

OHIO ASPHALT

Issue 4, Volume 4

Fall 2007

Flexible Pavements Has a New Home



Tight Spaces... NO PROBLEM!



USING A SMALL MACHINE DOESN'T HAVE TO COMPROMISE PRODUCTIVITY OR PERFORMANCE.

The new W 120 F cold mill from Wirtgen, the Super 700 asphalt paver from Vögele America, and the HD 12 roller from Hamm Compaction Division are proving that small machines can provide big performance, convenience and profitability in tight spaces and on tight schedules.

Don't let the compact size fool you; these small machines get **BIG** results.



The McLean Company
6681 Chittenden Road
Hudson, Ohio 44326
Phone: 330-655-5900
Fax: 330-655-5969

The McLean Company
3155 E. 17th Avenue
Columbus, Ohio 43219
Phone: 614-475-2880
Fax: 614-475-0069

The McLean Company
8131 Regal Lane
West Chester, Ohio 45069
Phone: 513-777-5556
Fax: 513-777-4494

OHIO ASPHALT

FALL 2007

- 5 President's Page
- 6 Guide Document Shows How Asphalt Pavement Can Garner LEED Credit
- 9 'Trackless Tack' Demonstrated on ODOT Project
- 10 2007-08 FPO Scholarship Recipients
- 12 Survey Shows Ohio's Asphalt Paving Industry a Major Asset to State's Economy
- 14 Asphalt Base – The Best Foundation for a Long-lived Asphalt Surface
- 16 Perpetual Pavement Demonstrated on Cuyahoga County Project
- 18 Asphalt Binder Prices Continue Downward Trend
- 19 Visiting Researchers Review Smoothseal Performance
- 20 Franklin County Engineer Demonstrates HMA with Recycled Tires
- 21 Sustainable Pavements on the Web
- 21 Educational Opportunities
- 23 Happy Holidays from Flexible Pavements of Ohio
- 23 Index to Advertisers
- BC We're Moving!



page 9



page 12



page 16

Officers

Chairman

Brent Gerken
Gerken Paving, Inc.

Co-Chairman

Douglas C. Rauh
The Shelly Co.

Treasurer

Frank T. Bell
M&B Asphalt Co., Inc.

Board of Directors

Wayne Brassell
Kokosing Construction Co., Inc.

James P. Jurgensen
Valley Asphalt Corp.

Gerald N. Little
Shelly & Sands, Inc.

James S. Tharp
The Shelly Co.

Michael D. Thompson
Barrett Paving Materials, Inc.

Howard J. Wenger
Northstar Asphalt Co.

Dean Wikel
Erie Blacktop, Inc.

Staff

Clifford Ursich, P.E.
President & Executive Director

William H. Fair, P.E.
Director of Engineering Services

Florence H. Flowers
Executive Assistant

Jerry Wray, P.E.
V.P. of Government Relations

Telephone: 614-791-3600; 888-446-8649

Fax: 614-791-4800

Web Site: www.flexiblepavements.org

ON THE COVER: *Flexible Pavement of Ohio's (from left) Bill Fair, director of Engineering Services, Flo Flowers, executive assistant, and Cliff Ursich, president & executive director, welcome members to the association's new headquarters at 525 Metro Place North in Dublin.*



Flexible Pavements of Ohio is an association for the development, improvement and advancement of quality asphalt pavement construction.
info@flexiblepavements.org

Ohio Asphalt is published by Flexible Pavements of Ohio four times a year. Advertising deadline is the 1st of the month preceding publication. Ohio Asphalt is not copyrighted and portions may be reprinted with the permission of Flexible Pavements of Ohio. 525 Metro Place North, Suite 101, Dublin, OH 43017; telephone: 614.791.3600, 888.446.8649; fax: 614.791.4800; Web site: www.flexiblepavements.org

Layout & Design
Nikkole Kozlowski

Advertising Sales
Megan Brown

Editorial Staff
Jerry Marks

Ad Sales & Editorial Preparation
TRIAD, Inc.

371 County Line Road West
Westerville, OH 43082
614.846.8761 or 1.800.288.7423
fax: 614.846.8763
editorial e-mail: editorial@triad-inc.com
advertising e-mail: sales@triad-inc.com

kokosing

Tradition ■ Excellence ■ Quality ■ Innovation

Asphalt plants located in:

- Columbia Station
- Columbus
- Delaware
- Fredericktown
- Garfield Heights
- Mansfield
- Medina
- Sheffield
- St. Louisville
- Westerville
- Wooster

AMRL Certified
laboratory
testing facility

and
SPS Polymer
manufacturing
plant located in
Mansfield

Liquid AC facilities located in:

- Mansfield
- Wheelersburg

Asphalt Paving

Regional offices:

- Cleveland
(216) 587-4900
- Elyria
(440) 322-2685
- Mansfield
(419) 524-5656
- Westerville
(614) 212-5700



**KOKOSING
MATERIALS INC.**

P. O. Box 334 • Fredericktown, Ohio 43019-0334
Phone: 740.694.9585 • Fax: 740.694.1100
www.kokosingmaterials.biz

kokosing
CONSTRUCTION COMPANY INC.

P. O. Box 226 • Fredericktown, Ohio 43019-0226
Phone: 740.694.6315 • Fax: 740.694.1481
www.kokosing.biz



MORE CARE. BUILT IN.

If you are in the dirt digging and moving business, you know that the road to success can often be rough and slow. But with a new **Volvo C-Series** Crawler Excavator, you're closer to the fast lane than you might think. From the first turn of the key, you know you made the right choice with Volvo. A powerful EPA Tier 3 compliant Volvo diesel engine with **V-ACT** (Volvo Advanced Combustion Technology). The instant response of a high-performance hydraulic system. And at the end of a long, hard day of work – when the fuel gauge has barely moved – you're more convinced than ever. Your freeway to success is built with new **Volvo C-Series** Crawler Excavators. Visit Cantwell Machinery Company today and check out everything that Volvo has to offer.



Cincinnati, OH
513-489-3040
Old Washington, OH
740-489-5031

Columbus, OH
614-276-5171
Perrysburg, OH
419-637-9425

Macedonia, OH
330-467-4171
Piketon, OH
740-289-1818

www.cantwellmachinery.com

Asphalt Takes The LEED®!



CLIFFORD URSICH
President &
Executive Director

Sustainability is the buzz these days, and it seems every industry and material supplier is “green washing” themselves to show how green they can be. Just what is sustainability any way?

Different definitions exist, but for our intents in the paving industry it means utilizing paving practices and paving materials that conserve resources thereby allowing growth and development to continue for future generations without degrading the environment. Pushing the sustainability agenda in the building sector is Leadership in Energy and Environmental Design (LEED®). LEED® is a program that encourages the design of buildings (office and big box stores alike), homes, schools and neighborhood developments that advance sustainability concepts. When we consider the various aspects of asphalt pavements, asphalt indeed leads the paving industry in providing materials that sustain the environment for our children and their children's children.

Asphalt Leads Through Recycling

Recycling is a major part of the asphalt industry's business. By that, I mean more than just the recycling of old asphalt mix (RAP) into new. Using RAP saves about 3.3-million tons of asphalt binder and rock each year in Ohio. That amounts to a mountain of material when you consider that Ohio asphalt producers have been using RAP since the early 1980s. The savings in cost and natural resources resulting from asphalt recycling is staggering, not to mention the landfill space also saved. But recycling in asphalt goes beyond just using RAP. Now we are recycling asphalt shingles — a rich source of asphalt binder; ground tire rubber — for use as a polymer modifier that enhances pavement longevity; and dare I say it — no I won't — (let's just say) crushed porcelain, as a replacement for virgin aggregate. Not only are we using recyclable materials in asphalt, but we are creating one all in the same process. Asphalt mixtures are 100-percent recyclable.

Sustainability is advanced through asphalt industry endeavors to recycle.

Asphalt Leads Through Innovation

It is said, necessity is the mother of invention. The soaring cost of energy has released a new wave of innovation. Like the late 1970s, when the oil

embargo hit the nation hard — and the asphalt industry in particular. Innovative equipment manufacturers are coming up with ideas that will allow asphalt contractors to hold costs in check. New processes developed for producing warm mix asphalt are showing real promise for reducing asphalt manufacturing temperatures and increasing recycling capability. Lower temperatures translate to an immediate reduction in energy demand and lower energy cost. That means more efficient use of energy. Increased recycling capability translates to lower manufacturing costs and preservation of virgin asphalt binder and aggregate resources. This development is a different kind of innovation, and one that will further advance the sustainability of asphalt pavement.

Porous asphalt pavements are an innovation whose time has finally arrived. The first work in the area of pervious pavements was done in the early 1970s, when the Franklin Institute experimented with the concept of a porous asphalt mix over an infiltration bed to reduce runoff and pollution. Today, porous asphalt pavements are seeing greater demand. This heightened interest is stimulated by water quality rules regulating the discharge of storm water. The sustainable aspects of porous asphalt pavements are also seen in their ability to thwart the urban heat island effect.

Something Worth Crowing About

If there ever was an industry that had something to crow about it's the asphalt industry. Sustainability and asphalt pavements are rightly fitted for each other. As we move into the future where markets will increasingly demand more environmentally friendly products — products that are recyclable; products that require less energy to manufacture; and products that keep the air and water clean — while providing mobility at an economical price, then let it be spoken that asphalt is the right choice for the job. Asphalt pavement is the sustainable pavement, and it's the right choice for cost, for convenience and for comfort.



Guide Document Shows How Asphalt Pavement Can Garner LEED® Credit

Flexible Pavements of Ohio has developed guidance for pavement designers wanting to construct projects that obtain Leadership in Energy Environmental Design (LEED®) credits. The guidance is provided in tables and is intended to be a ready-reference that matches pertinent LEED® categories with various attributes of asphalt pavements. The tables provide reference to applicable Ohio specifications, so designers can readily ascertain the appropriateness of a particular mix or specification for their LEED® project.

Obtaining LEED® credits with asphalt pavements can be done with conventional asphalt mixtures, as exotic asphalt mixtures are not required. Designers can further gain LEED® credits, while at the same time enhance project aesthetics, by including a creative use of materials – such as color coatings. Versatility and being able to use recycled materials are attributes of asphalt pavements that make asphalt the pavement of choice for LEED® projects. These attributes are addressed below.

What is LEED®?

Developed by the U.S. Green Building Council, the LEED® Green Building Rating System™ is the nationally accepted benchmark for the design, construction and operation of high-performance green buildings. LEED® promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.¹

The LEED® program is a dynamic and expanding program, as it includes guidelines for the construction and renovation of office buildings, schools, homes, retail establishments and neighborhood development. In Columbus, the new 4H Center on the campus of The Ohio State University is being constructed to achieve the certification of LEED® “Certified.”

Earning LEED® Certification

To earn certification, a building project must meet certain prerequisites and performance benchmarks (“credits”) within each category. Projects are awarded Certified, Silver, Gold or Platinum certification depending on the number of credits they achieve.¹

How Asphalt Pavements Contribute to Attaining LEED® Credits

Asphalt pavements contribute to LEED® credits in a variety of ways. Asphalt pavements are 100-percent recyclable. They are used and re-used with each cycle of road paving. As such, credits associated with recycling and waste management are attainable. Pervious asphalt mixtures have been used in Ohio for more than a generation. In the 1970s, Franklin Institute researchers launched porous (pervious) asphalt pavements, a strategy that reduces quantity and improves quality of storm water runoff. Credits can be attained for porous pavement use under categories for storm water management (both quantity and quality) and heat island reduction.

Recently, coating materials have been introduced to the industry. These allow designers to express their creativity and ingenuity while at the same time improve pavement reflectance and capture credit for heat island reduction.

From conventional, to porous, to pattern stamped, asphalt pavements provide flexibility and options to architects and engineers designing sustainable pavements.

Flexible Pavements has developed tables for the different LEED® programs to show the potential credits attainable by using asphalt pavements. Each table provides the rating category, credit description, available points and a discussion of the applicability/contribution that asphalt pavements have in attaining credits. This information has been provided for the following LEED® programs:

- LEED® – NC Green Building Rating System For New Construction & Major Renovations Version 2.2
- LEED® – EB Green Building Rating System For Existing Buildings Upgrades, Operations and Maintenance Version 2
- LEED® – For Schools For New Construction and Major Renovations, April 2007 version
- LEED® – For Neighborhood Development Pilot Version, updated June 2007
- LEED® – For Homes Program Version 1.11a, January 2007
- LEED® – For Retail New Construction and Major Renovations Pilot Version 2, April 2007

REFERENCES:

¹ U.S. Green Buildings Council, www.usgbc.org

Here is an example of the first page of table LEED® - NC Green Building Rating System For New Construction & Major Renovations Version 2.2. All tables can be found at the FPO Web site on the new Sustainable Pavement page: http://www.flexiblepavements.org/sustainable_pav.cfm.

LEED® - NC Green Building Rating System For New Construction & Major Renovations Version 2.2

Rating Category	Credit Description	Points	Discussion of Asphalt Pavement Applicability/ Contribution to Rating Category
Sustainable Sites			
SS Credit 6.1	Storm water Design: Quantity Control	1	<p>Porous asphalt pavement (i.e. pervious paving) constructed on a recharge bed promotes quantity control utilizing highly pervious mixtures (approx. 6,000 ft/day). Potentially, site discharge and flow can be reduced below predevelopment conditions through conveyance of roof drainage, and other storm water flows, to the pavement recharge bed.</p> <p>Design Guide: http://store.hotmix.org/index.php?productID=179 Specification (base mix): http://www.flexiblepavements.org/documents/PPbase20Jly07.pdf Specification (surface): http://www.flexiblepavements.org/documents/PPsurf20July07.pdf</p>
SS Credit 6.2	Storm water Design: Quality Control	1	<p>Porous asphalt pavement (i.e. pervious paving) constructed on a recharge bed promotes storm water quality control through infiltration utilizing highly pervious mixtures (approx. 6,000 ft/day). Data indicates infiltration BMPs have the highest pollutant removal efficiency for total phosphorus, soluble phosphorous, nitrate, zinc, and TSS, when compared to wetlands, wet ponds, filtering, swales and dry ponds.</p> <p>Presentation – Porous Asphalt Pavement: http://www.flexiblepavements.org/documents/PorousPavementfporevisions.pdf</p>
SS Credit 7.1	Heat Island Effect: Non-Roof	1	<p>Reducing heat island effect using asphalt pavements is achievable by coating the pavement surface to raise the Solar Reflectance Index (SRI). This approach allows the designer to capture the economy of using asphalt pavement while also expressing creativity and ingenuity. Coatings of virtually any color are available to treat asphalt pavement. This allows the designer to raise the SRI and integrate features such as color designated pavement areas. Multiple colors can be used to identify walkways, bikeways, emergency parking, handicap areas or other. Another treatment that raises albedo is “sealing and chipping,” using limestone or other light colored aggregate. Sealing and chipping is low cost and provides an agrarian look. Lastly, a simple slurry application of portland cement following paving, while the asphalt surface is still hot, fills and coats the surface to raise SRI.</p> <p>Coating Colors for LEED® Credit: http://www.integratedpaving.com/leed/ ODOT Specification – Sealing & Chipping: http://www.dot.state.oh.us/construction/OCA/Specs/Rewrite2005/2005SpecBook/2005_422_10-22-04.doc</p>
Materials & Resources			
MR Credit 2.1	Construction Waste Management: Divert 50% From Disposal	1	<p>Asphalt pavements are 100% recyclable. Where construction/major renovation of the site requires removal of asphalt pavement, the entire quantity of asphalt pavement can be redirected to the manufacturing process for recycling into new asphalt pavement.</p>
MR Credit 2.2	Construction Waste Management: Divert 75% From Disposal	1	<p>See discussion for MR Credit 2.1</p>



Asphalt Materials, Inc.

*Producing quality Asphalt Products including
Asphalt Cements, Modified Asphalt Cements
& Asphalt Emulsions*

Oregon, Ohio

(419) 693-0626

- SHRP, PG Graded Asphalt Cement
- Polymerized Asphalt Cement
- Multigrade Asphalt Cement
- Asphalt Emulsions

Marietta, Ohio

(740) 374-5100

- Asphalt Cement
- Cutback Asphalt Cement
- Asphalt Emulsions

Marion, Ohio

(740) 387-0776

- Asphalt Emulsions
- Slurry & Micro Surfacing Emulsions

"We are your Source for Specialty Asphalt Products"

TRAFFIC CONTROL AND SAFETY MATERIALS

OVER 50 LOCATIONS SERVING 20 STATES PROVIDING ROUND-THE-CLOCK SERVICE



Sign & Sign Stands
Solar Sign Stand
Safety Equipment
Plastic Fencing
Barricades
Fitch Inertial Barriers
Plastic Drums & Cones
Solar Message Centers
Solar Advance Warners
Truck-Mounted Attenuators
Warning Lights & Batteries
Temporary Pavement Markings
Glare Screen
Delineators
Reflectors
Work Area Lighting

**Sales, Rental, and Lease Purchase of
Work Zone Traffic Control Equipment and Services
Installation Specialists**

PROTECTION SERVICES INC.

John Gannon
Cleveland

Steve Fisher
Columbus

"Toll Free" 1-866-489-1234

Protection Services Inc., a Division of Stabler Companies Inc.
(717) 236-9307 • 635 Lucknow Road, Harrisburg, PA 17110
www.protectionservices.com

Paver Saver Program from Ohio CAT.



**Take advantage of cost
savings on asphalt paver
parts and rebuilds during the
winter months.**

- Discounted wear parts for rebuilds
- Free inspection from your Ohio CAT Product Support Sales Representative (PSSR) or Paving Product Specialist
- Program runs December 1, 2007 through April 30, 2008

Please contact Paving Specialists Bob Toney (Columbus), Chuck Lappert (Cleveland) or your PSSR to schedule your free inspection today!

CADIZ
800.837.6204

CINCINNATI
888.332.4658

COLUMBUS
888.441.4658

NORTHERN KY
888.446.4658

TOLEDO
888.339.4658

YOUNGSTOWN
800.837.6203

CANTON
800.837.6207

CLEVELAND
800.837.6200

LUCASVILLE
888.336.4658

PAINESVILLE
888.901.6620

TROY
888.330.4658

ZANESVILLE
800.837.6205



www.OhioCAT.com

'TRACKLESS TACK'

Demonstrated On ODOT Project

Every contractor and agency knows of a project where tracking of the tack coat material presented problems. New demands concerning construction practices – such as not delaying traffic, night-time paving, providing a uniform coating and the use of polymer modified tack – have exacerbated what formerly wasn't a problem. Many have wished for a solution that did not involve additional delay or inconvenience to motorists, while still providing the superior bond afforded by a uniform application and modified materials.

The use of a special tack coat material that sets fast and doesn't track or pick up on haul truck tires has been rumored for some time. Nationally, we have heard that the Florida DOT is requiring a "trackless" tack coat on all projects. We have seen reports of a quick-setting system of material and equipment, called the Fast Tack Process, developed by COLAS, Ltd. in Europe and tested on a New York Thruway project.

Recently, on an ODOT project in District 5, Trackless Tack, HTSS-1HM, as produced by Blacklidge Emulsions, Inc., of Gulfport, Miss., (www.blacklidgeemulsions.com) was demonstrated on two sections of state highway near Baltimore in Fairfield County.

Observations from project personnel included:

- "It's a big hit out in the field. It really works."
- "They spray it on at 170 degrees and it takes 5 to 15 minutes to break – they tried it at 145 degree and it would not break. After it breaks, vehicle traffic will not affect it."



- "It has a black glossy look when it breaks."
- "Very little asphalt on paver wheels ... truck's tires did not have any buildup either."
- "I'm told it has a 40-percent better bond than our existing tack. I think it has a future if the cost can come down."

The material is being distributed in Ohio by Meredith Brothers, Inc. (www.meredithbrothersinc.com). For more information on the product, contact Technical Sales Manager Tom Letizia by mobile phone (440.668.1772), at the Cleveland office (440.543.7973), at the Columbus headquarters (800.878.4991) or by e-mail (tletizia@roadrunner.com).



NEW OHIO ASPHALT SCHOLARSHIP HIGHLIGHTS 2007-08 PROGRAM

The second decade of giving, and of helping future decades in the asphalt industry, continued this year with the awarding of 19 Ohio Asphalt Scholarships to students at seven Ohio universities and colleges.

With the addition of the 2007-08 scholarships, Flexible Pavements of Ohio has assisted more than 200 students in the past 12 years.

The Ohio Asphalt Scholarships program started in 1995, a time when none of the 10 Ohio universities and colleges offering civil engineering degrees provided curriculum on hot mix asphalt (HMA).

Today, besides honoring some of the state's top civil engineering students, the Ohio Scholarship Program has fostered the study of HMA at Bowling Green State University, Ohio Northern University, Ohio State University, Ohio University, University of Akron, University of Cincinnati, University of Dayton, University of Toledo and Youngstown State University. This commitment by schools to include HMA into their curriculum is providing valuable knowledge to civil engineering and construction management majors as well as exposure to Ohio's asphalt industry.

A new FPO scholarship for 2007-08, is the Dine Comply, Inc. Asphalt Scholarship for Environmental Studies. To be eligible, applicants must be entering their junior or senior years of a Bachelor's of Science degree in Environmental Science or Health at an Ohio school. The inaugural recipient of this scholarship is Kyle Gumto from Ohio

University. Sponsored by FPO associate member Dine Comply, Inc., of Marion, this scholarship encourages consideration of a career in environmental compliance or regulation within the asphalt industry or regulatory agencies.

Scholarship recipients were announced at the 2007 FPO Annual Meeting last spring, and checks were distributed this fall at the start of the academic year.

Along with the 10 member companies that sponsored Ohio Asphalt Scholarships, there were other individuals and companies that contributed to this year's scholarship fund: Bowers Asphalt & Paving, Inc.; Columbus Bituminous; Columbus Equipment Co.; Cunningham Asphalt Paving, Inc.; Dine Comply, Inc.; Bill Fair; Fred & Teresa Frecker; General Insurance Co.; H.P. Streicher, Inc.; Hardrives Paving Construction, Inc.; Hy-Grade; The Koski Construction Co.; M&B Asphalt Co., Inc.; The McLean Co.; Meeker Equipment Co., Inc.; Northeastern Road Improvement; Northern Ohio Paving; Osterland; S.E. Johnson Companies, Inc.; Schloss Paving; Thomas Asphalt; and Valley Paving Co.

FPO would like to thank all the individuals and companies that contributed to the 2007-08 Ohio Asphalt Scholarship Fund. If you would like additional information about the program, contact William Fair at 614.791.3600 or 1.888.4HOT.MIX.



The 2007-08 Ohio Asphalt Scholarship recipients and the member companies sponsoring the \$1,000 awards, include:

Barrett Paving
Materials, Inc.



Zachary Kaczor
U. of Dayton

Burgett Family/
Kokosing Construction Co.



Jeremiah Hoeflich
U. of Toledo

Burgett Family/
Kokosing Construction Co.



Isaac Whitney
Bowling Green State U.

Dine Comply, Inc.



Kyle Gumto
Ohio U.

Erie Blacktop, Inc.



Nickolaos Kantouros
U. of Toledo

Erie Blacktop, Inc.



Rachel Louis
Ohio State U.

Flexible Pavements
of Ohio



Cedric Duah
U. of Akron

Flexible Pavements
of Ohio



Valerie Webb
Ohio State U.

Gerken Paving, Inc.



Ryan Mahle
Ohio Northern U.

Gerken Paving, Inc.



Anna Santino
Ohio Northern U.

John R. Jurgensen Co./
Valley Asphalt



Sean Kahlig
U. of Dayton

John R. Jurgensen Co./
Valley Asphalt



Michelle Salvina
U. of Dayton

Martin Marietta Aggregates



Brett Porter
Ohio U.

Northstar Asphalt, Inc./
Kenmore Construction Co.



Sarah Gentner
U. of Akron

Northstar Asphalt, Inc./
Kenmore Construction Co.



Todd Jackson
U. of Akron

Ohio CAT & Caterpillar, Inc.



Nathan Dickman
Ohio State U.

The Shelly Co.



Lynsey Ondecker
U. of Akron

The Shelly Co.



Andrew Wargo
Ohio U.

The Shelly Co.



David Weimer
U. of Akron



Survey Shows Ohio's Asphalt Paving Industry A Major Asset To State's Economy

The asphalt paving industry is a major contributor to the economic well being of Ohio. That statement is backed up by a recent survey performed by Flexible Pavements of Ohio. The survey questionnaire, sent to all of Ohio's hot mix asphalt (HMA) manufacturers, requested information that would quantify their investment in equipment; employment data; wages and taxes paid; tons of hot mix produced; and recycling activity. The results are astonishing, and clearly demonstrate that the asphalt paving industry in Ohio is a major asset to the state's economy.

Except for the rare occurrence when an asphalt company makes the newspaper headlines, the average Ohioan goes through their day without any thought about the asphalt industry and its contribution to their economic welfare. Why is this? Unlike most industries that have a central headquarters that facilitates thousands of employees, the asphalt paving industry ranges from small, family owned to international companies scattered throughout the municipalities and hinterlands of Ohio. There are no "headquarters" of substantial size that turn the head. A greater appreciation is garnered when we see a composite of the approximately 165 asphalt manufacturing facilities that comprise Ohio's industry.

The Asphalt Industry's Investment in Ohio

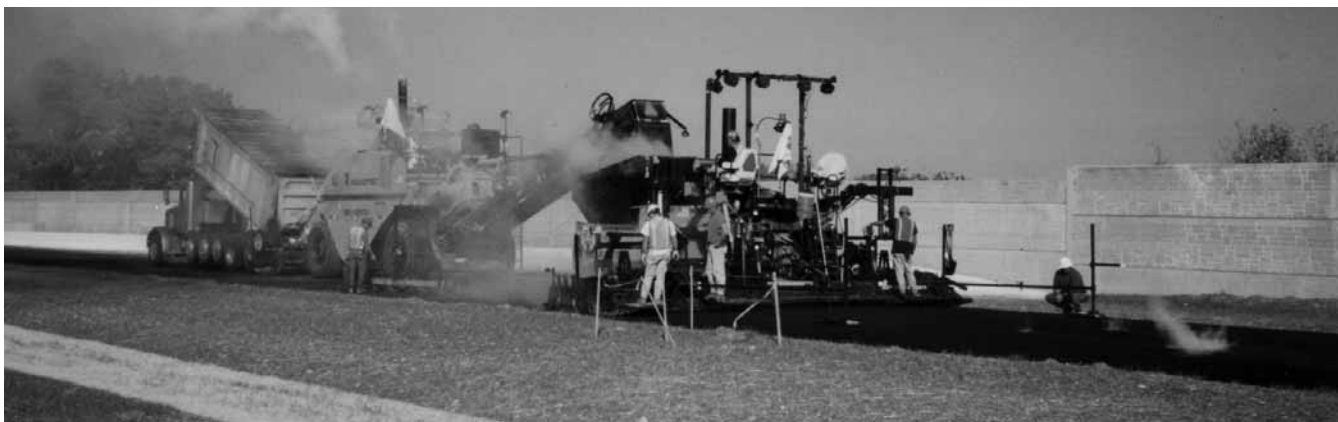
Asphalt manufacturers have a vested interest in seeing Ohio's economy prosper. HMA is unique from other manufactured products; it must be made hot and placed hot, which means asphalt manufacturing facilities must be within close proximity of the work. Asphalt mix can't be boxed and shipped like other products; and it's one of the few things not imported from China. Asphalt manufacturers have invested large sums of money in manufacturing facilities, quality-control infrastructure, buildings, paving and compaction equipment, and rolling stock for the sole purpose of making asphalt mix in Ohio for Ohio construction projects. This investment amounts to approximately \$315 million.

This table provides a survey summary and is based upon responses received for 110 of Ohio's approximately 165 asphalt mixing facilities.

Total \$ Value of Plants	\$190 million
Total \$ Value of Related Equipment	\$125 million
Total Employees (peak season)	4,300
Annual Payroll	\$200 million
Payroll for Hired Truckers	\$133 million
Total Taxes Paid	\$22 million
No. of Hired Truckers	1,700
Total Expenditures for Raw Materials and Utilities	\$550 million
Total Tons of Recycled Asphalt Pavement Used	3.3 million
Gallons of Recycled Used Oil for Dryer Fuel	22 million
Other Recycled Materials	Asphalt Shingles, Ground Tire Rubber, Crushed Porcelain

The industry's investment in Ohio is also made in the purchase of raw materials. Making an asphalt mix requires more than just asphalt binder and rocks. Raw materials include aggregate, asphalt binder, fuel to dry aggregate, electricity to run motors, fuel for pavers, rollers and rolling stock, and more. These annual expenditures amount to more than a half-billion dollars (\$550 million).

And, of course, paid taxes from Ohio's HMA manufacturers amount to \$22 million annually.



Ohio's Asphalt Industry – A Major Employer

When we think about that lonely asphalt-mixing facility out in the byways, it's hard to appreciate it for the employment opportunity it presents. Data from FPO's economic survey indicates that on average, each asphalt-mixing facility accounts for 36 jobs created. That number includes employees actually producing mix, office staff, hired truckers and other miscellaneous labor. It does not account for jobs created in businesses that support the asphalt facility; like the auto parts store, the in-town diner, the service station and the many other businesses that benefit by providing support services to the asphalt mixing facility equipment and staff.

One might ask, "So in the big scheme of things, what's the big deal with 36 jobs?" Well, those 36 jobs equate to approximately 6,000 jobs when the industry is considered as a single entity. That employment number approaches that of the asphalt industry's largest customer, the Ohio Department of Transportation. Payroll for those 6,000 employees amounts to \$333 million.



More than 165 facilities comprise Ohio's asphalt manufacturing industry.

Ohio's Asphalt Industry – A Major Recycler

The Federal Highway Administration estimates approximately 30-million tons of recycled asphalt pavement (RAP) is annually transformed into new asphalt pavement. Every year in Ohio, the asphalt industry redirects 3.3-million tons of RAP from landfills by its recycling of the material into new asphalt pavement – approximately 10 percent of the national total. That's enough asphalt to pave a two-lane road stretching from Columbus to Los Angeles using an overlay thickness just over 1 3/4 inches. The material cost alone in 3.3-million tons of RAP equates to \$81 million, and the virgin aggregate saved preserves valuable natural resources from depletion.

To hold manufacturing costs down, some asphalt mixing facilities dry aggregate using recycled oil as a fuel source. Recycled oil has high heat potential (Btu), and 22-million gallons of it is used in Ohio as a substitute for virgin fuels.

Other materials recycled into Ohio's asphalt pavements are asphalt shingles, which are rich in asphalt binder and contain very durable aggregates; ground tire rubber, that when processed into the asphalt binder modifies an asphalt mixture's physical properties to make it more durable and provide greater pavement life; and, lastly, porcelain from crushed commodes.

Ohio's Asphalt Industry – A Major Asset

The data from the FPO survey demonstrates the large benefit the asphalt industry is to Ohio. The survey, unfortunately, isn't capable of quantifying all value provided; for instance, the fact that asphalt pavement smoothness far exceeds the ride quality provided by any other pavement material. That smoothness has an economic value in reduced wear and tear on vehicles, preserved cartage and improved fuel economy. The hard numbers from the survey, however, do much to quantify the value in investment, jobs, taxes and sustaining of our natural resources, that a healthy and thriving HMA paving industry provides.



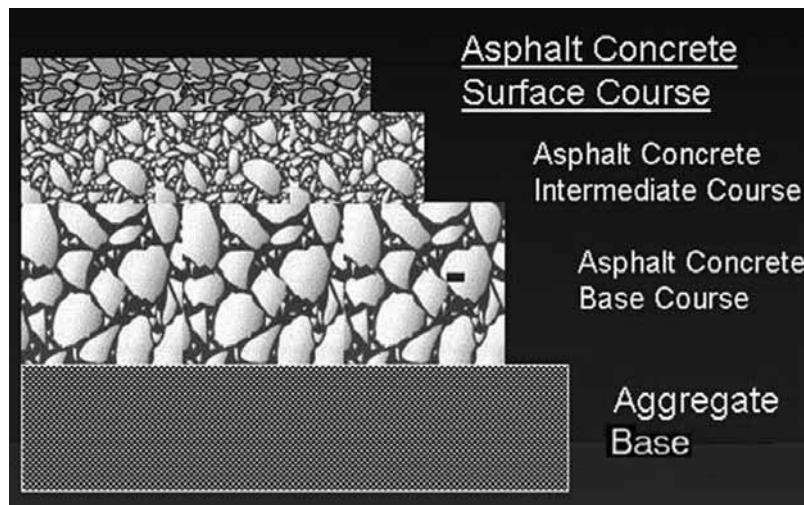
ASPHALT BASE – The BEST Foundation For A Long-Lived ASPHALT SURFACE

Asphalt overlays are often used to resurface worn-out concrete pavements or as a surface over a concrete base in new construction. While this is a frequent use of hot mix asphalt, it is not the application in which asphalt surfaces perform best.

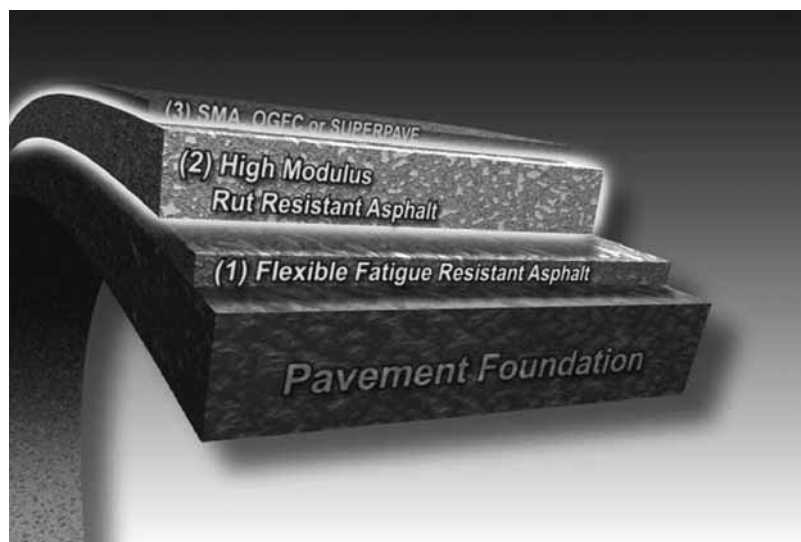
Experience in constructing and maintaining Ohio's Interstate Highways have shown that asphalt surfaces generally perform best over asphalt bases. Pavements originally constructed as deep-strength asphalt have been shown to last longer and cost less to maintain than any other combination of materials. In addition, these pavements have generally cost less to construct initially, and none have ever had to be removed and replaced. The surfaces on these deep-strength asphalt-base pavements have generally lasted longer and provided a better level of service before needing an overlay compared to pavements with concrete bases. After an overlay was eventually placed on these asphalt-base pavements the overlay has generally been long-lasting as well.

Deep-Strength Asphalt Pavement

The unfortunate reality of pavements with a concrete base is that when the concrete cracks and crumbles – which it inevitably will – the asphalt surface will degrade. Replacing the asphalt surface over the deteriorating concrete base is a short-term fix. Patching and repairing the disintegrating concrete base can be an expensive and time-consuming proposition. At some point, the only real solution will be to dig up the road and start over. This kind of replacement



Whenever a deep-strength asphalt pavement has been used on Ohio's Interstate System it has never needed to be replaced.



The asphalt base in perpetual pavement is designed to never fail from fatigue loading.

has never been necessary for a deep-strength asphalt pavement on Ohio's Interstate System. What this means to the owner of an asphalt base pavement is that it is easy to project the future maintenance costs. Just plan on resurfacing periodically – depending on how much traffic the pavement carries. Conversely, a failed concrete base will eventually require huge replacement costs, and sooner or later that concrete-base pavement will have to be replaced. No such time bomb is waiting for owners of deep-strength asphalt pavements. So, why risk it?

For asphalt-base layers more than 4 inches thick, ODOT Item 302, asphalt-concrete base, (also known as the big rock base) has proved to be economical, stable and durable. In this time of intense pressure to reduce pavement cost, the use of a deep-strength, asphalt base using ODOT Item 302 is one answer.

With recent advances in design and materials technology, asphalt-base pavements can be made very long lasting, indeed. A perpetual pavement is one that the asphalt base never fails from fatigue loading. The projects that have won national Perpetual Pavements Awards reflect the outstanding capability of deep-strength asphalt-base pavements to provide long life with low

maintenance. For details on the Perpetual Pavements Award projects, see www.asphaltalliance.com. With an asphalt base and a long-lasting, polymer-modified renewable surface, it is now feasible to build a pavement that will provide a high level of serviceability for as long as the pavement is needed.

The conclusion is clear, for the best-performing pavement, start with an asphalt base.

For more information on the performance of asphalt-base pavements and the life of overlays on asphalt-base pavements, visit the Flexible Pavements of Ohio Web site at www.flexiblepavements.org. Click on the "Technical Documents" menu item and then click on "Economic Evaluation of Ohio's Flexible and Rigid Interstate Pavements." Also, visit the Federal Highway Administration's LTPP home page at <http://www.fhrc.gov/pavement/ltppltp.htm> to view the Tech Brief, "Performance Trends of Rehabilitated AC Pavements."



FROM ROCKS TO ROADS, WE'VE GOT YOU COVERED!

- ASPHALT PRODUCTION
- CONCRETE PRODUCTION
- LIMESTONE MINING & PRODUCTION
- SAND & GRAVEL MINING & PRODUCTION
- TRUCKING FLEET
- CONTRACT PAVING
- LIQUID ASPHALT STORAGE FACILITY
- QUALITY CONTROL FACILITY
- TURN KEY CAPABILITY on ROAD CONSTRUCTION

FACILITIES THROUGHOUT OHIO

Website: www.shellyco.com

THE SHELLEY COMPANY * 80 PARK DRIVE-P.O. BOX 266 * THORNVILLE, OHIO 43076
PHONE 740.246.6315 FAX 740.246.4715

A DIVISION OF OLDCASTLE MATERIALS GROUP-AN EQUAL OPPORTUNITY EMPLOYER

Perpetual Pavement Demonstrated On Cuyahoga County Project

On September 12, a group of interested engineers and public works officials gathered in Mayfield Heights to learn about the perpetual pavement concept and visit the Cedar Road project where the Cuyahoga County Engineer is currently constructing a perpetual pavement.

The Perpetual Pavement Demonstration Seminar was sponsored by The Cuyahoga County Engineer, Burton Scot Contractors and Flexible Pavements of Ohio.



In the afternoon, Sean Peterson of Burton Scot Contractors led the group on a bus and walking tour of the Cedar Road project.



The seminar began with a series of presentations about the perpetual pavement concept and project specifics. Speakers and topics were:

- Project overview by Brian Driscoll, P.E., chief highway design engineer, Cuyahoga County Engineer's Office
- Perpetual Pavement Concept and the Fatigue limit, Dr. David Newcomb, NAPA
- Life Cycle Cost Advantages of Perpetual Pavement, Dr. David Timm, Auburn University
- Material Requirements to Meet Perpetual Pavement Performance Expectations, David Powers, P.E., Asphalt Materials engineer, ODOT
- Results of the Wayne 30 Perpetual Pavement Project, Dr. Shad Sargand, Ohio University
- Overview of the Cedar Road Paving, Sean Peterson, Burton Scot Contractors

The conference presentations are available on the Web at:
http://www.flexiblepavements.org/conference_presentations.cfm.

Through the presentations and project tour, participants learned that perpetual pavement is a specially designed and constructed, deep-strength, asphalt-base pavement that can provide long life without structural damage and only needs surface renewal to provide excellent

service indefinitely. The group also saw how a perpetual pavement differs from a conventional deep-strength asphalt-base pavement with the provision of a fatigue-resistant layer at the bottom of the asphalt base.

The Cedar Road project's perpetual pavement consists of the following cross section:

- 1.5 inches of 442 Superpave asphalt concrete Type A 12.5 mm. (446) PG 70-22M
- 1.75 inches of 442 Superpave asphalt concrete Type A 19 mm. (446) PG 70-22M
- 4.75 inches of 302 asphalt concrete base, PG 64-22, compacted to 93-percent minimum density
- 4 inches of 302 asphalt concrete base, PG 64-22, designed at 3-percent air voids and compacted to 94-percent minimum density (fatigue resistant base course)
- 6 inches 304 aggregate base
- Total pavement buildup = 18 inches

Cuyahoga County calculates that the perpetual pavement costs a little more than conventional pavement buildup and is expected to last much longer due to the premium materials and construction practices employed.

For more information on the perpetual pavement concept, visit: http://www.flexiblepavements.org/perpetual_pave.cfm.



The new asphalt base and intermediate courses have been saw cut in preparation for construction of the project's second phase.



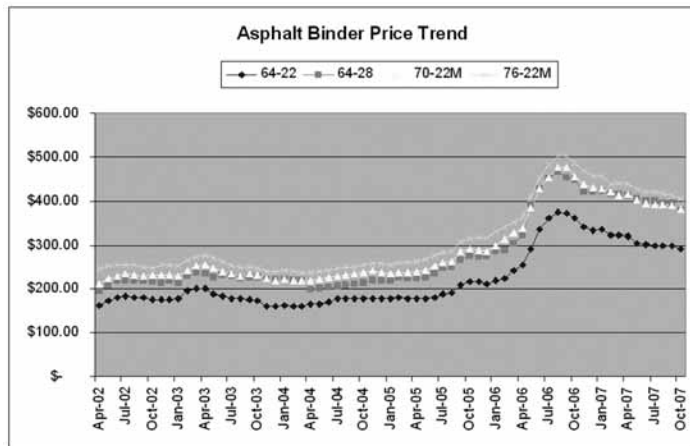
The first phase of the perpetual pavement is completed through the intermediate course and is being used to maintain traffic while the second phase is under construction.

Asphalt Binder Prices Continue Downward Trend

Inflation of construction materials across all sectors has sent pavement owners reeling. In Ohio, the gain made by the recent years' user-fee increases (a.k.a. gas tax) has evaporated — leaving highway departments right back where they started.

There is, however, some good news: Asphalt binder prices have been decreasing.

Asphalt pavements constructed in Ohio use four grades of asphalt binder: Performance Graded (PG) binders 64-22, 64-28, 70-22M and 76-22M. The binder most frequently used, the “workhorse grade” as it were, is PG 64-22. As can be seen from the “Asphalt Binder Price Trend” chart, costs of all four binder types have been on a downward trend.

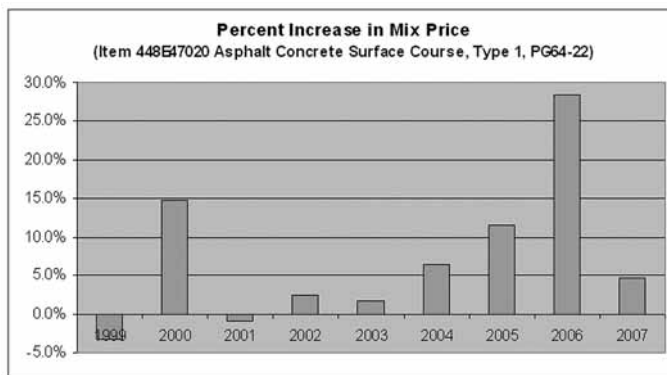


Data for the chart was obtained from the Ohio Department of Transportation (ODOT) Placing Index. ODOT collects price information from asphalt binder suppliers that furnish material for Ohio paving projects. The information is collected monthly and is the basis for ODOT's Placing Index.

Binder prices started their upward climb in June 2005. That climb reached its summit in August 2006 and began a decent that has continued over the past year. July 2007 brought good news for the price of Ohio's workhorse grade (PG 64-22), as it dropped below \$300 per liquid ton. As of the posting of the October 2007 Placing Index, binder prices have fallen back to May 2006 levels. This de-escalation in prices equates a 43-percent retreat toward June 2005 prices — the point at which prices started their climb.

The impact of the decreased binder price on asphalt mix has been positive. The “Percent Increase in Mix Price” chart shows the percent

change in asphalt mixture cost from the previous year. Evaluating the weighted average cost (\$/CY) for Ohio's most common asphalt mix (Item 448E47020), shows that asphalt pavement cost escalation dropped from a high of 28 percent in 2006 to less than 5 percent in 2007; a change reminiscent to the 2004 price increase and years prior.



Muting the effect of falling binder prices on mix cost is the high cost of energy. Manufacturing asphalt pavement is energy intensive. Drying aggregate, hauling raw materials and asphalt mix to and from the plant, and placing and compacting pavement all require energy. In this regard, asphalt is similar to the manufacturing of reinforcing steel and portland cement. All require extensive amounts of energy; a very expensive commodity these days.

Recycling of Reclaimed Asphalt Pavement (RAP) provides the greatest potential for further reducing cost. The basis for this is that asphalt binder and aggregate in RAP is of much higher value today than when it was initially as new pavement. The swap of virgin materials for RAP provides an immediate cost savings in raw materials that can be passed along to the pavement owner. Facilitating the manufacturing of RAP mixtures is a recently developed technology that uses a foaming process to improve coating of asphalt mixtures at reduced temperatures. Early indications are that mixtures produced using the foaming process can incorporate up to 50-percent RAP. The successful implementation of such a process has substantial economic implications for reducing the cost of hot mix asphalt pavements.

Despite the cost increases of recent years, asphalt pavement remains a “best buy” for pavement construction. History shows that asphalt pavements perform better with less future rehabilitation and reconstruction cost, and recent bids show that asphalt pavements are still less expensive to build than alternative concrete pavements.

Visiting Researchers Review Smoothseal Performance



On July 24, representatives from the Texas, Minnesota and California DOTs, Texas Asphalt Pavement Association and research universities in Texas and California visited Ohio to study the use of Smoothseal (ODOT Item 424) as a thin overlay treatment.

The visitors met at the ODOT Laboratory with a group from the Ohio DOT, FPO and contractor personnel, who were experienced with Smoothseal. The group was first given a presentation, which included data on the usage and performance of Smoothseal, by FPO Executive Director Cliff Ursich. Following the presentation a roundtable discussion was held, which included ODOT personnel, Ohio contractors and association staff. The roundtable allowed a forum for questions concerning the application, production and placement of Smoothseal. Finally, the group toured existing projects so it could review Smoothseal performance in the field.

Conclusions at the end of the day were that ODOT Item 424, Smoothseal, is performing very well as an alternative, thin-surface course when used in a preventive maintenance application. For more information on Smoothseal, visit the Smoothseal Web page at <http://www.flexiblepavements.org/smoothseal.cfm>.



Representatives from California, Minnesota and Texas inspected the Smoothseal application on I-70 in Columbus.



The group traveled to Englewood, where City Manager Eric Smith, explained the city's use of Smoothseal in its street maintenance program.

Franklin County Engineer Demonstrates HMA With Recycled Tires

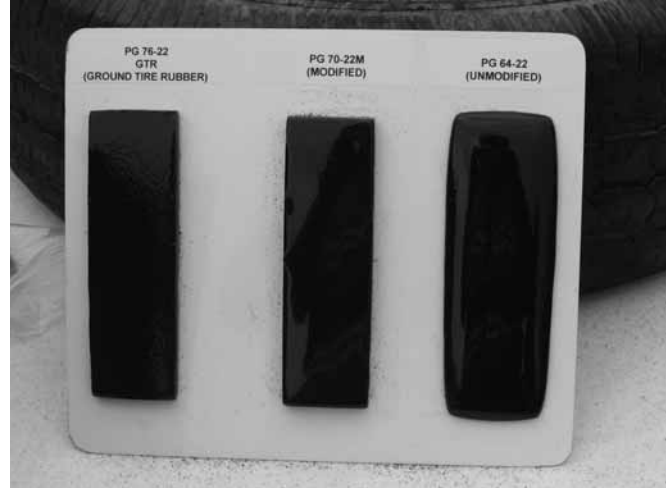


On July 16, Franklin County Engineer Dean Ringle demonstrated the use of recycled tire rubber as a beneficial additive to Hot Mix Asphalt (HMA) on a stretch of Frank Road between U.S. Route 62 and Gantz Road. The rubber-modified asphalt binder was supplied by Seneca Petroleum and the mix and paving was supplied by The Shelly Company.

According to Ringle the project used more than 3,000 scrap tires, which when added to the asphalt binder is expected to resist rutting and reduce pavement cracking. The Franklin County Engineer's Office applied for and received a grant from the Ohio Department of Natural Resources, Division of Recycling and Litter Prevention to partially defray the cost of re-using the scrap tires in the HMA pavement.

The Seneca Petroleum binder, PG 76-22 GTR, is produced by modifying base asphalt with ground tire rubber and Vestenamer reactive polymer supplied by Modified Asphalt Solutions of Macon, Mo.

Previous research into the use of tire-rubber-modified asphalt indicates improved performance similar to that of other polymer modification. Polymer-modified asphalts have shown to improve the pavement's durability as well as resistance to deformation and cracking.



In the hot, July sun, it's easy to see the stabilizing effect of the modified asphalt versus the unmodified sample.



Ground tire rubber is used to modify the base asphalt.

For more information on tire-rubber-modified asphalt, refer to the Winter 2006 issue of *Ohio Asphalt* for a discussion of the October 2005 demonstration in Lucas County.

For more information on Seneca Petroleum's GTR, contact Hugh Chapman at 708-878-9074.



Sustainable Pavements On The Web

A growing concern in the development community is for construction that exhibits good environmental stewardship. That is, practices that conserve resources in a manner that allow growth and development to be sustained for the long-term without degrading the environment.

When these goals are applied to pavements, users are generally looking for products that have low-environmental impact in their production, are made of recycled material, are recyclable and can be used to reduce the environmental impact of the project itself.

Hot Mix Asphalt (HMA) pavement has a number of attributes that make it environmentally preferable, which add to the



project's sustainability. For example, FPO has always promoted the fact that HMA is the nation's most recycled product and, for the last several years, FPO has been promoting the concept of porous asphalt pavement recharge beds for storm water management. Work continues on every front to further reduce the environmental impacts of HMA pavements.

FPO has created a "Sustainable Pavement" Web page at http://www.flexiblepavements.org/sustainable_pav.cfm to bring together the many sources of information on the impacts and uses of HMA in sustainable construction. It is hoped that this centralized location for information will assist users in finding what they need to make their projects more sustainable.

OA

Educational Opportunities

Feb. 6, 2008 – Ohio Asphalt Paving Conference at OSU Fawcett Center, Columbus: The annual one-day asphalt pavement conference, co-sponsored by the major public agencies and universities, returns to the Fawcett Center on The Ohio State University campus. This is the must-attend asphalt pavement technology event of the year for asphalt pavement users and producers.

Feb. 13, 2008 – FQCS Approval Training, Columbus: FPO will repeat the training necessary to obtain ODOT approval as a Field Quality Control Supervisor. The one, full-day training seminar will be held at the Midwest Hotel, 4900 Sinclair Rd., Columbus, Ohio, 43229. On-line registration is available through the FPO Web site (www.flexiblepavements.org) on the calendar page.

Feb. 25-29, 2008 – Comprehensive Asphalt Mix Design (Level 3 Asphalt Technician Training): This course meets the requirements for ODOT HT.306, Asphalt Level 3 training, and is designed to give the participants a working knowledge of the principles associated with asphalt concrete volumetric mix design. On the final day of the course, students will have the opportunity to take the ODOT examination for Level 3 Bituminous Concrete Technician approval.

March 18-19, 2008 – FPO Annual Meeting & Equipment Exhibition at Easton, Columbus: FPO's annual convention for Ohio's asphalt paving industry returns to the Hilton Columbus Hotel at Easton, 3900 Chagrin Dr., Columbus, Ohio 43219. There is something for everyone, including: the usual fine program of general sessions, public agency forum and the trade and equipment shows. Watch for the detailed program in the mail and register for the annual meeting at www.flexiblepavements.org, or call 888.4Hotmix.

TBA – ODOT Level 2 Asphalt Technician Schools: ODOT will again be offering training and testing opportunities for obtaining approval as a Level 2 Asphalt Technician. Check the ODOT Materials Management Web page (<http://www.dot.state.oh.us/testlab/applists/trainingcertificationlist.htm>) or FPO's events page for information, dates and locations.

TBA – ProVAL Analysis Workshop for certified profiler operators: FPO is working with ODOT to develop a workshop for profiler operators that will address issues raised during the first full season of applying IRI to pavement smoothness measurement. Watch for the announcement on the FPO Web site.

For the latest on asphalt technology-related educational opportunities, refer to www.flexiblepavements.org/events.cfm.

OA

Valley Asphalt

CORPORATION

11641 Mosteller Road
Cincinnati, Ohio 45241
Phone: 513.771.0820
Fax: 513.326.6759

1901 Dryden Road
Dayton, Ohio 45439
Phone: 937.293.4119
Fax: 937.293.4110

**Providing
All Asphalt
& Geotextile
Materials**



12 Ohio Locations

Cambridge Brunswick
740-432-6303 330-225-6511

North Canton Mentor
330-494-3950 440-255-6300

Gallipolis Mansfield
740-446-3910 419-529-4848

Dublin Heath
614-889-1073 740-522-3500

Monroe Marietta
513-539-9214 740-374-7479

Perrysburg Brilliant
419-874-0331 740-598-3400

CASE

HYPAC

BOMAG

TEAM EAGLE
PARTNERSHIP FOR PROFITABILITY
IN AGGREGATE AND RECYCLING

Etnyre

SCHWARZE

Southeastern

Equipment Co., Inc.



Sales - Rental - Leasing - Parts - Service

For All Your Construction & Paving Equipment Needs

Visit the Nearest Branch for Information on 2007 Leasing Programs

**Check out our NEW Parts Catalogs online
at www.southeasternequip.com**

Advertisers Index

ASPHALT MATERIALS	8
CANTWELL MACHINERY	4
HIGHWAY RUBBER PRODUCTS	IBC
KOKOSING CONSTRUCTION COMPANY, INC	4
OHIO CAT	8
PROTECTION SERVICES	8
SOUTHEASTERN EQUIPMENT	22
THE McLEAN COMPANY	IFC
THE SHELLY COMPANY	15
VALLEY ASPHALT	22

Quality Pavements now Cost Less and Last Longer...

Because ODOT developed specifications for polymer modified asphalt with the Contractor in mind.

Next time you want quality and cost savings just specify PG70-22M asphalt cement.

"It WAS SO EASY. When I specified polymer modified asphalt all I had to do was to change the asphalt cement from PG64-22 to PG70-22M using ODOT 702 specifications. Contractors knew what to do. **NOW I HAVE LONGER LASTING PAVEMENTS WHICH REQUIRE LESS MAINTENANCE.**"



Thin Overlays
City Streets
County Routes
Interstate Paving
Airports

Rubber Compounds
For Better Paving
Since 1951

rub•r•road

www.betterasphalt.com

Highway Rubber Products 330-499-2900 Email: pwelsh1000@aol.com

Season's Greetings
From Flexible Pavements of Ohio

"We Wish You a Blessed Holiday Season and a Very Prosperous New Year."

OhioAsphalt
525 Metro Place North
Suite 101
Dublin Ohio 43017

PRESRT STD
U.S. POSTAGE PAID
COLUMBUS, OHIO
PERMIT #XXXX

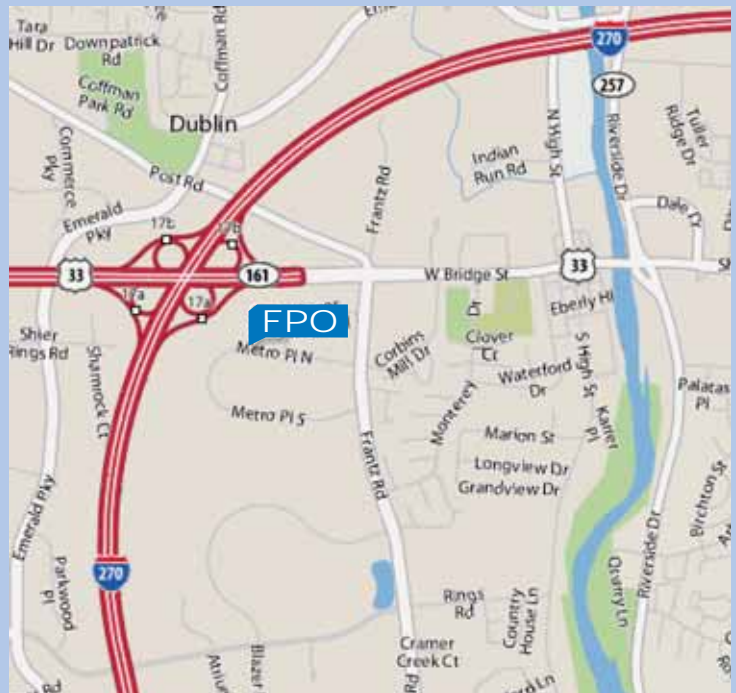
WE'VE MOVED

Effective Nov. 19, 2007, Flexible Pavements of Ohio's offices will be at the following location, with **new local phone numbers** as well. Our Mailing and Shipping address will be:

525 Metro Place North, Suite 101 Dublin, Ohio 43017-5504

Our toll free phone number remains the same:
888-4HOTMIX (446-8649)

Our **new local phone numbers** will be:
Phone: 614-791-3600
Fax: 614-791-4800



*Metro Place North is located west off Frantz Road
just south of US 33/SR 161 (West Bridge St.)
and east of I-270.*