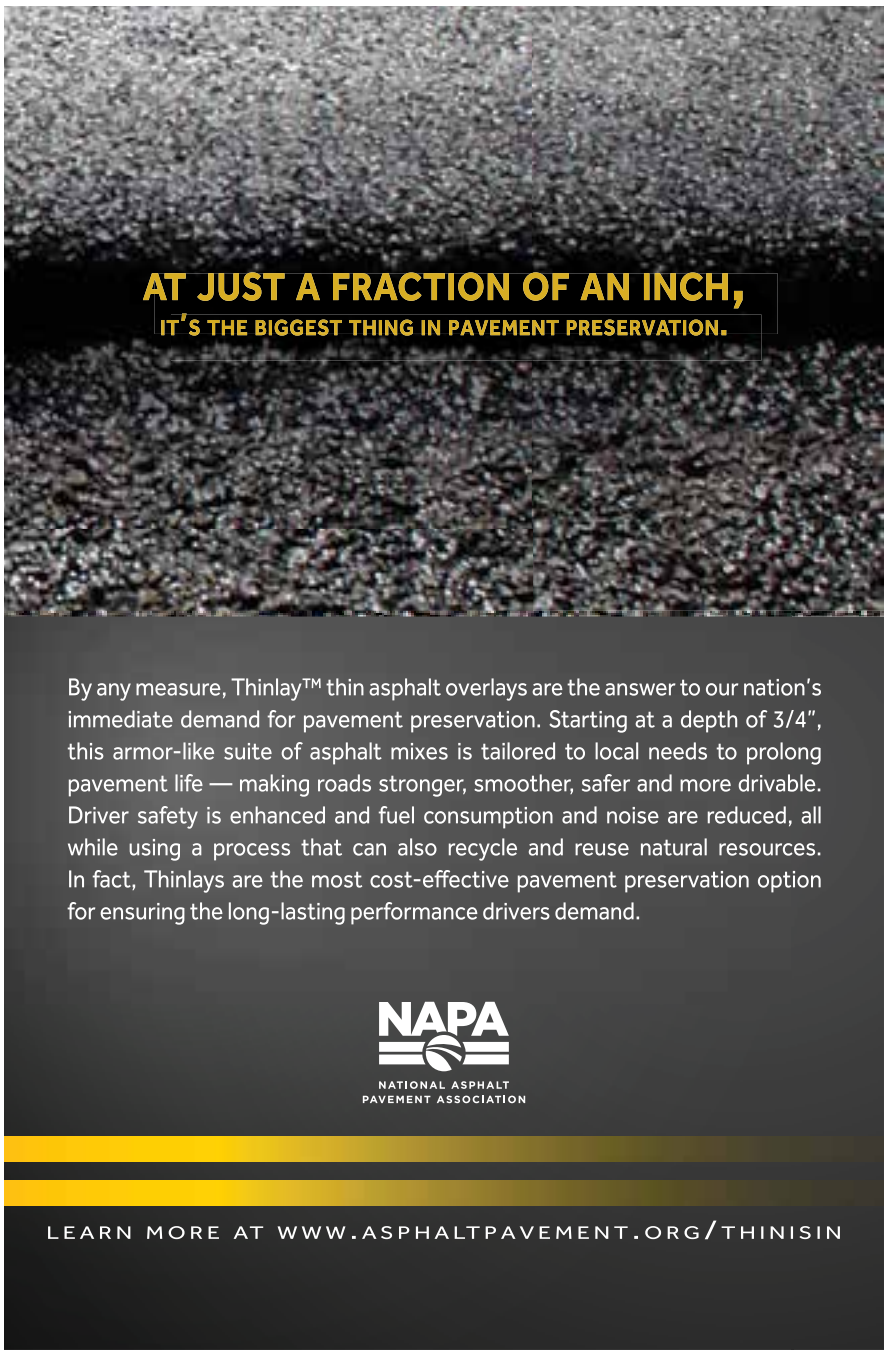
Because of the time needed to develop plans and move projects to construction, ODOT needed a way to predict PCR and the individual distresses. A researcher was hired to use ODOT's 25+ years of PCR data combined with our project history data to develop performance predictions, by distress, for all the pavement types and pavement preservation activities.

With the performance prediction curves developed, the decision trees could be used to determine the right treatment on the right road at the right time. ODOT needed a system to run the predictions on every section of pavement, apply the decision tree logic, and run a multi-year optimization.

COAXING DISTRICT PARTICIPATION

In 2011 a pavement management system was purchased and over the next couple of years was configured and tested. In 2013, the system was rolled out to the districts as a tool for them to use when programming projects. Few, if any, districts made use of the tool and continued programming projects as they had in the past, which was primarily on a worst-first basis.

Around the same time, ODOT was changing the way it measured and rated districts. The old system was based on the percentage of lane-miles



To publicize its pavement preservation program, Ohio DOT has branded it as "Taking Care of What We Have"

deficient, meaning below a certain PCR level. This way of measuring reinforced the worst-first philosophy. Unless a pavement was deficient, performing any work, such as a surface treatment, did nothing to improve a district's rating.

The new rating, called critical success factor (CSF), used an overall average PCR, weighted by lane-miles and traffic. With the CSF, a chip seal that might raise the PCR from 78 to 95 would raise a district's overall average PCR even though at 78 it was not considered deficient.

In 2014, ODOT executive management decided that, with the pavement management tool in place, it was time to move to a preservation-first approach. A new work plan process was developed that emphasized ODOT county forces performing preservation activities such as crack sealing and underdrain outlet cleaning.

For capital projects, the districts were provided with the optimized solution from the pavement management system and were expected to match 25 percent of the recommendations in 2015. In 2016 and beyond, the threshold rose to 75 percent.

The change to CSFs, implementation of the pavement management system, and the shift to a preservation-first strategy resulted in an entirely new work plan process. The new work plan better coordinates the activities of planning and operations. Planning has a better understanding of how much time is available for the county forces to work on maintaining the pavements.

Operations personnel in the counties know where they need to focus their efforts to either hold a road together or to prepare a road for paving, such as by replacing culverts. The new work plan also emphasizes preservation activities that can be performed by the county forces. These activities include crack sealing, chip sealing where knowledgeable workers and equipment exist, underdrain outlet cleaning, and bridge sweeping.

SUBMIT YOUR PROGRAM FOR AWARD

Jim Sorenson (1949-2009) was senior construction and system preservation engineer, FHWA Office of Asset Management, and he was a great champion of pavement preservation at the national level.

The pavement preservation industry had no greater friend and FP^2 honors his memory with the Sorenson Award. Intended to recognize agency pavement preservation, the Sorenson award is usually, but not always, presented to city and county agencies.

To nominate an agency, please include a brief write-up of how the agency gained acceptance and support for its pavement preservation program; how long the program has been in existence, any special or unique public awareness actions; press releases; the contact person in the agency; and the person or firm making the nomination.

Criteria to evaluate candidate agencies include: process used to gain acceptance by elected officials, general public, employees, and industry (40 percent); how well the program relates to the theme of The Right Treatment, for the Right Road, at the Right Time (20 percent); tangible improvement in their system (20 percent); techniques used to keep public notified of what is being done and why (10 percent); and uniqueness of program (10 percent).

Deadline for entries to the 2017 Sorenson Award is July 1, 2017. For more information, or to submit nominations, please contact FP^2's executive director, Jim Moulthrop, at 8100 West Court, Austin, Tex., 78759, voice (512) 970-8865, e-mail at jimmoulthrop@gmail.com.

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Preservation World Comes to Nashville for NPPC 2016

Nearly 800 pavement preservation professionals from every state in the union and from foreign countries came to Nashville in October for the 2016 National Pavement Preservation Conference.

The 2016 conference offered preservation practitioners across the country—including state, county and municipal agency staff, contractors and consulting engineers—an opportunity to hear from experts in the preservation field, and to observe demonstrations of the placements of pavement preservation treatments.

Co-sponsored by FP² Inc. and its allies in the pavement preservation field, NPPC was the premier event in pavement preservation for 2016.

"The NPPC was designed to provide an extensive presentation of the latest practices and developments in the pavement preservation field," said co-chair Larry Galehouse, director, National Center for Pavement Preservation. "It also provided a forum to establish new contacts within the pavement preservation community and strengthen existing ones.

"In a society where the traditional maintenance philosophy of 'worst-first' is often emphasized," Galehouse said, "I hope that the information presented at this conference inspires delegates to champion and promote the use of pavement preservation treatments in their workplaces and communities."

Distributor truck begins run before nearly 800 NPPC 2016 delegates at outdoor pavement preservation demo at parking lot of Nissan Stadium, home of NFL Tennessee Titans

PRESERVATION PARTNERSHIPS MEET

The NPPC was held Tuesday, Oct. 11, to noon Friday, Oct. 14, 2016, and began Tuesday a.m. with meetings of the **Midwestern, Northeast, Rocky Mountain West** and **Southeast** Pavement Preservation Partnerships. The partnerships also met for "lessons-learned" sessions on Friday's close.

The opening plenary session featured two respected keynote speakers who gave their unique perspective and insight on preservation: **Jean-Francois Corté,** past secretary general of the World Road Association, and **Carlos Braceras**, executive director of the Utah Department of Transportation, and secretary-treasurer of the American Association of State Highway & Transportation Officials (AASHTO).

"Preservation of the road transport system is a necessity for sustainable development," said Corté. "But first we have to convince the general public, the media and the politicians. It's for the benefit of our communities and our economies."

Exposition of the benefits of pavement preservation will be essential to boosting the growth of pavement preservation programs, he said. Benefits include costs savings over time, but also intangibles such as more time with one's family due to improved pavements.

The Tuesday afternoon agency plenary session included presentations from **Walter "Butch" Waidelich**, executive director of the Federal Highway Administration—who was admittedly awed by the number of attendees and the degree of state DOT participation—and **Brian Stacy**, president of the National Association of County Engineers, on the importance of pavement preservation in an agency maintenance program.

Concurrent presentation sessions were scheduled throughout the conference along four technical tracks: *Pavement Preservation Technologies, How to Develop and Implement a Preservation Program, Education and Research*, and *Issues, Challenges and Opportunities.*

Each of the tracks offered an opportunity to hear from experts in the pavement preservation field on topics of national importance. View videos of presentations and PowerPoints at **http://nationalpavement2016.org**, hosted by the National Center for Pavement Preservation.

FIELD DEMOS A HIGHLIGHT

Field demonstrations Wednesday afternoon of pavement preservation

Midwest Pavement Preservation Partnership meets in advance of NPPC opening session

FP² hosts delegates at awards luncheon, at which Ohio DOT is honored with James B. Sorenson Award to Excellence in Pavement Preservation (see article beginning p 11)

Panel on Pavement Preservation for Local Agencies features Todd Miller, maintenance liaison engineer, Missouri DOT, Todd Kinney, Clinton County engineer, Iowa, and Richie Beyer, Elmore County engineer, Alabama

Micro surfacing applied at outdoor demo

'Thinlay' thin asphalt overlay placed in outdoor demo

FP² executive director Jim Moulthrop speaks to delegates at NPPC opening session

Nevada DOT's Anita Bush presents at Rocky Mountain West Pavement Preservation Partnership meeting

Welcoming delegates to opening session is Paul Degges, chief engineer/deputy commissioner, Tennessee DOT

Prior to outdoor demo, delegates enjoy old-time Tennessee barbeque

View all NPPC 2016 video presentations and speaker PowerPoints at http://nationalpavement2016.org, Hosted by the National Center for Pavement Preservation

Adriana Vargas, National Center for Asphalt Technology, with Ben Worel, MnROAD operations manager

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National Center for Asphalt Technology's Dr. Buzz Powell updates delegates on National Pavement Preservation Benefit Experiment, funded in part by FP² Inc.

National Center for Pavement Preservation director Larry Galehouse, P.E., presents Gene Arnold, Ergon Asphalt & Emulsions, with token of appreciation for his work in organizing outdoor demonstrations

Jean-Francois Corté, past secretary general of the World Road Association, urges delegates to stress social benefits of pavement preservation to their publics

techniques constituted a real highlight of the conference. They took place on a parking lot of Nissan Stadium, home to the NFL's Tennessee Titans, and included live applications of a fog seal, scrub seal, micro surfacing, asphalt rejuvenation, and *Thinlay* HMA overlay.

Because the demos took place in a parking lot, delegates could browse from operation to operation in a secure, protected area, avoiding need for traffic control. Equipment displays included a micro surfacing machine, cold milling machine, a chip seal aggregate spreader, an asphalt emulsion distributor, in-place recycling machine, crack router, and sealant melter.

More than just bituminous surface treatments were shown. For example, concrete preservation techniques demonstrated included dowel bar retrofit, types of joint sealing, longitudinal crack stitching, partial depth patching, accelerated full-depth

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Carlos Braceras, executive director, Utah DOT and AASHTO secretary-treasurer, provides view of importance of preservation from state agency level

patching, and three types of grinding and grooving textures.

Donnie Lamberson, a grinding & grooving specialist with Wel-Co Diamond Tool Corp, helped organize the live demonstrations. "This is a great place for people to see something they haven't seen before," Lamberson said, pointing out engineers and other officials need a chance to gain exposure to pavement restoration techniques in the field. "For young engineers who are just starting out, this may be new to them," he said, adding "everybody gets something out of the show."

"This was truly a remarkable event from start to finish, as evidenced by the willingness of industry members to help in the construction of the demonstration site," said **John Roberts**, executive director of the International Grooving & Grinding Association. "The fact that local businesses volunteered products and services, and IGGA members mobilizing equipment from as far away as North Carolina, shows just how important this event was to the industry. I am confident that attendees who witnessed this demonstration walked away with a much better appreciation of the industry's capability to preserve concrete pavement well into the future. Many thanks to all the volunteers, organizers and attendees that made this event an unqualified success."

SPONSORS MADE IT HAPPEN

Event sponsors provided significant support and contributions to better the state of the practice of pavement preservation. They included, conference Patron **Ergon Asphalt & Emulsions, Inc.**; Diamond sponsor **SealMaster**; Platinum sponsors **IPS/Holbrook Asphalt** and **Pathway Services, Inc.**; Gold sponsors **Bergkamp, Inc., Ingevity, McAsphalt Industries Limited**; and **Uretek USA, Inc.**; and Silver sponsors **Deighton Associates Ltd., Western Emulsions**, and **Kraton Polymers LLC.**

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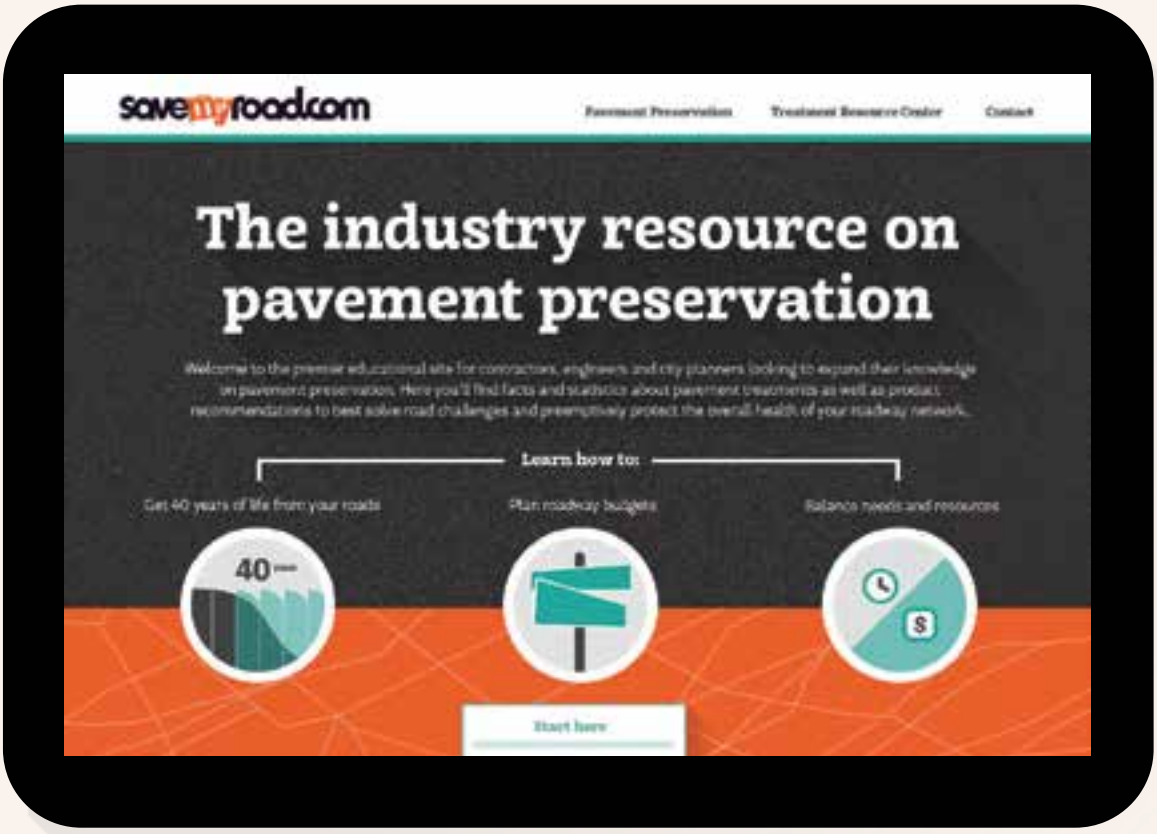

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Why pavement preservation is important on a national basis is discussed by Walter "Butch" Waidelich, executive director, FHWA

delegates, and their presence and sponsorships helped defray the costs of the conference. These important and involved businesses and institutions, listed below, deserve your support as they supported NPPC 2016.

AgileAssets, Inc., AkzoNobel, All States Materials Group, Asphalt Systems, Inc., BASF Corporation, Bergkamp, Inc., BioBased Spray Systems, LLC, Blacklidge Emulsions, and **Blastrac NA.**

Colas Solutions, Collaborative Aggregates LLC, Crafco, Inc., CTS Cement Manufacturing Corp., Deighton Associates Ltd., Dustrol, Inc., Ergon Asphalt & Emulsions, Inc.

Fibrecrete Preservation Technologies, Inc., FORTA Corp., FP², Inc., Fugro Roadware, Ingevity, Intermountain Slurry Seal, Inc., International Grooving & Grinding Association, IPS/Holbrook Asphalt.

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Join FP² Supporters of NCAT and MnROAD Research

FP² Inc. – and the staffs of the National Center for Asphalt Technology and MnROAD – profoundly thank the businesses and associations above that have made a special contribution supporting important new research in pavement preservation at those research facilities.

A new partnership between the National Center for Asphalt Technology in Alabama and the MnROAD Road Research Facility of the Minnesota DOT is advancing research in preservation techniques for both low-volume and high-volume roadways, and is supported by stakeholder contributions channeled through FP², and a pooled fund supported by state departments of transportation and administered by the Alabama DOT.

The partnership will provide research in preservation techniques for both flexible [bituminous] and rigid [portland cement concrete] pavements, and supply real-world accelerated pavement preservation performance testing in both hot and cold climates. By leveraging economies of scale, it may deliver research products for a larger base of supportive agencies and private sector clients at lower buy-in costs. The partnership has the potential to play a much larger role in the national effort to validate pavement performance. Sharing resources and expertise will improve coordination of experiments and expand evaluation of pavement performance in both northern and southern climates. Also, the collaboration permits testing of PCC pavements and the inclusion of the results in comprehensive research products, which is not possible when NCAT works on its own.

The NCAT test facility (left) has 46 different test sections on its 1.7-mile oval track, while the Minnesota DOT's MnROAD facility track (right) consists of a 3.5-mile interstate (I-94) high-volume roadway, and a 2.5-mile closed loop low volume road simulating rural roads.

The goal of this new research is to quantify the life-extending benefits of different pavement preservation treatments for roadways in different stages of life and decay. Both facilities have a history of evaluating the performance of pavement preservation treatments, including chip sealing, micro surfacing, crack sealing and thin overlays.

Now, accelerated testing will provide unique opportunities to determine the field performance of breakthrough materials and pavement preservation concepts without the risk of failure that local and state agencies are unwilling to accept. To address the needs of northern and southern climates, similar test sections are being developed for both Alabama and Minnesota. Off-site test locations on existing roads and highways that can be easily monitored for both low and higher volume roadways are being established. Off-site concrete test sections in Minnesota may also be incorporated.

Please join your fellow stakeholders in pavement preservation by making a financial contribution to research at NCAT and MnROAD. For more information, contact FP² executive director Jim Moulthrop, P.E. (PA, AZ), (512) 979-8865, jimmoulthrop@gmail.com.

ARRA Gets Up-Close Look at NCAT Work

By Dr. Buzz Powell, P.E.

In November, the National Center for Asphalt Technology (NCAT) hosted the semi-annual meeting of the Asphalt Recycling & Reclaiming Association (ARRA), and ARRA delegates got a first-hand look at ongoing pavement preservation research activity there.

Research quantifying pavement preservation treatment performance has been underway at the National Center for Asphalt Technology, near Auburn, Ala., since 2012, as part of the National Long-Term Pavement Preservation Benefit Experiment funded in part by FP² Inc. and its partners in the private sector, and state DOTs.

A new partnership between NCAT (southern climate) and MnROAD (northern climate) to execute this national, long-term experiment will provide agencies with the tools they need to select pavement preservation treatments and combinations in a rational, proven manner, regardless of climate, based on the pretreatment condition data found within their existing pavement management systems.

ARRA VISITS TRACK, U.S. 280

The meeting included a welcome address and opening keynote by legendary college football coach Pat Dye, networking and social events held at Auburn University, and technical presentations provided by an international group of speakers.

Dr. Buzz Powell provided a technical keynote presentation on ARRA's history at the NCAT Pavement Test Track, with an overview of past recycling and reclamation findings, as well as a look at the future. His presentation included an overview of past work with high RAP mixes in surface and structural applications, cold recycle base and binder layers, and preservation *Thinlays* produced with both fine fractionated RAP and RAS.

Attendees learned about advancements in asphalt pavement design, construction, technologies, and maintenance. NCAT's Research Center and Pavement Test Track make it one of the world's leading institutions for asphalt pavement research and an important source of information for those tasked with maintaining the nation's infrastructure.

The NCAT tours exposed ARRA delegates to three key research NCAT areas.

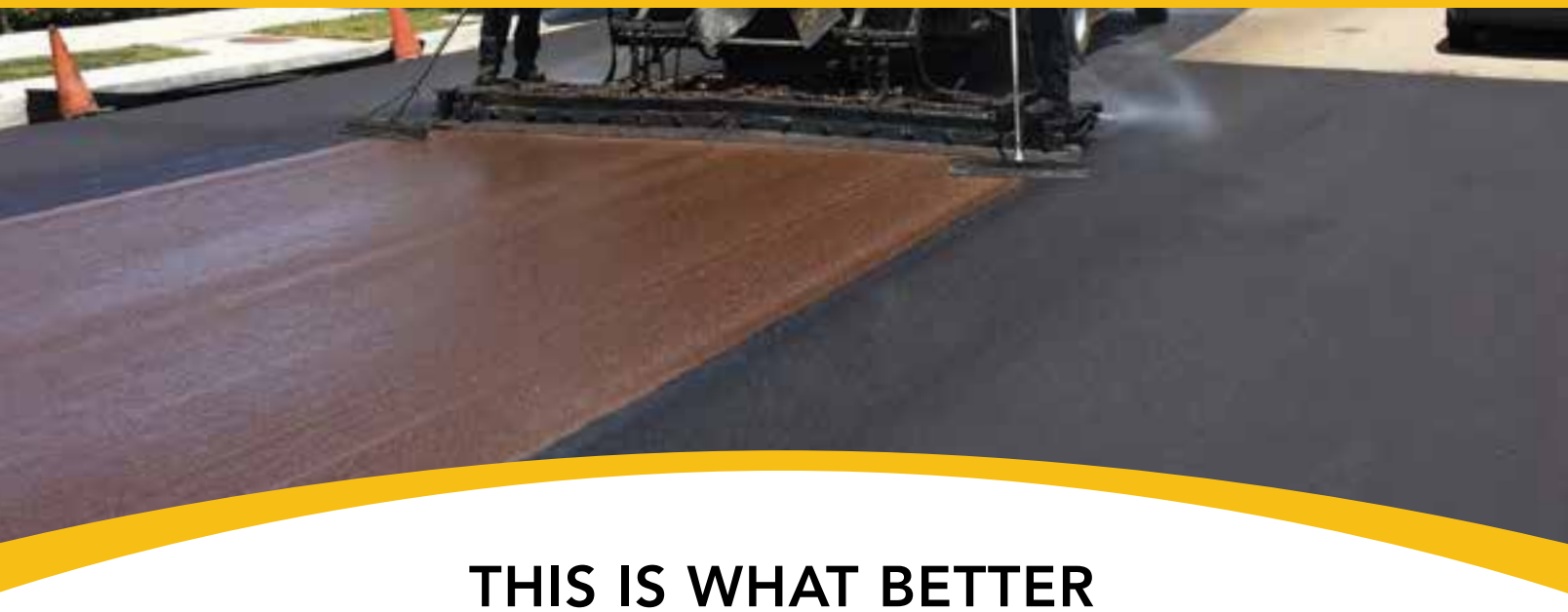
- **ARRA members toured** the main NCAT laboratory, which is a 40,000 sq. ft. facility designed for complete testing of asphalt binders and mixtures with state-of-the-art equipment.
- **A guided tour** of the NCAT Pavement Test Track also provided attendees with an up-close look at track instrumentation, falling weight deflectometer testing, dynamic friction testing, and other forensic equipment, including NCAT's mobile testing lab (equipment varies depending on availability).
- **ARRA members also** were provided with a walking tour of NCAT's pavement preservation research on Lee County Road 159, where research is underway to quantify the life-extending benefits of different pavement preservation treatments by determining the field performance of treatments applied at various levels of pretreatment pavement condition. The event also included a driving tour of high traffic preservation sections on U.S. 280.

Technical content in the semi-annual meeting was organized to complement the NCAT tours. Related content focused on topics such as worldwide milling technologies, the use of 3D technology in milling, fine tuning milling to optimize quality, and advanced machine maintenance.

More information on the partnership and nationwide experiment it supports at www.dot.state.mn.us/mnroad/ncatpartnership/index.html.

Powell is assistant director and Test Track manager, National Center for Asphalt Technology, Auburn, Ala. Images provided by NCAT

In November 2016, delegates to ARRA's semi-annual meeting tour pavement preservation research experiment sections of Lee County Road 159



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Beyond the First 100 Days

By Tracy Taylor

In this first quarter of 2017, Washington is abuzz with a new administration moving into place and with plans to, yes, "Make America Great Again."

Fortunately, working on our nation's infrastructure is a key component of that plan, and early on President Trump indicated his desire to work with Congress to pass a large-scale infrastructure bill during the early part of the administration's tenure.

At issue deadline in mid-January, details on the plan are light, but President Trump has indicated he wants to spend $1 trillion over the next decade on infrastructure, relying primarily on private funding. He would encourage investment through the use of tax credits, which would raise the return to investors while lowering borrowing costs for state and local governments.

Very preliminary plans have the federal government offering a substantial tax credit on the equity investment, reducing the risk to investors, making investment more likely, and decreasing the overall cost of projects by 18 to 20 percent. The plan would also create incentives to deliver projects on time and on budget including by streamlining the permitting processes.

Kansas citizens John Rathbun, Cutler Repaving Inc., and Scott Bergkamp, Bergkamp Inc., flank Rep. Kevin Yoder (R-Kan.) during Hill visit in January

CHAO: EMPHASIZING INVESTMENT

During then-Transportation-Secretary-Designate Chao's confirmation hearing, she emphasized the need to invest in our current transportation system as well as create additional capacity and keep up with innovations. She also indicated her desire to make risk-based and cost-benefit analysis central in any new rulemakings.

Secretary Chao focused heavily on developing regulations and policies that are "based on sound science and real data." She has also stressed her desire to work hard to decrease the regulatory burden associated with building infrastructure projects.

While President Trump emphasizes tax credits and private investment when talking about an infrastructure package, Secretary Chao acknowledges the need to have transportation-related public expenditures. This latter component is necessary to gain the support of Democrats and members of Congress and senators who represent rural areas, who are all ultimately necessary to pass a robust transportation bill.

Funding for transportation will likely occur in a major tax reform package and the outlines of that tax reform package are likely to be developed in the first 100 days of the administration. Details of the substance of a transportation bill are expected to then follow.

FP²'S VOICE WILL BE HEARD

While the details of a transportation infrastructure plan are opaque at this juncture, and it will take the first 100 or 200 days to crystallize, what we do know is that investment in roads, bridges and other assets should be front and center as one of several major initiatives the administration will undertake.

Capitol Hill visits on behalf of pavement preservation legislation are enlightening and fun. Here, in January, Jonathan Pease (right), president of Rock Solid Stabilization & Reclamation Inc., visits office of Rep. Jackie Walorski (R-Ind.). To left is legislative assistant Martin Schultz

This is an opportunity that FP² and its members need to capitalize on to further promote pavement preservation and a permanent solution to the Highway Trust Fund's ongoing funding shortfall.

FP² members sprinted out of the gate in early January with a strong set of meetings on Capitol Hill to explain to senators, members of Congress and their staff exactly what pavement preservation is and why it continues to be a solution to transportation agencies' need to manage their road infrastructure at a higher quality with limited resources.

FP²'s voice will continue to be heard as Congress and the administration work to develop a transportation infrastructure bill that meets the current needs of our country.

Taylor is principal at FP²'s legislative counsel, Williams & Jensen PLLC

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TRB Week in Washington

The 96th annual meeting of the Transportation Research Board in January in Washington, D.C., drew over 13,000 delegates from across the country, and around the world. FP² and its supporters were among them, participating in pavement preservation meetings, sitting in on presentations, promoting preservation to their senators and representatives on the Hill, and hosting friends and acquaintances at the annual Hospitality Suite. Here are a few scenes from TRB Week.

At FP² booth at TRB expo are FP² directors Barry Dunn, Rod Birdsall, P.E., and Jim Moulthrop, P.E.

Tracy Taylor, Williams & Jensen, and John O'Doherty, P.E., NCPP

At FP²'s hospitality suite at TRB are Lisa Templeton and Will Wilkins, TRIP, and Gerry Huber, P.E., Heritage Research Group

Vince Vopat, Bergkamp, Inc. and Asphalt Institute's Greg Harder

Steve Varnedoe, P.E., Asset Management Associates, and Mrs. Larry Galehouse

Alan Kercher, Kercher Engineering, Inc., and Colin Durante, Pavement Technology, Inc.

New management of AEMA-ARRA-ISSA are CM Services' Rich Church and senior association manager Kristi Olson

FP² president Rod Birdsall and executive director Jim Moulthrop (foreground) share information at TRB Committee on Pavement Preservation

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Student Seeks Solutions to Preserving What We Have

Editor's Note: Under the direction of Andrew Braham, P.E., the University of Arkansas-Fayetteville actively promotes pavement preservation as a course of study to engineering students. These students bring a different perspective of why a young civil engineer would pursue preservation study. This is the second in a series of occasional profiles of students in pavement preservation, this issue focusing on Erika Yeung, graduate research student.

Erika Yeung is a graduate research student at the University of Arkansas-Fayetteville

PPJ: *WHAT GOT YOU INTERESTED IN PAVEMENT PRESERVATION?*

I got interested in pavement preservation while working as an undergraduate research assistant in the asphalt materials lab at the University of Arkansas.

When I first began in the lab, I would work on whatever research projects the current graduate students were working on and learned so much about asphalt … I never really knew much about it until I started working there! The experience I enjoyed in the lab added a significant dimension to my learning about material behavior, and I found it more valuable than traditional learning in the classroom.

While I had a very brief introduction to both flexible and rigid pavement materials in class, I never learned about the many sustainable aspects of pavement. For example, I was first introduced to reclaimed asphalt pavement (RAP) in the lab, which helped me realize how much potential there is in trying to maintain the pavements by reusing the existing material.

In addition, I was introduced to the concept of warm mix asphalt, which creates significant economic and environmental benefits during production and construction. After I had worked with the graduate students on their projects for a couple of years, I was given my own project that looked at both RAP and warm mix, and the influence of specimen preparation on compaction properties.

This experience as an undergraduate research assistant was a stepping stone to continuing my work on asphalt materials as a graduate research assistant. While I am continuing research on compaction characteristics, I am also working with asphalt emulsion pavement products toward my master's thesis, another example of sustainability and asphalt materials.

HOW IS YOUR RESEARCH RELATED TO PAVEMENT PRESERVATION?

A key component of my research is the laboratory production of asphalt emulsion. Typically, universities doing research on emulsions are dependent on plant-produced emulsions from industry. However, having the ability to produce our own emulsion allows for significant flexibility on the formulations to look at various characteristics of pavement preservation products, such as fog seals, chip seals, or slurry seals.

Specifically, I'm working with cold in-place recycling (CIR) stabilized with asphalt emulsion for my graduate research. This CIR process takes the existing surface pavement and reuses it, along with additional additives, to preserve what's already there. Potentially this is a more cost-effective way to bring the

pavement back to its original or even better state.

My research involves looking at surface charge of this existing pavement and how it reacts with asphalt emulsions, to try and predict the compatibility of it through several laboratory compaction metrics. However, the existing compaction metrics were found through hot mix and warm mix research, so I'm adjusting the compaction metrics for cold mixtures so they can be applied to better predict what will happen in the field.

HOW HAS YOUR PERSPECTIVE CHANGED ABOUT OUR ROAD INFRASTRUCTURE SINCE BEGINNING RESEARCH?

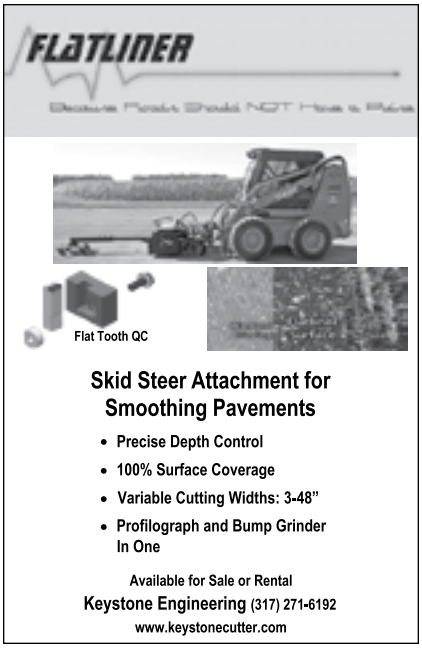
My perspective about our road infrastructure has changed quite a bit, not only since the beginning of my research, but since the beginning of my work experience at the asphalt lab.

Not everything that happens in the lab gets adopted by the industry. A lot of it has to do with funding, and if the funds aren't there, there has to be another way around it.

This is why it's important to research more cost-effective solutions for trying to preserve what we already have, by finding ways to maintain our infrastructure instead of scrapping it and starting with a fresh, new pavement. A lot of asphalt emulsion-based pavement preservation techniques, and pavement rehabilitation techniques such as CIR, fulfill two key aspects of sustainability: saving money and reducing energy use.

DO YOU HAVE PLANS TO CONTINUE IN THE FIELD OF PAVEMENT PRESERVATION UPON GRADUATION?

I'm interested in many things within the civil engineering field, especially learning about different materials. Overall, I haven't made up my mind yet. I would like to be able to work with everything, but pavement preservation is always a good starting point for me since I have the most work experience in this area.



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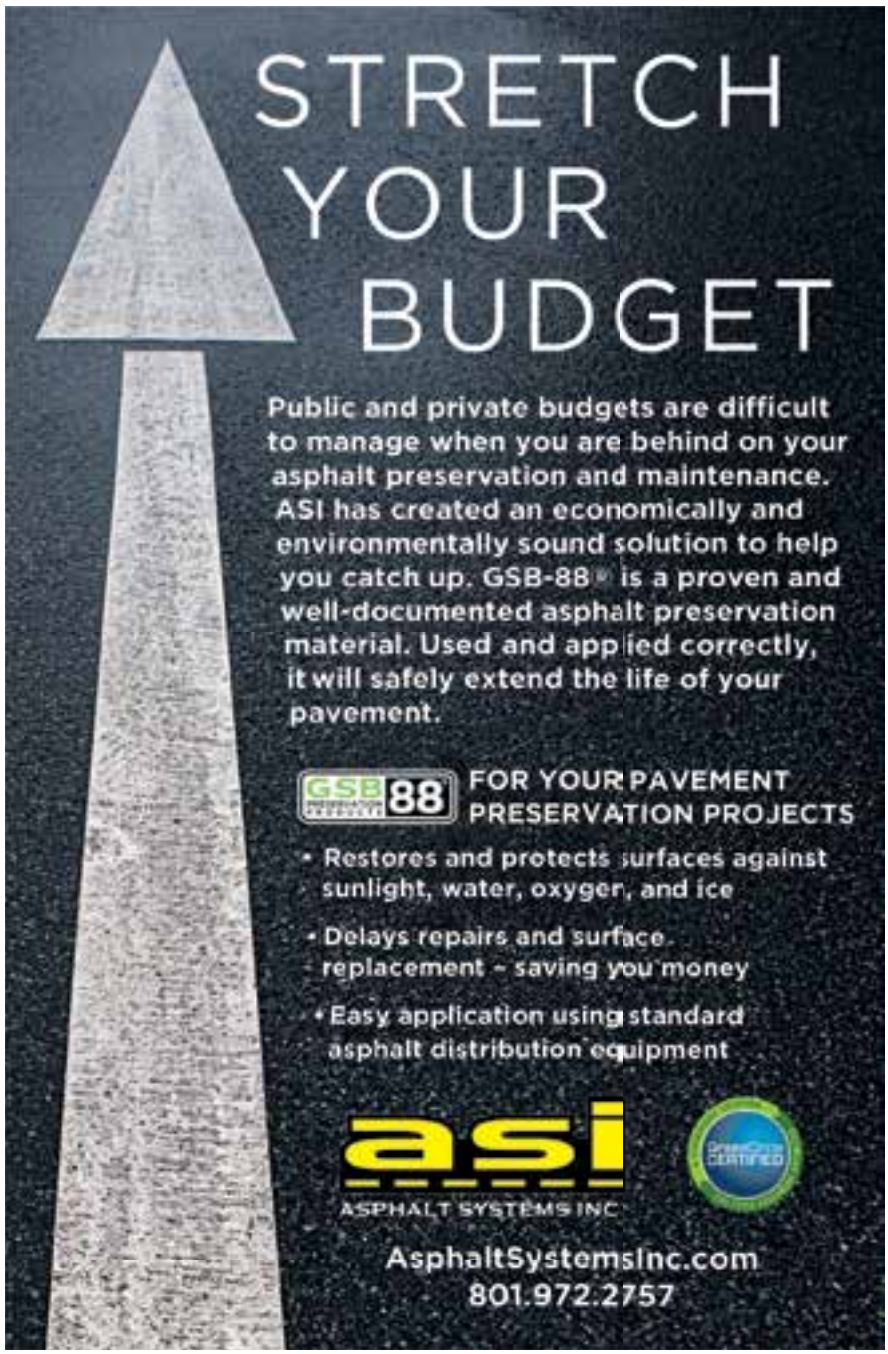

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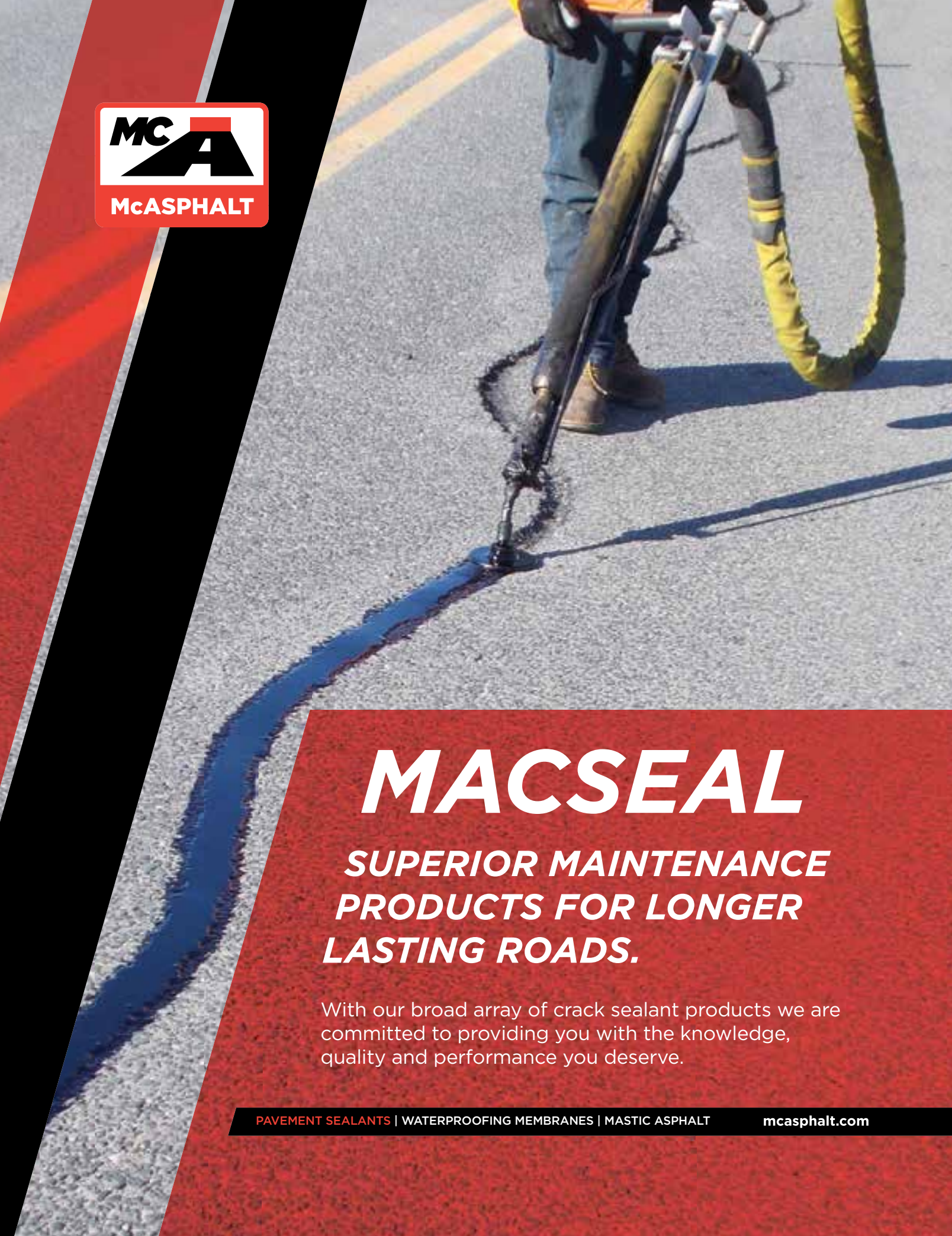

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