

OHIO ASPHALT

Issue 2, Volume 4

Spring 2007

An Annual Meeting to be Remembered

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Perpetual Pavement — Part 2
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45th ANNUAL MEETING
held at Hilton Columbus at Easton

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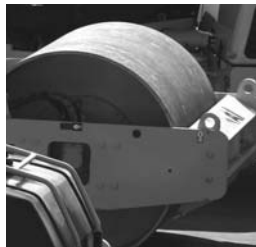
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OHIO ASPHALT

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ON THE COVER: *Barrett Paving Materials' design-build rehabilitation of the Norwood Lateral (State Route 562) in the Cincinnati area received one of the 22 Quality Asphalt Paving Awards at the Flexible Pavement of Ohio's 2007 Annual Meeting. See page 6 for coverage of the 45th Annual Meeting, Equipment Exhibition and Trade Show.*



Flexible Pavements of Ohio is an association for the development, improvement and advancement of quality asphalt pavement construction.
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CLIFFORD URSICH
President &
Executive Director

THE MARCH TOWARDS HIGHER QUALITY CONTINUES

Ohio's Hot Mix Asphalt industry places another benchmark in history with the retirement of Fred Frecker. Fred served the membership of Flexible Pavements of Ohio from 1992 to 2007. His legacy is one marked by a passion for quality asphalt pavement construction, a passion for innovation, and a passion for asphalt being the pavement of choice for Ohio roads. Citizens of Ohio enjoy higher quality and smoother riding asphalt pavements because of that passion. Likewise, the members of Flexible Pavements of Ohio have benefited from a market share that ranks among the highest in the nation. We wish Fred and his family a wonderful retirement.

Where We Go from Here

There is a beacon that has long guided the way of Ohio's asphalt industry. I speak of the beacon of Quality. Through times of clarity, times of fog and times of treacherous seas the beacon of Quality has always been a faithful guide to our industry. We wish to reaffirm that commitment to Quality.

The backbone of this industry is quality asphalt pavement construction. It is true that asphalt enjoys a significant market share because it is less costly when compared to other construction materials. As well, it is true that this lesser cost makes asphalt a very good value. However, when all is said and all is done the fact remains that customer satisfaction rests on quality.

Flexible Pavements of Ohio is dedicated to continuing the march toward higher quality. The three legs of our stool are laydown, specifications, and materials. We will with every effort seek to advance pavement quality by strengthening these three legs. We will educate industry personnel in laydown practices, encourage agencies to use incentive contracts that reward exceptional work, and educate agencies on mix-type selection.

It has been said that there are those who talk the talk and others that walk the talk. This issue of *Ohio Asphalt* features the accomplishments of FPO members that are among the walk the talk crowd. Flexible Pavements of Ohio is pleased to announce this year's winners of Quality Asphalt Pavement Construction Awards (see page 8).



What sets companies like these apart from others?

Culture. These companies have chosen to develop quality cultures that inculcate strategies and attitudes that result in quality output; an output we enjoy in the form of smooth riding, long-lasting asphalt pavements. Congratulations are due to these who through their diligence and commitment to quality have won Awards.

Flexible Pavements of Ohio congratulates and salutes our Quality Award winners.



AN ANNUAL MEETING TO BE REMEMBERED

Although it was the 45th time Flexible Pavements of Ohio has held an Annual Meeting, the 2007 event will be remembered on several levels – favorable weather, fabulous accommodations, informative sessions and a heartfelt goodbye.

This year's FPO Annual Meeting, Equipment Exhibition and Trade Show was held March 20-21 at The Hilton Columbus at Easton Town Center.

The nearly 300 attendees at this year's event

found themselves in a quandary on the opening day. Do you stay outside in the sun and mid-60 degree temperatures to view the equipment and wares of the Outdoor Trade Show? Or, do you stay inside the four-diamond accommodations of the Hilton Columbus at Easton Town Center to take in the Indoor Trade Show exhibits?

Scheduled events and discussions made the decision all the tougher to make, as Tuesday's morning schedule included Committee Meetings and a

Public Agency Forum. The forum was presided by Hamilton County Engineer William W. Brayshaw, P.E., P.S., and covered industry topics that included cost containment, binder and fuel adjustment clauses.

Following the Membership Luncheon and Annual Business Meeting, the first of two General Sessions were held. The nearly four hours of seminars included discussion of:

- Intelligent Compaction by Dale Starry of Voegle America
- A Contractor's Guide to Managing Risk by Donald W. Gregory, Esq. of Kegler, Brown, Hill & Ritter
- Campaign Finance (House Bill 694) by Rep. Kevin DeWine, Ohio House of Representative, District 70
- Alternative Fuels for HMA Production by Malcolm Swanson, vice president of Engineering for ASTEC Industries

The opening day's activities culminated with the evening's Chairman's Reception.

The Annual Meeting's second day began with the Prayer Breakfast, which provided those in attendance with a glimpse of the industry's immediate future, near future and a look back on why industry members are enjoying their current success. Ohio Department of Transportation Administrator Keith Swearingen provided a preview of the next fiscal year's ODOT budget; association members had a time to celebrate the industry's future by recognizing the 21 college students who received 2007 FPO scholarships, and the winning team in the HMA Mixture Performance Competition (see page 19); and the William W. "Bill" Baker Award recipient (see page 18), which goes to a person, organization, project or roadway that has had a significant and positive impact on the industry.

The Annual Meeting's second General Session followed the morning's event and included discussion of:

- ODOT Specification Updates by ODOT Asphalt Materials Engineer David Powers
- Efficient HMA Production by Bill Garrett of Meeker Equipment Company
- Building Pavements in China by Gerry Huber, P.E.,

the associate director of Research for the Heritage Research Group

- National Environmental Update by R. Gary Fore, vice president of Environment & Safety for the National Asphalt Pavement Association

(Editor's note: Information from the presentations of both General Sessions is available on the association's Web site at www.flexiblepavements.org under the Education/Training section.)

The 45th FPO Annual Meeting concluded with the afternoon's bittersweet Annual Luncheon (see page 8). While the association celebrated its achievements with the announcement of the Quality Paving, Master Craftsman, Ecological, Ohio Asphalt Industry Service and Retiring Board Member awards, it also officially said goodbye to its President/Executive Director Fred Frecker. Frecker, who retired March 30 after serving the association for the past 15 years, received a standing ovation after he provided an emotional goodbye to FPO members, friends and staff.

Good weather and accommodations, good and informative seminars, and goodbyes ... the 45th Annual Meeting will be remembered for some time.



Flexible Pavements of Ohio welcomes new members approved for membership at the Annual Meeting:

Aggregate Producer Member
Westfall Aggregate & Minerals

Associate Members
Dillman Equipment, Inc.
Dynatest Consulting, Inc.

Contractor Member
Cunningham Paving Company

Despite 'Challenging Hurdles' Quality Still There

Projects, facilities, individuals honored at Annual Meeting Awards Program

The most recent hot mix asphalt production season was challenging, as the industry had to deal with both the rapid rise in the price of asphalt cements and other energy components. Despite the cost of asphalt paving mixtures, according to some reports increasing 50 percent since 2003 – including a 38 percent escalation from August 2005-2006, the quality remains.

“As we announce and congratulate the winners of the various paving and environmental awards,” said Flexible Pavements of Ohio Chairman of the Board James Tharp, “it is important to realize the hard work

and commitment that those involved with these projects have put forward. It is good to know that quality and pride are still alive even in these most challenging of times.”

Nearly 30 projects, facilities, companies and individuals were honored at the Annual Luncheon of the FPO 45th Annual Meeting, Equipment Exhibition & Trade Show on March 21.

Here is a look at FPO's honored projects completed in 2006:

QUALITY AWARDS FOR ASPHALT PAVING

ODOT Pavements

Auglaize County, U.S. Route 33 from Saint Johns to the Logan County Line, ODOT Project 294(2006)

This ODOT District 7 two-lane resurfacing project included 1 1/4-inch pavement planing and placement of a 1/2-inch leveling course of 9.5 mm Type B, 448 and 1 1/2-inch surface course of 12.5 mm Type B mix with PG 76-22M liquid. Using nearly 13,000 tons of hot mix asphalt (HMA) to complete the project, paving contractor The Shelly Company utilized a material transfer device to meet both density and smoothness specifications. The fast-track project required the planed surface to be covered within 48 hours and re-opened to traffic.

Accepting the award was Jerry Hinesman, paving foreman, The Shelly Company.



Wayne County, U.S. 30 from State Route 83 to Kansas Road, Perpetual Pavement Research Project, ODOT Project 44(2004)

Because this ODOT District 3 project is a perpetual pavement, Shelly & Sands used a specifically designed pavement consisting of a 4-inch-thick HMA fatigue resistant layer; two courses of item 302, asphalt concrete base to provide 9 inches of high-modulus fatigue-resistant material; and a 3 1/4-inch sacrificial surface layer. The surface layer consists of a 1 3/4-inch intermediate course of ODOT 19mm Superpave, Type A and a 1 1/2-inch wearing course consisting of ODOT 12mm stone mastic asphalt; both the intermediate and wearing surface layers utilize a PG 76-22M polymer modified binder with a target density of 93-97 percent.

Accepting the award was Jason Chrastina, superintendent, Shelly & Sands, Inc.



Hamilton County, S.R. 262 (Norwood Lateral) from Interstate 75 to I-71, ODOT Project 3002(2005)

Barrett Paving Materials overcame several challenges in this ODOT District 8 design/build project, such as all work was performed at night and traffic control was more intensive because of physical restrictions – which included narrow right-of-ways and numerous ramps. More than 36,000 tons of asphalt was used on the project, which included: a 3 inch milling of the existing overlay; repair of concrete joints; and resurfacing. The resurfacing course consisted of a 1 3/4-inch item 442, 19mm intermediate course and a 1 1/2-inch item 442, 12.5 mm surface course.

Accepting the award was Dennis Brunton, estimating & engineering, Barrett Paving Materials.



Coshocton County, U.S. 36 from S.R. 229 to the City of Coshocton Corp. Limit, ODOT Project 92(2006)

Utilizing nearly 50,000 tons of material, The Shelly Company performed two-lane asphalt concrete resurfacing and related work on this ODOT District 5 project. After 1 1/4-inch planing, the company placed two courses of Type 1 mix with a PG70-22M polymer-modified binder.

Accepting the award was Scott Cooperrider, The Shelly Company.



Erie County, S.R. 61 and S.R. 113 from U.S. 250 to the East South Amherst Corp. Limit, ODOT Project 522(2005)

Erie Blacktop, Inc. performed 20.62 miles of mill and fill on this ODOT District 3 project. Along with providing pavement repair and replacement of twin, 162-inch diameter culverts, Erie Blacktop used approximately 40,000 tons of materials in providing more than a 2-inch thickness of Superpave mix in completing the work. The buildup included a 1-inch-thick 448, 9.5 mm intermediate course of PG64-22, and 1 1/4 inches of 9.5 mm surface course using ODOT's density specification, item 446.

Accepting the award was Randy Wikel, paving foreman, Erie Blacktop, Inc.



Resurfacing of S.R. 294 from S.R. 67 to S.R. 231, Wyandot County, ODOT Project 371(2006)

In the resurfacing of 12.7 miles of S.R. 294 in ODOT District 1, The Shelly Company used 720 tons of asphalt concrete base for minor pavement repairs and 16,700 tons of 448 Type 1 asphalt for the surface course.

Accepting the award was Ted Smith, paving foreman, The Shelly Company.



LOCAL ROAD OR STREET

Dunbridge Road from Napoleon Rd. to Poe Rd., City of Bowling Green

Along with the 2 1/4-inch asphalt overlay, the rehabilitation project consisted of pavement repairs and intersection widenings. The Shelly Company used a scratch course consisting of conventional ODOT Type 1 mix to level the pavement, and a surface course of 12.5mm mix and PG70-22 polymer-modified performance grade asphalt. Besides the pavement having an excellent ride quality, the surface texture is completely uniform.

Accepting the award were Ted Smith, paving foreman, The Shelly Company, and David Laird, City of Bowling Green.



North Dixie Improvements, Phase 3B, Montgomery County

Featuring an 11-inch pavement thickness, R.B. Jergens Contractors oversaw the use of 13,318 tons of HMA on the project. Paving consisted of two, 4-inch lifts of asphalt concrete base, 1 1/2 inches of 448 Type 2 intermediate course and 1 1/2 inches of Type 1 surface. R.B. Jergens placed the intermediate and surface courses. Valley Asphalt Corporation supplied the mixes. Ebony Construction placed the 301 asphalt concrete base. The project has excellent texture uniformity.

Accepting the award were John Vornholt, P.E., project manager, Montgomery County Engineer's Office, and Vic Roberts, P.E., project manager, R.B. Jergens Contractors.



Carnegie Avenue resurfacing from East 9th Street to Cedar Avenue, City of Cleveland

Despite maintaining high volumes of traffic and paving around numerous manhole and catch basin castings, Burton Scot Contractors was able to provide a good riding surface for the City of Cleveland and Carnegie Avenue travelers. The resurfacing project called for full-width, 3-inch milling of the street and placement of a 1 1/2-inch, Type 2 leveling course and a 1 1/2-inch, Type 1 asphalt surface course.

Accepting the award were David Paulitsch, president, Burton Scot Contractors, Cass Conti, project manager, Burton Scot Contractors, and Randy DeVaul, commissioner of engineering and construction, City of Cleveland.



Hyatt Street from Main Street North to Park Avenue, Tipp City

Because manholes, water valves and other urban pavement structures were adjusted to grade prior to the placement of the project's base course, Barrett Paving Materials had to navigate around the obstacles for all three courses. It did, as Barrett Paving provided Hyatt Street travelers in Tipp City a uniform mat texture. The pavement buildup consisted of 3,000 tons of item 302 asphalt concrete base, 1,100 tons of item 448, Type 2 and 800 tons of Type 1-H with a PG70-22 binder.

Accepting the award were Greg Barnes, paving superintendent, Barrett Paving Materials, and Scott Vagedes, city engineer-service director, Tipp City.



Lexington Avenue resurfacing, City of Mansfield

Utilizing more than 38,000 tons of HMA, Kokosing Construction Company oversaw the 2 3/4-inch milling of Mansfield's Lexington Avenue, and placement of a 1 1/2-inch leveling course and 1 1/4-inch surface course. Testing of the mixture was in accordance with ODOT's 401 specifications and mat density was monitored for sufficient compaction.

Accepting the award were Joe Wyka, assistant city engineer, City of Mansfield, and Steve Malone, area manager, Kokosing Construction Company.



River Road (US 50), milling and overlay from Illinois Street to Dart Street, City of Cincinnati

Though administered by the City of Cincinnati, the milling and overlay of River Road followed ODOT quality-control guidelines. Barrett Paving Materials used a two-course overlay consisting of 30,450 tons of mix. The intermediate course consisted of a Type 1 mix that met ODOT Specification 448 guidelines, and a surface course of Type 1-H to ensure long-lasting performance under heavy traffic.

Accepting the award was Mike Thompson, Barrett Paving Materials.



Reclamation, widening and overlay of Henry-Lucas Road, Providence Township, Lucas County

The Shelly Company performed base reclamation, pavement repair, widening and overlay on the Henry-Lucas Road project. A variable intermediate course thickness ranging from 1 3/4 to 2 1/4 inches restored the road's profile and cross slope and was completed with a 1 1/4-inch surface course. Shelly performed a full-width overlay to eliminate longitudinal joints to ensure both superior wear and ride.

Accepting the award was Larry Clymer, paving foreman, The Shelly Company.



County Road 105 Relocation, Village of Buckland in Auglaize County

The relocation of approximately 4,500 feet of C.R. 105 in Buckland features 12 inches of 304, 7 inches of asphalt concrete base, 1 3/4-inches of 448 Type 2 intermediate course and 1 1/4-inches of Type 1 surface mix. In total, The Shelly Company used 6,080 tons of HMA to provide a highly uniformed mat texture and an excellent quality of ride.

Accepting the award were Doug Reinhart, county engineer, Auglaize County, and Jerry Little, paving foreman, The Shelly Company.



Worthington Road and Bloomingburg Road resurfacing, Fayette County

In implementing a comprehensive road resurfacing program for the Fayette County Engineer's office, the John R. Jurgensen Company used 35,000 tons of 448 Type 1 surface mix atop a solid base.

Accepting the award were Pete Flora, project manager, John R. Jurgensen Company, and Steve Luebbe, county engineer, Fayette County.



COMMERCIAL PARKING FACILITY

New construction of Wal-Mart Stores, Inc. parking facility, Xenia

Southern Ohio Paving used 5,870 tons of 448 Type 2 and 4,385 tons of 448 Type 1 asphalt in constructing both light- and heavy-duty parking areas for Wal-Mart. With HMA, in both cases, being manufactured and placed according to ODOT's 448 construction and materials specifications, the light-duty areas used a 3 1/2-inch asphalt thickness while the heavy-duty parking areas featured 4 1/2-inch-thick asphalt.

Accepting the award were Mike Maggard, paving foreman, and Tim Woods, general manager, of Southern Ohio Paving.



New construction of Sam's Club parking facility, Sandusky

This 351,840 square-foot parking facility and access roadway were constructed by Erie Blacktop utilizing 10,800 tons of hot mix. ODOT 301, 446 Type 1&2 materials were used in the construction of this quality project.

Accepting the award was Randy Schaffer, paving foreman, Erie Blacktop.



Limited Brands overlay and expansion of DCS parking facility, Reynoldsburg

Decker Construction Company overcame irregular geometrics and challenging longitudinal joint construction in the Limited Brands' overlay and expansion project. The project featured a 52,000 square yard overlay and a 10,500 sy pavement expansion. Decker Construction used 6,340 tons of HMA to complete the project, which was noted for its excellent overall pavement condition.

Accepting the award was Jonathan Apple, project manager, Decker Construction Company.



New construction of Lowe's parking facility, Xenia

Southern Ohio Paving used 6,730 tons of HMA in constructing a new Lowe's parking facility and access roads. Three types of pavement buildups were implemented on the project: light-duty parking pavement consisted of a 1 1/2-inch thickness of 402 and a 1 1/2-inch thickness of 404; heavy-duty parking pavements consisted of a 3-inch thickness of 402 and a 1 1/2-inch thickness of 404; and access roads featured a 3-inch buildup with item 446 density provisions.

Accepting the award were Mike Maggard, paving foreman, and Tim Woods, general manager, Southern Ohio Paving.



AIRPORT PAVEMENT

Metcalf Field taxiway relocation and Runway 4-22 realignment and resurfacing

The Shelly Company overcame the challenge of obtaining a good mat texture despite the coarseness of the pavement mixture in its runway realignment and taxiway relocation at the Toledo Lucas County Port Authority's Metcalf Field. Shelly used 9,850 tons of HMA during the project, as the realignment of runway 4-22 consisted of ODOT Specifications 448 material and the taxiway relocation utilized ODOT Specification 446.

Accepting the award were Rick Hines, RS&H, and Gary Schlea, paving foreman, The Shelly Company.



Special-Use Pavement

Mid-Ohio Sports Car Course, track renovation and resurfacing, Lexington

For this design/build project, Kokosing Construction Company removed the race course's 3,250 sy of concrete patch work – replacing it with HMA; performed 71,000 sy of pavement planing; resurfaced the 15-turn track; and constructed two connector roads in the course's "keyhole" section. Material used in the project included 12,700 tons of asphalt concrete base, 654 tons of 446 Type 1H – to pre-level the track, and 9,600 tons of heavily polymer-modified 9.5mm Superpave leveling and surface courses. This project, which was completed within five months despite wintry weather, was featured in the Fall 2006 issue of Ohio Asphalt.

Accepting the award was Steve Malone, Kokosing Construction Company.



Bike path to the Fallen Timbers Memorial

For this shared-use path, which includes a pedestrian/bikeway bridge over U.S. 24 in ODOT District 2, The Shelly Company used a 1 3/4-inch depth 448, Type 2 intermediate course and a 1 1/4-inch 448, Type 1 surface course.

Accepting the award was Byron Clymer, paving foreman, The Shelly Company.



Master Craftsman Award

While the previous awards of the 2007 Annual Luncheon showcased recently completed projects, the Master Craftsman Award highlights the longevity provided by HMA. The minimum criteria to be considered for this award are: the pavement surface must have exhibited a minimum service life of 15 years; the pavement is still in service or has been resurfaced in 2006; and the level of service provided by the pavement continues to be acceptable for its application.

This year's Master Craftsman Award goes to:

**Stark County, S.R. 172 from Massillon to Canton,
ODOT Project 602(1987)**

Travelers in ODOT District 4, between the Massillon East Corporation line and Canton's West Corporation line, have enjoyed 18 years of uninterrupted service. When it was constructed in 1988, this section of S.R. 172 was built with the old ODOT Supplemental Specification 805 rubberized sand asphalt – the precursor of today's Smoothseal Type A. Despite its longevity, this stretch of pavement currently serves 25,000 daily vehicles.

Accepting the award was Doug Woodhall, Vice President of Operations, Central-Allied Enterprises, Inc.



Ecological Award

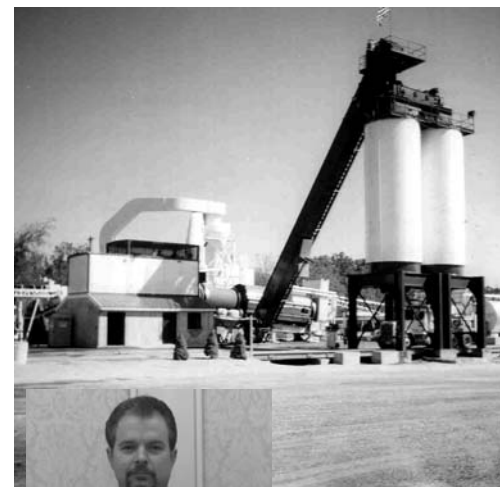
This award is given for commitment to quality of life of the local community and the practice of responsible environmental stewardship.

This year's Ecological Award is presented to:

Mixing Facility Plant No. 5, Morrow

Equipped with the best management tools and techniques to ensure compliance, Mixing Facility Plant No.5 meets all OSHA guarding, spill and storm water pollution prevention requirements. Featuring a truck wash down operation, grounds maintenance and a partially paved plant site, Valley Asphalt's facility is truly one that should be showcased. And it is, as it is featured at the area's construction days, so youth have the first-hand opportunity to see asphalt manufacturing.

Accepting the award was Steve Elmore, plant superintendent, Valley Asphalt Corp.



NAPA Quality in Construction Awards

- Barrett Paving Materials, Inc.
- Shelly & Sands, Inc.
- John R. Jurgensen Company
- The Shelly Company

These FPO members were recognized at February's 2007 NAPA Convention, held in San Francisco.

Departures

The Award Luncheon concluded with the acknowledgements of departing FPO Board Member Don Koski and the retirements of FPO Board Chairman Jim Tharp and Frecker.

Koski, of Koski Construction Company in Ashtabula, has served on the FPO Board since 2005.

Tharp, of The Shelly Company, recently retired from his second tour as FPO's Chairman of the Board. Tharp also served in the role in 1999, when he was with the L.P. Cavett Company.

Frecker, who officially retired as FPO President/Executive Director on March 30, received a standing ovation from the members he has represented for the past 15 years.



Fred Frecker

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WILLIAM W. “BILL” BAKER AWARD

Jerry Wray,

Former ODOT Director

Let us count the ways. Let us count the ways that the recipient of the 2007 Flexible Pavement of Ohio's William W. “Bill” Baker Award has benefited the industry.

When Jerry Wray issued his Strategic Plan for the Future, while serving as the Ohio Department of Transportation's (ODOT) director, it contained six major goals which not only forever changed ODOT but has also provided a catalyst for Ohio's asphalt pavement industry to strive for excellence.

Because of his leadership and vision for ODOT – and the ensuing advances made in Ohio's asphalt production, Wray was honored with the 2007 Baker Award at the association's 45th Annual Meeting, Equipment Exhibition and Trade Show.

The Baker Award honors a person, organization, project or roadway that has had a significant and positive impact on the Ohio asphalt paving industry.

During Wray's tenure as ODOT director, the Strategic Plan for the Future – which was renamed Vision 2000, forever changed transportation planning, improvements and maintenance in Ohio. The six goals of Vision 2000 were:

Goal 1: “Require contractors, consultants and suppliers to provide quality products and services.” This goal not only led to the Ohio General Assembly passing the Contractor/Vendor Quality Reform Legislation, but also ODOT experimenting with new innovations such as design/build and warranties. In response to ODOT's call for quality FPO implemented its own strategic plan for the asphalt paving industry, which resulted in a significant and positive impact on Ohio's asphalt paving industry.

Goal 2: “Streamlined work processes with a leadership structure that assures consistent long-term direction.” This prompted ODOT Central Office Divisions to be reduced



Jerry Wray

from 16 to nine divisions, and 42 ODOT bureaus being trimmed to 23 “offices.” The implementation of this goal not only established production schedules for the completion of construction plans both in-house and by consultants, but also provided the construction industry with a consistently significant construction program.

Goal 3: “A project selection process based on open, objective criteria.” This led to establishment of the Transportation Review Advisory Council (TRAC), which provides consistency in the number of projects from year to year and provides a guide to what major projects are coming so the industry can plan accordingly.

Goal 4: “A qualified, capable, productive and creative workforce.” ODOT “right-sized” its workforce, resulting in a savings in operating costs that was transferred into the highway construction program. This influx of funding into the construction program created \$100 million to \$200 million in new work for the industry.

Goal 5: “Proactive maintenance and construction practices that assure safe, reliable travel conditions.” This initiative called for 90 percent of construction projects to be finalized within six months of construction completion and the use of Superpave.

Goal 6: “A quality culture that embraces continuous improvement as fundamental to the way (ODOT does) business.” This led to ODOT conducting surveys to see how it was doing in providing service to its customers. It was this concept of quality improvement that propelled ODOT to be the best and most efficient agency in state government, and thus was instrumental in gaining acceptance for the recent gas tax increase.

“Without a doubt,” said FPO President & Executive Director Fred Frecker, during his introduction of the award, “Jerry Wray left a legacy as a true innovator, transforming ODOT into not only the best state agency in Ohio but one of, if not the, best DOT in the nation.”

The Baker Award is named in honor of Bill Baker, who served as FPO Executive Director from 1976-91 and is the highest honor the Association can bestow. Symbolized by the American Eagle, the award stands for those traits of quality, dedication and respect for which Baker was known.

Industry Service Award

Bob Bailey, Kokosing Materials, Inc.

Instituted by the FPO Board of Directors in 2003, the Industry Service Award recognizes an individual for going above and beyond his/her job duties in providing service to the asphalt pavement construction industry through involvement in FPO pursuits.



Bob Bailey

2007 award recipient Bob Bailey, president of Kokosing Materials, Inc., has served more than a quarter of a century on FPO's Technical Committee. Beyond his committee service, however, Bailey helped introduce the use of Reclaimed Asphalt Pavement (RAP) in Ohio; the concept of Quality Control/Quality Assurance (QC/QA); and formulating the mix design for the foundation of Smoothseal™.

While an employee with Northern Ohio Paving, Bailey worked with the Ohio Turnpike Commission to establish the use of RAP on projects; seeing the successful use of RAP, ODOT added the material to its specifications, which Bailey helped streamline the approval process for materials by chairing the Administrative Affairs Technical Subcommittee.

Bailey, who was not in attendance to accept the award, was one of the first contractors to pilot his own quality control with agency quality assurance. He became a speaker on the topic of QC/QA at conferences and meetings throughout the nation. Bailey's vision and activism propelled ODOT toward using the QC/QA concept nearly a decade before other states.

Bailey's ingenuity also helped spur the use of Smoothseal™ as a preventive maintenance application. When Kokosing was implementing an early Smoothseal™ project, Bailey helped FPO host a Demonstration Project and Open House to promote the material.

"You can always count on Bob to respond with a positive contribution every time an FPO e-mail goes out asking for an industry review of some agency proposed specification," said FPO President & Executive Director Fred Frecker in announcing the award.

HMA Mixture Performance Competition Awards

Ohio University – Matthew Cornett, Andrew Wargo and faculty advisor Dr. Sang-Soo Kim

For the second time in three years Ohio University won the FPO-sponsored HMA Mixture Performance Competition and will represent the state at the national competition.

The student team of Matthew Cornett and Andrew Wargo, along with faculty advisor Dr. Sang-Soo Kim, was honored during the Prayer Breakfast of FPO's 45th Annual Meeting, Equipment Exhibition



Matthew Cornett and Andrew Wargo

and Trade Show. The team will compete against Wisconsin- and New York-sponsored teams for the national title – which Ohio University won in 2005. Both Cornett (2006) and Wargo (2006, 2007) are former and current FPO scholarship recipients.

The FPO-sponsored event is an asphalt mixture performance competition for Ohio's Civil Engineering Colleges. Student teams are to design an asphalt mixture to resist rutting as determined by a loaded wheel-testing device. Teams are supplied the same aggregates and have the option of using any gradation, binder or additive they wish to implement in their design. The winning team is selected based on rut depth, a written report which includes an economic analysis and an oral presentation to a panel of industry experts.

In announcing the winner, FPO President & Executive Director Fred Frecker commented that the competition would not be possible if it wasn't for the support from The Shelly Company, which provided the aggregates for each of the teams; the Ohio Department of Transportation, which runs the rut test on all the entries along with serving on the judges panel; and FPO-member producers, who provide laboratory facilities to universities that do not have their own labs so students can conduct mix designs and testing.

Along with the award, the winning team and faculty advisor received complimentary registration and accommodations to FPO's Annual Meeting.

A FLEXIBLE SOLUTION FOR REFLECTIVE CRACKING

BY TODD LYNN, PH.D., P.E.,
SEMATERIALS, LP

Hot mix asphalt (HMA) overlays are the traditional method for protecting deteriorating pavements. They can reduce roughness, restore skid resistance and strengthen the pavement structure.

However, existing cracks in the pavement begin to appear in the new surface within one or two years. It is common to see all cracks reflect through the new overlay in three to five years. Reflective cracking is the most common problem with composite pavements constructed with HMA overlays over Portland Cement Concrete (PCC). The water infiltration, freeze and thaw cycles, and repeated loadings cause the asphalt surface to deteriorate at the joint and eventually ravel.

The most serious problem is not the cracking, but the deterioration of the base and loss of support underneath the PCC slabs caused by moisture permeating through the cracked pavement. The combined raveling at the joint and the loss of base support lower the ride quality and serviceability of the pavement.

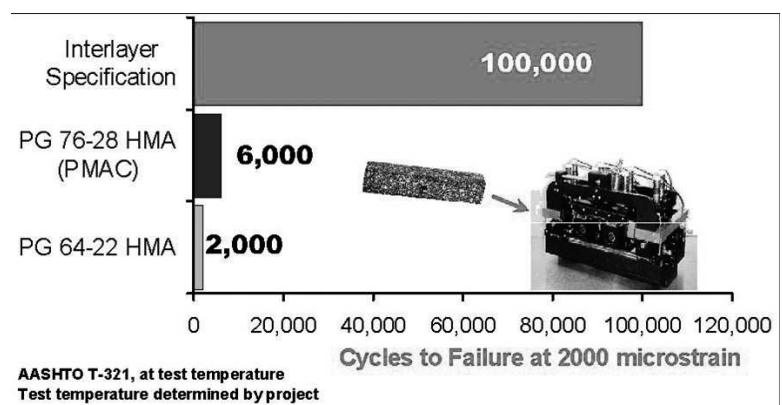
Asphalt rubber interlayers, fabrics, and other methods have been used to address the problem. The performance of these methods has varied greatly. An Army Corps of Engineers study concluded that while some of the methods work well over flexible pavements in warm climates, the performance has been generally unsatisfactory in cold climates and the use of asphalt rubber membranes is not effective over PCC in any climate.

An alternative solution for improved asphalt overlay performance is the Strata Reflective Crack Relief System (RCRS), an innovative technology designed to provide effective corrective PCC maintenance. The system exists not as a proprietary product but instead as a performance-related specification for HMA.

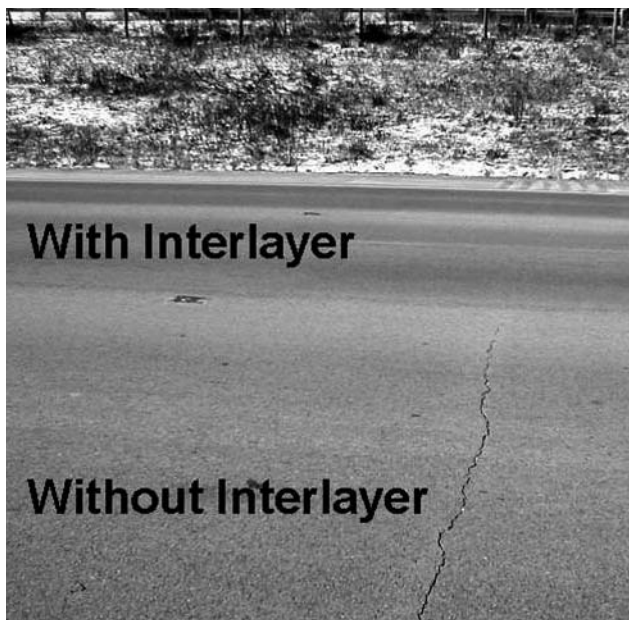
The Strata specification results in a pavement system composed of an impermeable one-inch interlayer covered with quality HMA designed to meet the needs for traffic and climate. The interlayer is a fine aggregate hot mix with high



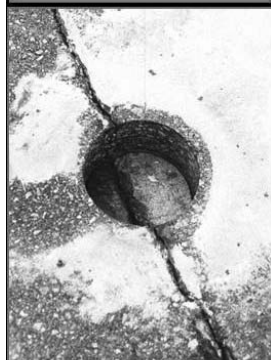
Strata interlayer construction uses conventional paving techniques



asphalt content and a specially formulated polymer modified asphalt binder. Both the interlayer and overlay are produced and constructed using standard hot mix plants and paving equipment (see photo). The Strata interlayer can be open to traffic for a few days before the overlay is placed, an important construction process advantage.



Strata Section



HMA, no Strata



NJ Rt. 10 Core

An important part of the Strata system is the performance-related portion of the specification. Conventional specifications for such a hot mix interlayer

material would include liquid asphalt requirements and a volumetric mix design. However, these would not consistently lead to a mixture capable of withstanding the horizontal and vertical stresses placed on the pavement at the PCC joint interface. This is because most of the existing reflective crack-relief methods and their specifications mainly address tensile forces within the pavement. In other words, these systems are

intended to address horizontal movement at the crack or joint interface. However, the reflective cracking phenomenon is more complex than this. In fact, there are actually three forces that need to be addressed: horizontal non-load movement (tension), vertical (shear)-load-induced movements, and bending or parallel movement under laterally unstable conditions. A tool is needed to evaluate products and pavements that characterizes more than the non-load horizontal joint movement. A recent study of



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more than 150 combinations of sites and field observations of cracking data and layered elastic properties over six- to 15-year periods of historical field performance concluded that the flexural beam fatigue test (AASHTO TP 321) is a good predictive tool for reflective cracking. Incorporating this performance-related test into the specifications allowed

asphalt, but still fails at 6,000 cycles at this strain rate. (Typical HMA tests using this device are conducted at 100 to 500 microstrain.) Reflective crack relief interlayers have been specified using this test coupled with a Hveem stability or wheel-tracking requirement for strength and resistance to rutting.

Pennsylvania Turnpike Project I-476, May 2006



Before: cracked & potholed overlay over concrete



Construction preparation: milling the overlay



Construction: conventional paving of Strata interlayer



After: finished pavement

for mimicking field conditions which greatly improves the reliability of the interlayer field performance.

Flexural Beam Fatigue Cycles to Failure is well suited as a performance-based test for a reflective crack relief interlayer, simulating the strains at the PCC joints. As shown in the graph, the specification for the reflective crack relief interlayer has a minimum of 100,000 cycles (at 2000 microstrain) before failure, while unmodified asphalt typically fails at 2,000 cycles. High-quality polymer-modified asphalt (i.e. high quality PG 76-28) withstands three times as many cycles as the unmodified

The Strata specification was developed to produce a mixture that could absorb the energy of normal PCC joint movement beneath it. If the asphalt concrete overlay is not designed for fatigue resistance, then cracks can develop in the overlay. The PG binder should be polymer modified and have 98 percent reliability for climate, traffic speed and traffic volume. Unless there is extraordinary movement in the underlying pavement, then Strata will still provide water- intrusion protection even if the overlay demonstrates cracking. This effect is demonstrated by cores from a project on New Jersey Route 10 and other projects. The photos show that – although there was some cracking in the surface

layer – the interlayer withstood the pavement strains and remained intact, protecting the existing PCC and its base from surface moisture intrusion. Data from cores taken from numerous projects shows that the Strata interlayer rarely cracks, and cracks in the overlays are offset from the pre-existing cracks in the pavement, disallowing a direct path for moisture into the underlying structure. The cracks that do appear are less severe than those in the control sections. The offset and low-severity cracking means the pavement retains a smoother long-term rideability.

The interlayer system has been found to give an average 70 percent improvement in reflective cracking. While the Strata projects had an average 6 percent reflection cracking per year (6 percent of the pre-existing cracks on the concrete pavement reflected through), the control sections exhibited an average 20 percent reflection cracking per year. The road photo (on page 21) shows a side-by-side project on Interstate 94 in Wisconsin, where one lane included the interlayer and one was a control without interlayer. The crack stops at the Strata section.

Projects constructed in 2006 include highways in Pennsylvania, New Jersey, Virginia, Kansas and Wisconsin. The Pennsylvania I-476 project on the PA Turnpike consisted of 20 center lane miles (see page 22). Some of the earliest projects in Kansas (including US 54, the major highway in Wichita) have performed so well that KDOT has done nine more projects during the last six years, including I-435, the very heavily traveled loop around Kansas City. A Transportation Research Board technical paper detailed the performance of several projects in Wisconsin. New Jersey has recently adopted standard, performance-based specifications for the interlayer system. A Utah Department of Transportation engineer has said that, “A reflective crack relief layer (i.e. SAMI) reduces the reflective cracks and retards the cracks. It extends the life of the pavement and minimizes crack sealing and problems associated with moisture. A lifecycle cost analysis will show that the SAMI will more than pay for itself with reduced costs in maintenance and future treatments.”

Over the past six years, 20 state highway departments have used the hot mix interlayer system on nearly 400 miles of highways to answer the need for effective overlays that protect PCC pavements. The system is also under study by a research project sponsored by the National Science Foundation at the Advanced Transportation Research and Engineering Laboratory at the University of Illinois. Illinois researchers are collaborating with scientists from SemMaterials Company to vigorously expand fundamental knowledge of damage mechanisms in reflective crack control systems. The industry-academia partners are addressing the aforementioned problem through a sophisticated

laboratory testing program, development of new models, and through detailed field investigations. The participants, in conjunction with professors from local universities, have also given seminars on reflective crack relief theory, techniques and performance at numerous locations throughout the U.S.

The Strata reflective crack relief system specification results in an impermeable polymer modified hot mix asphalt interlayer that prevents moisture from deteriorating existing pavements. With performance-related specifications it can delay reflective cracking in the overlay and allow the overlay to provide a safer, smoother riding surface for longer periods. Using conventional HMA equipment and procedures, interlayer construction is faster and easier than other crack relief methods and rehabilitation, minimizing user delays. The specification results in a material that can extend paving dollars and preserve the existing pavement structure.

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Integrating Warm Asphalt and Perpetual Pavement - Part 2

Editor's note – In the first part of this report, published in the Winter 2007 issue of Ohio Asphalt, Dr. Sargand reported on the investigation of Warm Mix Asphalt (WMA) being conducted in the ORITE APLF. In part 2, Dr. Sargand reports on the areas of the investigation that focused on the field trial on Ohio State Route 541 and in the laboratory.

GUE-541 Test Sections and Monitoring

The field test section work included the monitoring and testing of four non-instrumented sections constructed by Shelly and Sands as an overlay on the existing S.R. 541 in Guernsey County between Kimbolton and Plainfield, west of Interstate 77. This project was selected for the warm asphalt demonstration by ODOT. Each section consisted of a 0.75-inch (1.90 cm) layer of conventional HMA with a 1.25-inch (3.18 cm) top layer containing one of three types of WMA – Aspha-min, Sasobit, and Evotherm – or a conventional HMA. The Evotherm section was paved on Sept. 7, 2006, and was 2.70 miles (4.34 km) long. The Aspha-min and Sasobit sections, of 2.70 miles (4.34 km) and 3.07 miles (4.94 km) in length, respectively, were placed on September 15 and 16. The control section of HMA was 3.03 miles (4.88 km) long and paved in the first half of September.



Figure 1. Shown is the application of WMA on S.R. 541 in Guernsey County. The paving process is similar to that of conventional hot mix. Note the emissions sampling devices on the paver.

Pavement Forensic Assessment Prior to Construction

A forensic assessment of the pre-existing surface layer, base and subgrade conditions was conducted prior to paving. The forensic study included falling weight deflectometer (FWD) measurements by ODOT, a surface profile, and dynamic cone penetrometer (DCP) tests by ORITE to identify weak areas of the pavement prior to construction and to document any possible sources of future distress. The FWD data is being used to back-calculate pavement layer stiffnesses. The test results were also used to identify weak areas that were repaired prior to applying the overlay.

Pavement Condition Survey and Non-Destructive Testing

Additional Non-Destructive Testing (NDT) of pavement sections by the Falling Weight Deflectometer (FWD) was conducted by ODOT prior to opening the test road to traffic and at subsequent time intervals. Periodic visual condition surveys are also being conducted to observe and document the development of distress, as the number of loads applied to the pavement increases. The careful monitoring of the construction process for WMA sections will help determine if the modification of asphalt cement with additives, to allow lower-temperature compaction, adversely affects the physical and engineering properties of asphalt concrete. An infrared camera was used during construction of the field test sections to document WMA temperature and cooling throughout the placement and compaction processes and to possibly compare with any variability in the density of the finished section. The image can be loaded in a software program that allows the cursor to be moved around and the temperature at the cursor point read off the screen or otherwise recorded.

Transverse surface profile surveys are also being obtained by ORITE with a profilometer (traveling laser instrument) to monitor rutting development as the loading of pavement sections progresses. The performance of WMA sections is being compared with that of conventional HMA sections, to determine whether or not the use of additives to the asphalt cement negatively affects the engineering properties and ultimately the performance of WMA pavements. A thorough assessment of the advantages of WMA versus conventional



Figure 2. Shown is the Aspha-min WMA mixing machine at the Mar-Zane asphalt plant in Guernsey County. The chemical additive pellets are on a wrapped pallet behind the ladders to the left.

HMA pavements will be conducted with respect to energy utilization and environmental effects in the form of emanation of fumes.

Energy Consumption and Cost Assessment

The comparative evaluation of WMA mixes with respect to traditional HMA mixes includes assessing the validity of claims of reduced energy consumption in mix preparation, reduced emissions and consequently reduced fumes and undesirable odors, reduced binder aging, and extended construction seasons in temperate climates. Environmental sensors were placed on the paver and near the road to monitor fumes produced by the paving operation in each section. The stack and emissions tests at the plant were conducted by Shelly and Sands' Mar-Zane Materials Quality Control Lab, while the EES Group of Dublin performed the exposure sampling during construction. The exposure sampling included monitoring fumes and emissions at the paver (Figure 1) and adjacent to the road (Figure 3). In addition, the comparison of each type of WMA pavement treatments will include a complete cost comparison to as accurately as possible quantify the lifetime savings, if any, compared to conventional HMA.



Figure 3. Emissions sampling are measured adjacent to S.R. 541 being paved with warm asphalt.

Forensic Investigations After Construction

Observations of the condition of the pavement are being conducted periodically. Forensic investigations using generally recognized SHRP procedures will be conducted on any of the sections that develop unexpected high-severity distress within the scheduled monitoring period of two years. These investigations are aimed at identifying the likely causes of distress and to eventually develop suitable design and construction recommendations aimed at avoiding premature distress in WMA pavements or overlays. A set of test cores was taken on Dec. 19, 2006, three months after the road was paved.

Laboratory Analysis of Warm Asphalt Pavements

The laboratory testing includes the preparation of specimens using the three selected WMA techniques and a conventional hot mix. Specimens were collected from the APLF and the field site in Guernsey County at the time of construction; additional samples are being periodically collected at the field site over the first two years of service, beginning at three months after construction. The specimens are being tested to determine their engineering properties including resilient modulus at a minimum of three temperatures and three frequencies, fatigue and rutting characteristics, long-term durability and aging, low-temperature cracking resistance, moisture resistance, and basic physical properties. The effects of lowered production temperatures on asphalt binder aging are also being investigated. For this, in addition to mixture property measurements, one or more sets of asphalt binders have been prepared with modified RTFO/PAV aging conditions reflecting the reduced production temperature. The tests are being performed on each binder according to AASHTO MP1.

Comprehensive tests are being made of cores taken from all field and APLF test sections. Testing is being conducted by ORITE and by other agencies as well. The tests that ORITE is conducting include:

- Density Tests at the time of construction, after three months, one year and two years
- Bond strength between layers
- Assessment of the reduced aging during construction
- Indirect tensile strength determined at 77°F (25°C), after three months, one year and two years
- Assessment of the in-place densification under traffic, and relation to air voids at time of construction

- Aging of binder as a function of time
- Hamburg Tests for moisture susceptibility and rutting
- Beam fatigue tests (AASHTO T321)
- Fracture energy – an alternative method of assessing resistance to cracking
- Other methods of assessing cracking potential may also be used, such as the TTI overlay tester
- Low-temperature cracking (IDT test (AASHTO T322))

Other testing will be performed by NCAT at Auburn University, including moisture content in truck at time of application, gyratory compaction, volumetric properties, rutting potential, maximum specific gravity, tensile strength ratio test and anticipated in-place field density.

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