



# HOT-MIX ASPHALT



## PERPETUAL PAVEMENT BUILDUP IDENTIFIED BY ODOT TASK FORCE

### 3-Layer System to be Key

The Ohio Department of Transportation’s Task Force, set up to develop a design procedure and specification for the HMA industry’s new perpetual pavement concept, achieved a major milestone at its late December meeting. Material specifications have been tentatively identified for use in each of the layers as well as establishing a construction platform. The principal in a perpetual pavement is to reduce tensile strain at the bottom of the pavement to a level below the fatigue limit of the material. If this is done, bottom up fatigue cracking will never occur thus giving the pavement an indefinite structural life.

Starting at the bottom, the committee first looked at what should be a proper building platform for a perpetual pavement. Several ideas were proposed such as providing a given depth of frost resistant soil, using a lime or cement-stabilized subgrade, and various depths of granular base. In the end it was decided to use the existing standard ODOT design of 6 inches of item 304 granular base and underdrains. The main reason for this was that it presently works. We have not had any deep strength asphalt pavements structurally fail because of base problems.

The incorporation of some type of a free draining base was the next issue discussed. Because of the Department’s experience of inconsistent performance when using free draining bases and the fact that we again currently do not have any flexible pavement failures resulting from not using a free draining base, it was decided not to incorporate this into the concept.

Moving up the pavement structure, the next item was the special fatigue resistant layer. The idea is to create a special fatigue resistant bottom layer by making it more elastic. Two methods to

accomplish this were considered: using polymers or creating a “binder rich” bottom layer. The “binder rich” method was chosen, primarily because of cost considerations. While using a Type 2 gradation was proposed, ODOT’s large stone base mix, item 302, was selected. Making it “binder rich” would be achieved by designing it for 3% air voids rather than the current 5% air voids. The primary issue driving these decisions was constructability. A Type 2 gradation could be made more “binder rich” than the large stone gradation but there was concern about its ability to support construction traffic if this were done. For that matter, the 302 could be made even more “binder rich” but again it must be stiff enough to support construction traffic for the subsequent layers. The thickness for this layer was set at 4 inches, the minimum necessary to achieve good compaction. A PG 64-22 would be used as the binder. It will be required to compact this layer to 94% density. Currently item 302 does not have a compaction requirement.

Next up was the middle layer. It should be a very strong, high modulus and stiff layer according to perpetual pavement concepts. It will be the major load-carrying layer and its thickness will vary according to soil strength. ODOT’s current large stone mix, item 302, using a PG 64-22, fills the bill perfectly. A requirement to compact this layer to 93% density will be added to ensure its stiffness. You will note that the variable thickness of this layer is based only on soil strength, not on traffic volume or truck counts. A perpetual pavement is designed to permanently withstand an ultimate load rather than designed to fail in fatigue after 20 years worth of trucks have run over it.

The final layer is the riding surface, which will

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be composed of an intermediate and top course. This upper layer should be able to withstand high shear stresses to avoid rutting. It should also be designed to resist environmental factors to ensure a long durable life. Based on these criteria, the current ODOT 19mm Superpave, type A, with a PG 76-22M polymer modified binder was identified as the intermediate course. Thickness will be 1-3/4 inches. This represents the latest technology within the industry and is the result of 5 years of work by the Strategic Highway Research Program. The top course will be the current ODOT 12mm stone mastic asphalt (SMA) with a PG 76-22M polymer modified binder. Thickness will be 1-1/2 inches. Really a gap graded Superpave, this mix again represents the latest technology from SHRP and is the riding surface used on the German Audubon.

Now that the materials have been identified, several of the university members are using various mechanistic design models to arrive at the overall pavement thickness requirements. It is hoped to have this work completed for the committee's meeting the last week of February.

In addition to determining the materials for each layer of the perpetual pavement, several other goals have been accomplished. A location for a

pilot project has been selected (see Perpetual Pavement Selected for US 30 Relocation Project, below). ODOT has also sent out a request for submittal on three research projects related to perpetual pavement. The first is "Validation of design procedures used for the WAY-30 test pavements" which is to verify that the mechanistic models used to design the pavement correctly predicted the strain experienced by the pavement. This will require placing strain gauges within the pavement which leads to the second request for submittal entitled "Instrumentation of the WAY-30 test pavements." The last request for submittal is "Determination of the mechanical properties of materials used in the WAY-30 test pavements." These results will be used to refine the values we are currently using for the various layers in the mechanistic design model.

Great progress has been made in a relatively short period of time. Everyone is very excited about perpetual pavement and the prospect of being able to eliminate traffic congestion caused by pavement reconstruction. Building a roadway that will last indefinitely with only preventive maintenance accomplished during off-peak hours is a major breakthrough. 🍷

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## Construction slated for 2003

### PERPETUAL PAVEMENT SELECTED FOR US 30 RELOCATION PROJECT

The Ohio Department of Transportation has identified the relocation of US 30 in District 3 as a pilot project for the perpetual pavement concept. Located in Wayne County east of Wooster, the project involves building a 4-lane divided highway on a new alignment. Identifying a project to pilot the industry's new perpetual pavement concept was one of the goals of the Perpetual Pavement Task Force recently established by ODOT (see the December issue of *Current News* [ODOT Establishes Task Force to Develop Perpetual Pavement Specification](#), page 2).

The project is over 5 miles in length with a projected traffic count of 28,500 with 21% trucks. It is part of ODOT's effort to upgrade US 30 to a 4-lane divided highway across the

state. In past years, sections of US 30 had been upgraded, particularly as bypasses of various cities, however many gaps of 2-lane roadway remained. In recent years, ODOT has made a concentrated effort to fill these gaps, making US 30 a contiguous 4-lane highway.

US 30 is an important truck route through Ohio as evidenced by its 21% truck count. Connecting Chicago with Pittsburgh, it is already a 4-lane roadway across all of Indiana. Opening up our bottlenecks should do much to upgrade its use and importance to Ohio.

The project is presently under design by Euthenics and should be ready for construction in 2003. 🍷

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## ASSOCIATION CELEBRATES 40 YEARS

### It's a landmark birthday

Today many in our industry take for granted asphalt's dominance across the state. Ninety eight percent of Ohio's highway system is covered in asphalt. Old-timers remember when the concrete industry ruled Ohio's roadways. Forty years ago something happened to change that: Ohio's asphalt industry united to form Flexible Pavements, Inc. (now Flexible Pavements of Ohio), a trade association that enable its members to trade places with their concrete competitors.

Ohio's asphalt producers effected this turnabout by pushing for the creation of higher standards in paving, with an emphasis on service to the industry's largest customer, the Ohio Department of Transportation. Under FPO's leadership asphalt became a better product and asphalt contractors became more skilled at its construction.

In 1932, in the depths of the Great Depression, when asphalt was viewed as a maintenance material, C.W. (Cliff) Simpson, president of Federal Asphalt Paving Company in Hamilton, set up an office in Columbus. His goal was to further the use of bituminous road construction and reconstruction in Ohio and develop "a harmonious spirit within the industry."

In January of 1934 he organized a meeting of prominent asphalt paving contractors, which led to the formation of the Ohio Asphalt Paving Constructors Association (OAPCA). The group, led by president Carl Stander, focused on stemming the growing diversion of gas taxes from highways to other priorities. This was the first organization dedicated specifically to promoting asphalt paving in Ohio.

The OAPCA was succeeded by the Bituminous Concrete Producers Association (BCPA), which began with eight members in 1943. A year later the association had 33 members and was publishing a newsletter called *Your Thoroughfare*. Fred Swineford was named Engineer-Director. Lloyd (Pat) Burgess took over as president in 1945 and led the association for over a decade, focusing on increasing

the tonnage of asphalt contracts let by the Ohio Department of Highways to one million tons a year.

Jean Schlaechter, who later become Jean Snyder, became office manager in 1958 and an institution in FPO history, managing the office for 40 years under a succession of six directors. She first began working in the Kresge Building on the corner of State and High streets in downtown Columbus, sharing an office with Lloyd Burgess who freely used the spittoon at his feet. Frank Williams, from the Department of Highways, replaced Burgess.

In the early 1960s, Ted Kirkby of S.E. Johnson Company, Inc., in Maumee became chairman of an organizational committee created to explore the merger of two statewide trade associations – BCPA and Macadam Pavements, Inc. Members of the two associations embraced their common cause. In 1962 Flexible Pavements, Inc., was born.

Bernard Witten, an employee of City Asphalt Paving Company, became interim director, assisted by Snyder. The former Director of Macadam Pavements, Inc., Dale Fulton, became director a year later.

Through the years, the association moved from the Kresge Building to the Neil House, until it was torn down in 1983. At that time it moved to the third floor of the French Tailor building on South Front Street, which still stands today next to FPO's current location, the fourth floor of the Huntington Plaza Building. At one point the Ohio Highway Department offices were directly across the street, but since then have moved.

In 1966 FPO first published a newsletter titled *Flexible Pavements*. It also began to hold annual conventions featuring celebrity speakers, breakout technical sessions and the largest trade show in the country at the time.

It was in the 1970s that decision-makers across the state began to see Ohio's concrete highway system age and crumble. The asphalt industry embraced automation and new technology that helped bring the cost of asphalt to its most competitive level ever. The time was right for the industry to make its move. Led by FPO, more and more projects began to go black.

Also in the 1970s the industry became a leader in recycling, a process that was not only good for the environment, but also made asphalt even more competitive in terms of cost.

**Celebrating 40 Years, continued on page 4**



It was during this period that Bill Baker, former chief engineer of ODOT, became executive director of FPO. Bill set out to establish a more businesslike atmosphere, focusing on the association's technical credibility. He became a dominant figure nationally, commonly approached by other states for advice and guidance. He heavily promoted the "fractured slab" rehabilitation method. Today called rubblization, this has become an accepted technique across the country.

In 1991, Bill Baker suffered an untimely death. In his memory, the association established the Bill Baker award, its highest honor for service to the asphalt industry.

Today's executive director, Fred Frecker, began to work for the association in 1992. This happened at about the same time the philosophy of ODOT, the industry's biggest customer, was starting to change. Under the direction of Governor George Voinovich and ODOT Director Jerry Wray, ODOT underwent a dramatic transformation, downsizing and streamlining its activities. Policies were changed to emphasize quality pavement construction over bottom-line bidding.

The industry was at a crossroads. It had to change, or be left behind. Under Frecker's leadership it responded by approaching ODOT about putting warranties on asphalt roadwork, an idea that seemed extreme to some members at the time. By the time the Ohio General Assembly mandated warranties, FPO members were already doing it voluntarily, demonstrating the fact that this industry was determined to be a leader in striving for higher quality pavements.

At about the same time, The Federal Strategic Highway Research Program had made significant funds available for asphalt research, which led to the creation of *Superpave* and performance graded binders.

The association recommended the Department use polymers in pavement surface courses on high-volume roadways to improve quality, a move that would actually reduce tonnage sold by driving up the cost of pavement. In 1998, the association received New Product of the Year award from the Ohio Society of Professional Engineers for *Polymer Modified Hot Mix Asphalt*. Moves like these demonstrated the industry's commitment to quality,

even at the cost of higher profits, solidifying its place as the material of choice across the state today, and ensuring its future.

In the past decade the association has created strong ties with academic institutions across the state in an effort to attract talented individuals to the industry and ensure the availability of an educated workforce. It has helped create asphalt courses in several Ohio universities, and established a Scholarship Award, helping 25-30 students a year defray the cost of tuition as they study asphalt technology.

FPO issued its first annual report in 1992, marking achievements toward goals outlined in its strategic plan. The newsletter was re-named *Ohio Hot Mix Asphalt Current News*. Its focus was shifted to industry and government news. In 1998 the FPO web site was unveiled. Today it attracts thousands of hits a month to access information about the association, technical information related to asphalt processes and live on-line ODOT bid lettings.

The association now travels around the state on a regular basis to educate and share the latest in asphalt technology with members, customers and decision-makers alike, helping raise the quality bar for asphalt paving construction through direct interaction with engineers.

After 40 years of great leadership, the association is the strong leader its founders hoped it would be. Flexible Pavements has been extremely successful in leading its members to higher quality standards making it clear to pavement decision-makers across the state that asphalt is absolutely the right choice, for cost, for convenience, for comfort.

As part of the 40th anniversary celebration, FPO has commissioned the creation of *Asphalt Revolution: The History of Asphalt Paving in Ohio*, a handsome publication that chronicles Ohio's asphalt industry, illustrated with photos dating back to the turn of the century. This publication will be made available for the first time at the Annual Meeting and Equipment Exhibition in Columbus on March 12th and 13th. You can contact Flexible Pavements at 888-4HOTMIX if you would like to receive a free copy. 📄

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## TECH BULLETIN GUIDES LOCAL GOVERNMENTS IN SPECIFYING HMA

### New ODOT spec book will impact local agencies

A newly developed Technical Bulletin released by Flexible Pavements of Ohio seeks to help local governments accurately specify hot mix asphalt. The Bulletin comes at an opportune time when many counties, townships and municipalities are reassessing their specifications in view of ODOT's (Ohio Department of Transportation) revisions to its construction and materials specification book. The Bulletin introduces the various asphalt materials available for use in Ohio, provides information to assist specifiers in writing complete contract specifications, and provides suggestions in implementing a hot mix asphalt quality assurance program.

#### **Paving Materials**

This section of the Bulletin contains a description of the hot mix asphalt and asphalt base materials suggested for use. The suggestions are based upon the revised ODOT construction and materials specification book (C&MS). The ODOT C&MS provides a well-known high standard for paving materials and construction.

Specifying Performance Graded (PG) binders is now the accepted practice in Ohio. Gone are viscosity graded asphalt cements (AC grades). Brief discussion of the new PG binder classification system is provided.

Oftentimes specifiers are uncertain of which materials should be used for the various layers of an asphalt pavement. For those unfamiliar with ODOT asphalt specifications, discussion of each mix type, including their description and use, are provided in the Bulletin. What type of hot mix asphalt should I use? How thick should a layer be for a given hot mix asphalt material? What method of construction is best for my conditions? These are the type of questions you'll find answers for in the Bulletin.

#### **Contract Specifications**

For those persons who've found themselves saying, "that's not the asphalt mix I wanted," the Bulletin includes discussion of the bits of infor-

mation needed to clearly convey a designer's intent. That intent is communicated through contract specifications. Contract specifications need to include project dimensions, course thickness, traffic designation, binder type and quality assurance methods, to name a few. The Bulletin lists all the issues needing consideration and gives pointers on how they are implemented.

The exclusive use of quality assurance specifications by ODOT and the elimination of their "historical mixes" (i.e. 402, 403, 404) from the C&MS has some agencies considering major modifications to "business as usual." Although quality assurance specifications promise better control and consistency of the end product, they also require that agencies have persons on staff who are knowledgeable about mix design and the manufacture of hot mix asphalt. Many agencies do not have such resources. To assist in implementing quality assurance measures the Bulletin provides some helpful pointers and suggested contract language that minimizes the need for additional resources.

#### **Specialty Mixes**

There are many specialty mixes available to treat a variety of pavement conditions. Modifiers such as polymers, fibers, and stiffeners play an important role in enhancing mix performance. This portion of the Bulletin provides brief discussion on how specialty mixes can be used for preventive maintenance, rutting resistance and increasing pavement life.

The Bulletin is a helpful resource for anyone desiring a basic understanding of how to specify hot mix asphalt pavements in Ohio. It provides information to assist specifiers in writing complete contract specifications, and provides suggestions in implementing a hot mix asphalt quality assurance program. 📖

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## MULTIPLE-GRADE BITUMINOUS PRICE ADJUSTMENT ADOPTED FOR 2002 C&MS

### Local agencies and private sector will be affected

The Ohio Department of Transportation has informed Flexible Pavements of Ohio that it has adopted a multiple-grade bituminous price adjustment. This action takes affect with the publishing of the 2002 Construction & Materials Specification (C&MS) book. As a result of this action, ODOT and any other agency specifying asphalt mixtures according to the 2002 C&MS, will be required to make a determination of the impact of asphalt binder price fluctuation on the manufacturing cost of hot mix asphalt provided to a construction project.

Implemented in 1980 as a result of the oil embargo on the United States, the Bituminous Price Index brought stability to a market gone wild with price fluctuations. The purpose of the Bituminous Price Adjustment was to reduce the inflationary affect which the potential for unanticipated price change may have on bid prices; to assure the contracting agency receives the lowest possible bid price, a price that does not include a safeguard for potential price increases that may or may not occur; and to provide a measure of protection for contractors against excessive risk from price changes that cannot be reasonably anticipated or controlled. The Bituminous Price Adjustment has been effective at accomplishing these objectives over the past 21 years, but the change to performance grading (PG) of binders ushered in the need to rethink how the adjustment is applied.

The year 1997 saw the adoption of Performance Graded (PG) binders by ODOT. That act resulted in a change in the price structure for asphalt binders. While under the viscosity graded system (AC) the price of asphalt cement had little relation to the type of asphalt cement used on a project. That is, in Ohio the cost for viscosity graded AC10 was the same as AC20. The consistency of the two materials was different but the price remained the same. With the adoption of PG binders, that all changed. Different performance grade binders not only had different consistencies but also different costs. The bituminous price adjustment, developed at a time when prices for multiple viscosity ACs were the same, now struggled to accurately reflect costs of a multiple-priced PG binder market.

After the adoption of PG binders Ohio chose to base its price adjustment calculations upon the commodity binder PG 64-22. It was felt that although the various binder grades had different costs, trends in price fluctuation would be reflected uniformly in all binder grades. ODOT's price monitoring of all binder grades used in their projects indicated that that assumption was not sufficiently accurate. Desiring to further refine the price adjustment ODOT implemented two indexes – one index for commodity binders and a second for premium binders. This was an improvement and did a better job at tracking the asphalt binder market. The problem remained however, that among the binders being averaged, trends in cost were not always the same.

Having a bituminous price adjustment that accurately tracks market prices is critical to realizing the benefits it brings to agency and industry alike. That is, the elimination of bid price inflation and the protection from excessive risk. Determined to accomplish that goal ODOT and Flexible Pavements of Ohio worked collaboratively to modify the method used for determining the bituminous price adjustment. After careful evaluation of data provided by ODOT Districts it was determined that the most accurate method for computing the bituminous price adjustment is to use a price index based upon each binder grade. In Ohio that means having indexes for the following grades: PG58-28, PG64-22, PG64-28, PG70-22M, PG76-22M.

The effect on ODOT Districts from implementing the new system will be negligible. Districts will simply use the published index number for the actual binder type used in the manufacturing process when computing the price adjustment. The same holds true for those local agencies currently using ODOT's price adjustment system. For those agencies that have no previous experience with computing a price adjustment for their contracts, and desire to use the ODOT specifications, Flexible Pavements will be posting on its web-site ([www.flexiblepavements.org](http://www.flexiblepavements.org)) guidance to help them through that process. 🖨

## ODOT, DISTRICT 3, COMPLETES RUBBLIZATION PROJECT ON MEDINA 271.

### Cost savings of rubblization demonstrated

ODOT District 3 has completed the major rehabilitation of Interstate 271 in Medina County from I-71 to the Summit County line. The project is interesting and unique for its use of innovative contracting and construction techniques. The contracting innovations included the use of the design-build process and the specification of warranty pavement. The innovative construction technique was the use of rubblization and overlay of the failed concrete pavement.

**Pavement Type Decision:** Even though District 3 made this a design-build project, under their system the District still specifies the pavement type and thickness. In ODOT, pavement type decisions are based upon an economic analysis of design alternatives. An analysis of estimated costs performed by flexible Pavements of Ohio and presented to ODOT showed that rehabilitation with rubblization and a thick asphalt overlay could save millions of dollars over alternative treatments. The comparison of construction costs showed that a 9-inch un-bonded concrete overlay would cost approximately 43% more, and replacing the existing pavement with 16 inches of asphalt or 13 inches of plain concrete would cost from 72% to 122% more.

Results of the analysis of pavement costs are as follows:

Alternative number	Description	Total cost
1	replacement with 13 in. plain concrete pavement	\$16,653,723.
2	replacement with 16 in. asphalt pavement	\$12,901,858.
3	overlay with un-bonded, 9 in. plain concrete on a 1 in. asphalt concrete bond breaker with new 13 in. plain concrete pavement at the bridge structures	\$10,700,550.
4	rubblize and roll with an 13 in. asphalt overlay and replacement 16 in. asphalt pavement at the bridges	\$7,481,408.



**Rubblized concrete pavement on Medina 271.**

This comparison indicated that substantial cost could be saved with the rubblize and overlay treatment. A life cycle cost analysis for a 35-year analysis period further indicated that the cost savings would even increase with the rubblize and overlay project. Other benefits of this treatment are speed of construction, ease of maintenance of traffic and increased structural value. The warranty specification, which insures maintenance for the first 7 years, also requires polymers in the top 3 inches of the pavement, insuring even longer life for the pavement surface.

Based on their consideration of all factors, The District selected the rubblize and overlay treatment for bidding.

**Construction:** The project was bid March 1, 2000 as a design-build project, project 3002-2000. The estimate was \$17,500,000. The low bidder was Kenmore Construction Company, Inc. with a bid of \$17,312,975. The project included a lump sum item for 7-year warranty pavement that was bid at \$7,700,000. The scope of this major reconstruction project, required a large volume of asphalt concrete (360,000 tons) to complete the construction of the new pavement. The actual pavement design specified was a 14-3/4 inches thick overlay of the rubblized existing pavement.

The innovative method of contracting (Design-Build) and the method of rehabilitation (Rubblization and Overlay) were intended to provide the State of Ohio with the best use of their transportation dollar. The schedule and delivery of

*Medina 271, continued on page 12*

## Member Spotlight

### DON S. CISLE'S THIRD GENERATION CARVES ITS NICHE

Years ago the asphalt industry was dominated by family-owned businesses – organizations built on the sweat and service of multiple generations of the same family. Since then, larger companies, some with regional, national, even international presences, have gobbled up many of the family operations that once dotted Ohio. Economy of scale has shifted control of many markets and large public customers to the biggest companies. Still, some family owned asphalt companies preserve and flourish. Don S. Cisle Contractor, Inc., is one.



From left to right, Don S. Cisle Jr. and Don M. Cisle Sr.

“When I was a senior in college in 1976,” says Don M. Cisle Sr., president of the company, “I read an article in the Wall Street Journal entitled ‘Dust to Dust in Three Generations.’ It was about how many family-owned businesses are started by the first generation, made successful by the second and driven into the ground by the third. At the same time I came across an article in an asphalt trade

magazine saying that by the year 2000, family-owned asphalt companies would go the way of the mom and pop grocery store.”

Cisle, the third generation of his family to run the company, took these predictions as a personal challenge. “I didn’t want this company to die on my watch,” he says. “I believe a well-run small company can compete with the bigger companies if it finds its niche and stresses service with its customers.”

To carve its niche, the company focused on its home turf, Butler County, and on county, city and private customers, leaving the big ODOT interstate jobs to the larger contractors. As part of its niche, Cisle does resurfacing, subdivision paving, reconstruction, parking lots, underground and excavation work and some installation of pre-cast culverts and bridges.

Don S., Sr., Don M’s grandfather, was an employee of Andrews Paving Company in 1944, when he bought one of its two asphalt plants from his boss. Don S., Sr., and later his son, Don S., Jr., built the company into a multi-county operation over the course of several decades, doing over \$10 million a year in business. Grandson Don M., Sr. also known as Murph (short for his middle name Murphy), began

working for his dad in the ’70s.

As Don S., Jr., approached retirement in the early 1990s, he began to notice some of his competitors (other family-owned businesses) being purchased for generous amounts by larger companies. At the same time he was beginning to feel the pressure brought on by the economy of scale advantage that larger companies had in bidding for



projects. The temptation to cash out was there.

Son, Don M., Sr., however, was convinced that he could continue the company's successful tradition despite today's big-company environment. He convinced his dad to compromise. About half the company, specifically its asphalt plant in Fairborn and a gravel operation in Butler County were sold to larger competitors. The company was downsized to a leaner, meaner asphalt operation that would concentrate on its niche in Butler County, and not attempt to compete outside its home turf.

At the time of the downsizing, the company's business shrank by about half as the reins of what was left of the company were handed over to Don M., Sr. That's when the challenge of redefining and reorganizing the company began for the third-generation president.

"My dad wanted to simplify things as he retired. His feeling was that the risk-to-reward ratio did not support trying to compete with a larger operation. He was right," says Don M., Sr.

Since then the company's business has doubled, returning to nearly the same amount of revenue as experienced at the company's peak. The company employs about 65 workers in the peak of construction season, and its plant produces an average of 180,000 tons of hot mix asphalt a year. Today's

operation is much more focused on its Butler County niche, although it still does work in Warren, Hamilton and Preble Counties.

"We've been successful because we're more aggressive in our home markets," says Don M., Sr. "We stress service with our customers. We don't make them wait around like some of our larger competitors do. We show up when they need us and do a good job."

Cisle sees "continued conservative growth" in the company's operations. "We won't try to expand our market, just our capacity to do larger projects and continue to develop our niche."

He is assisted in steering the company by several other second- and third- generation employees. Steve Hart, vice president in charge of asphalt operations, has been with the company for 35 years. General superintendent in charge of construction, Rod Baker, has been with the company for 29 years. Both of their dads worked with the first two generations of Cisles. Donnie Marcum, asphalt plant superintendent, is also a second-generation employee, assisted by his 2 sons, who will likely take his place when he retires. Estimator Dave Bolden has been with the company for 30 years.

"We treat our employees right," says Don M., Sr. "I think this is a good place to come to work. That's pretty typical of a lot of family-run businesses. It's different from a large corporation."

Currently the fourth generation is being groomed to take the helm of the company. Don M. Cisle, Jr., who has worked summers as a job foreman, is about to graduate from college and begin working for the company full-time.

"Our family is not very original in naming our sons," jokes Don M., Sr. "My dad changed my middle initial because he didn't like his middle name, that's about the extent of our creativity."

On a more serious note, he adds, "some days I wonder if we should have sold the whole company. But I like this business. I like the competitiveness in the bidding process. I love seeing a finished project and saying 'We built that road.'"



**Cisle Asphalt Plant, Augsberger Road, New Miami, Ohio**

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## CASE STUDY IN PAVEMENT NOISE: I-64 IN LOUISVILLE

### Noise reduction quantified in Kentucky project

Imagine picking up four lanes of interstate highway and moving it more than 500 feet farther away from a residential area. Practically, of course, it isn't possible. But because of the quietness of asphalt pavements, the result is the same.

When the Kentucky Transportation Cabinet planned a major rehabilitation of a three-mile stretch of old concrete pavement in Louisville, residents in the area lobbied for asphalt pavement in an effort to reduce highway noise. Residents along the Interstate 64 corridor had researched the issue and raised their concerns about highway noise. Information they obtained indicated that asphalt provided a quieter surface than concrete. The Transportation Cabinet rehabilitated the affected area by breaking the old concrete pavement and putting on a thick overlay of asphalt.

An abundance of research information is available on a national level to confirm that asphalt pavements produce less highway noise than concrete surfaces. The Plantmix Asphalt Industry of Kentucky commissioned a noise study of its own that was specific to the I-64 project to determine if the same results were obtained.

The association retained a local consultant qualified to perform a comparison noise study of the old concrete pavement prior to the rehabilitation and of the new surface with its asphalt overlay.

The scope of the study included measuring noise levels on the old concrete pavement prior to rehabilitation and measuring noise levels after the new asphalt pavement was put down. In addition, the study included a control location consisting of concrete pavement that was not part of the rehabilitation. This control section was important to help calibrate the measurements (before and after) and also to provide a comparison between new asphalt and six-year-old concrete in "very good" condition.

At lower speeds, the difference between paving surfaces is negligible because engine, drive train and muffler noises dominate.

However, at moderate speeds (51-55 mph) tire/pavement noises dominate. This is where the new asphalt pavement proved its superiority.

**The new overlay measured 4.4 decibels quieter than the nearby control concrete section constricted in 1995. The new overlay also was measured to be 5.8 decibels quieter than the 1970 concrete that was overlaid with asphalt. The trends indicate additional noise reduction with asphalt pavements when speeds increased above 60 mph.**

To put these sound figures in perspective, even small changes in decibel levels can be significant. For example, a reduction of only 3 decibels is considered significant to the human ear. It has the same effect as doubling the distance from the source of the noise. For example, if a resident lives 500 feet from the highway, the new noise level would sound as if the highway were 1,000 feet away. With a measured reduction of 5.8 decibels, the noise level would seem to be even farther away.

Since the decibel scale is logarithmic, it is not accurate to compare the before and after values until they are converted into a unit of subjective loudness called "sones." With that done, the report shows that the old concrete was about 17 percent louder than the new asphalt.

Residents in the Louisville neighborhoods around the I-64 project will realize these noise level reductions for years and years to come. The decision to rehabilitate the interstate with asphalt will result in a long-lasting, smooth, durable highway with the added benefit of less highway noise. Next time you drive this stretch of I-64, you will see why asphalt makes good sense and is good for the senses – because you will see, feel and hear the difference it makes.

*Reprinted from the December 2001 issue of Paving the Way from the Plantmix Asphalt Industry of Kentucky and the Kentucky Asphalt Pavement Alliance.* 🍃

# Shhh – It's Smooth, Silent Asphalt At Work

## Quieter roads are possible ... if you build them with the right kind of pavement.

If you have been looking for an answer to noise pollution from highways in your community, consider asphalt. Sound-reducing porous asphalt pavements reduce the noise that tires make on pavement.

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If you are concerned about traffic noise, asphalt pavement can help solve the problem. For more information, visit [www.AsphaltAlliance.com](http://www.AsphaltAlliance.com) or call toll-free 888-468-6499.

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Over  
50  
Years



**Concrete pavement on Medina 271 gets the rubblize and roll treatment while demonstration attendees look on.**

this project was set to expedite the completion of this much-needed improvement. ODOT elected to use a design-build project format to eliminate many months from the overall project schedule. Design-build project delivery teams contractors with engineering consultants for the design and construction of a specific improvement. Expedited plan review and the fast tracking of this project allowed the improvements to be completed during 2000 and 2001, whereas under a traditional project delivery system construction might not have started until 2001 or 2002. The other innovative approach to this project provided for the rubblization of the underlying concrete pavement. This technique allows for the pavement to be broken into small pieces and left in place. This rubblized concrete adds to the thickness of the supporting base material for the new pavement. This eliminates the need for the landfill space to accept the old concrete pavement. Rubblization offers the opportunity to recycle and reuse the existing concrete giving ODOT a strong foundation on which to build this new pave-

ment. Rubblization has become practical and economic through the development of two different kinds of equipment, the resonant breaker and the multiple head breaker, that can quickly and effectively perform the rubblization of the concrete pavement. Using the design parameters that ODOT uses for rubblize and overlay, the rehabilitated pavement can be expected to perform similarly to new pavement.

**The Demonstration:** In August 2001 a demonstration seminar was held on the project to share lessons learned about the rubblizing process with interested participants. Attendees were made aware of issues regarding design, drainage and obtaining adequate rubblization over soft subgrade. The importance of restoring or installing sub-drainage prior to rubblization was emphasized as necessary to prevent high water contents in the subgrade soils. Adequate consideration of the subgrade condition was discussed as necessary before attempting rubblization.

**Conclusions:** The Project was completed in the fall, 2001. The finished product is an exceptionally smooth pavement, which has been nominated for an ODOT award. The project demonstrates well the economic and construction advantages of the rubblization and overlay rehabilitation method and that these advantages can be practicably obtained in real world construction. 🏆



**Pavement rehabilitation on Medina 271 completed.**

OCAPE Presents  
**Specifying Hot Mix Asphalt Pavements**

High quality pavements require accurate and complete contract specifications. Contract specifications are a key ingredient to achieving success in a project, as they are the vehicle by which the intentions of the designer are conveyed. This course provides participants with the knowledge to select appropriate asphalt paving specifications for variations of loading and environmental conditions and to select alternative quality control / quality assurance systems. **Presentations will include an update on ODOT specification changes for the 2002 Construction and Materials Specifications book.** This course is part of the core curriculum for OCAPE certification as a Hot Mix Asphalt Pavement Design Technician.

**Students Will Learn:**

- To select appropriate grades of binders
- To understand the content and intent of ODOT specifications and changes for the 2002 spec book.
- To select appropriate mix types and layer thickness
- To specify and administer appropriate quality control/assurance requirements

**Who Should Attend?**

Engineers and technicians involved in preparing plans and specifications for HMA pavements. Engineering students with an interest in the proper application of asphalt paving technology.

**Date, Time & Location**

May 8, 2002, 8am to 4pm  
Ramada Plaza Hotel and Conference Center, 4900 Sinclair Rd. (I-71 and Morse Rd.), Columbus, Ohio

**Registration Fee**

The early bird rate (until April 12) for FPO member companies and government agencies is \$95.<sup>00</sup>, Others 120.<sup>00</sup>. The standard rate (after April 12) is \$110.<sup>00</sup> per person for FPO member companies and government agencies, \$135.<sup>00</sup> per person for others. The student rate for full-time engineering students is \$50.<sup>00</sup>. Registration will be on a first-come, first-served basis. The payment method must accompany registration. Fee includes session, continental breakfast, luncheon, break refreshments and reference materials. Questions can be directed to OCAPE at 1.888.4HOTMIX (888.446.8649).

**Substitutions & Cancellations**

Substitutions are permitted. Cancellations may be made until four working days before the seminar and are subject to a \$20.<sup>00</sup> administration fee. Refunds will not be made to "no shows." OCAPE reserves the right to cancel the seminar if insufficient interest exists.

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Please print the full name of the seminar registrant on this form.

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

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**Specifying Hot Mix  
Asphalt Pavements**  
Wednesday, May 8, 2002

If paying by check, make payable to **FLEXIBLE PAVEMENTS OF OHIO**. Payment method must accompany registration. Public agencies and member companies may submit purchase order and be invoiced. Detach registration form and return with your payment method to: **FLEXIBLE PAVEMENTS OF OHIO**, P.O. Box 16186, Columbus, Ohio 43216-6186. Registrations with credit card or PO may be faxed to 614-221-0394.

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## FPO SETS UP FUEL SAVINGS PLAN FOR MEMBERS

**3¢ per gallon discount available**

Flexible Pavements of Ohio has introduced a unique opportunity for its members to save money on motor fuel purchases. We are participating in a program through Speedway SuperAmerica where fuel purchases of association members are aggregated to obtain discounts. Volume discounts are based on total monthly association gallons on the following scale:

- Under 2,000 gallons – no discount
- 2,000 to 4,999 gallons - 1¢ per gallon discount
- 5,000 to 9,999 gallons – 1-1/2¢ per gallon discount
- 10,000 gallons and over - 3¢ per gallon discount

We have had a very good response since introducing the program the first of the year and already are over the 10,000 gallon/month threshold for the maximum 3¢ per gallon discount.

The Speedway SuperAmerica SuperFleet Program is an individual commercial credit account and, in addition to volume discounts, features

- Employee, vehicle and odometer tracking
- Card restrictions
- Department billing
- Pay at the pump accessibility
- Over 500 stores in the state of Ohio
- PIN security

This program is available to all FPO member classifications. It's a win-win program. If you are interested in participating in our program or want additional information, please contact Jonathan Holstein at SuperAmerica at 614-825-4166. 📧

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## LEGISLATIVE CORNER

**New Feature:  
Hot Mix  
Asphalt  
Current News**

The Legislative Corner is a new feature to debut in this issue of *Hot Mix Asphalt Current News* and will continue to appear in the future. It will address legal issues of concern to highway contractors. For example, this inaugural issue speaks to the use of the Eichleay Formula for home office overhead defined by the Ohio Supreme Court this past January.

This column will be written by Donald W. Gregory, Attorney at Law. Gregory chairs the Litigation and Construction Law areas of the law firm of Kegler, Brown, Hill & Ritter in Columbus, Ohio, where he regularly represents subcontractors, contractors, architects, owners and others in the construction industry. He currently serves as general counsel to the American Subcontractors Association (“ASA”). He is also general counsel to the Central Ohio Chapter of ASA, who recognized him with its President’s Award in 1991, 1995 and 1999, as well as the Ohio Subcontractors Council. He served as Chairman of the Attorney’s Council of ASA nationwide, Chairman of ASA’s Task Force on the new AGC Subcontracts, and as Chairman of ASA’s Contract Documents Committee. Don received ASA’s National President’s Award in 1999. He is also general counsel to international construction trade associations such as the National Ground Water Association and the Ceiling and Interior Systems Construction Association.

Gregory has acted as Project Counsel on some of Ohio’s largest construction projects recently, including the Butler Regional Highway (\$160 Million), Schottenstein Center Arena (\$110 Million), and the Ohio Stadium Renovation (\$200 Million).



**Donald Gregory, Esq.**

Gregory initiated the legislation that resulted in Ohio’s New Mechanic’s Lien law and drafted Ohio’s first Prompt Payment Act, which has become a model for several other states. He also helped negotiate, draft and pass Ohio’s new *Fairness in Construction Contracting Act*.

Gregory was named as the only attorney in Central Ohio to Business First’s “Who’s Who in Construction, Architecture and Engineering.”

Gregory graduated cum laude from Miami University and received his law degree from The Ohio State University.

We hope this new addition to *Hot Mix Asphalt Current News* proves to be informative and interesting. 📧

**BROAD EICHLEAY RECOVERY AGAINST ODOT  
MAY BE LIMITED**

A major Central Ohio highway contractor and Ohio’s Department of Transportation (“ODOT”) have actively litigated the applicability and legal parameters of the *Eichleay* formula – which is a generally accepted way to compute unreimbursed home office overhead in the event of compensable project delay or suspension. As a result, the applicability of the *Eichleay* formula to project delay in Ohio was confirmed and a public authority’s exposure for these types of delay damages may have been broadened by a decision of the Court of Appeals. *Complete General v. ODOT*, Case No, 98AP-1619 (May 25, 2000, 10th District).

The *Eichleay* formula is generally calculated as follows:

<i>Contract Billings</i>				
Total Billings of Company for Contract Period	x	Total Company Overhead for Contract Period	=	Total Overhead Allocable to the Contract
<i>Total Overhead Allocable to the Contract</i>			=	Overhead Allocable Per Day
Actual Days of Contract Performance				
Overhead Allocable per Day	x	Number of Days Delay	=	Unabsorbed Overhead Claim

The Franklin County Court of Appeals ruled that a contractor may established a prima facie case for unabsorbed home office overhead when an “extension period” was added to the contract duration due to a government-caused delay during the original contract period and the contractor was on “standby” during the suspension period. The Court stated that it was only necessary for a part of the contractor’s work to be on “standby,” and not the entire project, for *Eichleay* to apply. The Court also said that the contractor’s normal replacement of work during the bidding process should not constitute replacement work to bar an *Eichleay* recovery. Finally, the Court minimized the impact of the normal winter ODOT shutdown on the Contractor’s recovery by stating that the *Eichleay* computation should be based upon the length of the extension period, rather than the suspension period. This appellate decision reinforced that *Eichleay* is alive and well here in Ohio and that this component of damages shall remain a considerable risk for public owners in the event of project suspensions and delays.

The case was appealed by ODOT to the Ohio Supreme Court where a decision was issued on January 16, 2002. The ruling of the Ohio Supreme Court on this important issue stated that an *Eichleay* formula was an acceptable way of determining unabsorbed home office overhead, but that owners should be given an opportunity to dispute particular items of cost. The Ohio Supreme Court refused to find that the *Eichleay* formula was the exclusive manner of determining unabsorbed home office overhead. The Ohio Supreme Court in essence modified the use of the *Eichleay* formula in Ohio by stating that ODOT should challenge individual overhead costs that may not have benefited the project, such as items like entertainment expenses or bad debt disallowable under the Federal Acquisition Regulations (“FARs”). *Complete Gen. Constr. Co. v. ODOT* (2002), 94 Ohio St.3d 54.

While *Eichleay* based recoveries for unabsorbed home office overhead will continue to be viable, a contractor will still have to prove: (1) that it was on “standby” during an owner caused delay; and (2) it was unable to take on other work during the “standby” period. Further, owners like ODOT will maintain the ability to challenge certain cost components in an effort to reduce the contractor’s recovery.

**Donald W. Gregory, Esq.**  
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