

OHIO ASPHALT

Issue 3, Volume 5

SUMMER 2008

ASPHALT: World's *Fastest* Pavement

Also In This Issue:

Alternative Mixes for Safety, Economy:
Smoothseal HSR, 404 LV

448 Density: Specification 1055 Successful in
Achieving More Consistency

Ohio Group Seeks Congress' Support for
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ON THE COVER: Proudly beside his Asphalt Racer,
Elias Markley competed in the
2008 Soap Box Derby. Find out how Team Asphalt fared on the asphalt bill in
qualifying competition for the international event held annually in Akron.
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Is There Anything for Certain?



CLIFFORD URSICH
President &
Executive Director

We have all seen what has happened in the construction industry over the past few years — mind-boggling inflation! The cost of energy, devaluation of the dollar, Katrina, and throw in the China Syndrome for “good measure,” and what you’ve got is the perfect makings of a dismal day at the office. The asphalt industry has been having its day in the energy barrel as well, having fallen victim to the same global forces that have stricken other construction materials.

In the midst of this tempest, these tumultuous times, it is possible for our vision to become clouded, our faith shaken and our confidence eroded. We can find ourselves wondering: Will this ever end? Will the industry be better for it? Is there anything for certain? Well, the answer to all those questions is an emphatic YES!!

Out of the Fire Comes a Vessel Suitable for the Refiner

Many of us recall the days of the Oil Embargo and energy crisis that ensued in the late 1970s. Those days saw record-high increases in highway construction costs. Long-term quotes for asphalt cement had evaporated, and to quote from a National Asphalt Pavement Association memorandum dated April 4, 1979: *“There is a total instability in quoted prices for asphalt cement. Over 60 percent of the quotes that are being offered are good for the day of the quote only.”* Sound familiar? We got through that time, and what you’ll notice is that virtually all of Ohio’s paved road surfaces today are covered in smooth asphalt.

Out of that refining fire came an industry that was more productive and more efficient. Prior to the crisis of the late ’70s, there was little interest in recycling. The high cost of asphalt cement, brought on by the embargo, thrust the industry forward to claim the value of the hidden treasure of recycled asphalt pavement (RAP). RAP became more valuable by the very fact that the asphalt cement contained in it had the equivalent value as if it were newly purchased; the same is true of today’s circumstance. In those days, contractors quickly modified existing plants to allow the introduction of this now ever-so-valuable commodity. Asphalt manufacturing facilities changed to better accommodate recycling. Ten- to 15-percent RAP content in mixes is what was hoped for. Drum mix facilities came into vogue, and with them came greater capacity to recycle asphalt back into new asphalt mixes. Today, 20- to 40-percent RAP content is commonplace. Single-drum, double-drum, triple-drum, and mini-drum mixers are all used in Ohio today to provide high-quality, 100-percent recyclable asphalt mixtures.

Many don’t realize that Ohio was one of the first states to adopt a permissive recycling specification on all projects. With a strong push from ODOT leadership came a policy in 1980 that began moving things. *“The success of recycling in Ohio is due to the state’s clear-cut commitment to the idea,”* said then Flexible Pavements of Ohio Executive Director Bill Baker; and that continues today with ODOT Director James Beasley’s recent charge to his staff that they determine how to utilize RAP in new asphalt mixes to the fullest extent possible without sacrifice to quality.

With an increased demand for recycling came the need for an efficient method of removing old asphalt from roadways and reincorporating it into new asphalt mix. Ripping a pavement and crushing the material was slow, costly and inefficient. Out of the refiner’s fire came a new cold-milling industry that allowed contractors to efficiently remove asphalt pavement, facilitating its immediate reincorporation into new asphalt mix, reducing handling and enhancing savings. What *was* a contractor’s tool, today allows agencies to profile smoothness and correct pavement geometrics. It allows for quick treatment to pavements gone slick. Of the numerous applications in which cold-milling is used, it’s a wonder how we ever got along without it.

Out of this current refiner’s fire, there will be new innovations that catapult the industry forward. There is within the fabric of the asphalt contractor an inexorable drive to innovate and succeed. The future for the asphalt industry is one of even greater bounding success.

Hedging Against Inflation

When you consider the versatility of asphalt pavements, it is no surprise that they comprise more than 95 percent of Ohio’s paved road system. The future savings that will be gained will come right from our asphalt pavements. The materials that comprise these and future pavements also comprise the treasury from which we will draw to construct future cost-effective pavements. How so? Because asphalt is 100-percent recyclable, the value of the existing pavements increase as the value of the materials from which they are comprised increases. The fact is, asphalt cement and aggregate in RAP can be swapped one for one — allowing for maximum economic benefit. No other material can make that boast. Asphalt’s competition can only be crushed up for the value of aggregate; whereas, asphalt retains both its cementitious properties and its aggregate properties when converted to RAP. Consider the savings

continued on page 6

continued from page 5

that will mount when we get to the point where each ton of asphalt contains at least 50-percent Recycled Asphalt Pavement. As well, consider the contribution asphalt will play in sustainable construction upon our passing that milestone.

In these days where construction of all sorts is experiencing high levels of inflation – and as such, many agencies have chosen for the interim to use less costly surface treatments to get them by – how would it be if they could not use such treatments? Here's my point, do you realize that it is only asphalt pavements that permit such flexibility in strategy selection? If your pavement was not a flexible one, how would you ever maintain it without breaking the bank? The fact is, asphalt pavements allow agencies to hedge against inflation by ensuring future recyclability and by facilitating low cost maintenance options.

Lest we forget, as we further the Perpetual Pavement technology in Ohio, we will see a greater number of roads built to last a lifetime, literally! No more costly and time-consuming removal and replacements; a user-friendly kind of construction. Asphalt Perpetual Pavements will provide a pavement that only needs surface course restoration, and when we consider that the material comprising that

new surface course contains Recycled Asphalt Pavement, then we start to understand the breadth and extent of the benefit asphalt construction provides in hedging against inflation.

One Thing is for Certain

I started this message by posing the question, "Is there anything for certain?" Here is a certainty – asphalt pavement performance in Ohio has been superior to any other product. Asphalt has been the smoothest, most durable and cost-effective pavement in Ohio – the data shows such! It is the material of choice because of these very facts. Asphalt will in the future provide even smoother, more durable, cost-effective transportation for Ohio's users. Out of the refiner's fire will come innovation that will propel the industry to new achievement. How can I make these claims? I can make them because I'm on the inside. I know the earnest desire of the industry leadership to construct high-quality, long-lasting pavement. I know the hearts of many ODOT and local government engineers who are dedicated to delivering the best pavement type to their constituency. And, I have faith that you will capture the breadth and the extent of why asphalt pavements are the pavement of choice for Ohio's roadways.



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Team Asphalt on the Starting Grid

Have you seen the latest entry to the racing circuit? It's *Team Asphalt*!

Elias Markley in his Asphalt Racer has entered the Soap Box Derby. Elias, together with his pit crew — brothers Isaiah, Jedidiah, Josiah and father,

Lloyd — comprise *Team Asphalt*. Mom, Leigh Ann and little sis Damaris are his biggest fans.

Inspired by a love for NASCAR, Elias is excited about speedy cars running on smooth asphalt pavement . . . making the Soap Box Derby a great fit for this young racing enthusiast. Dubbed "The Greatest Amateur Racing Event of the World," the nationally renowned Soap Box Derby has been held since 1934. Though synonymous with Akron, the Soap Box Derby actually started in Dayton, when a *Dayton Daily News* photographer encountered three boys racing home-made, engine-less cars down an inclined brick street. The first All-American race was held in Dayton in 1934. The following year, the race was



Elias Markley is surrounded by some admiring fans.

moved to Akron because of its central location and hilly terrain.¹ In addition to the thousands of youth who have competed in the Derby, such celebrities as air ace Capt. Eddie Rickenbacker, General Jimmy Doolittle, actor Jimmy Stewart, former great heavyweight boxer Jack Dempsey and President Ronald Reagan have also experienced the thrill of speeding down Derby Downs.¹

Each year since, with the exception of World War II, youngsters from throughout the United States and several foreign countries have come to Akron with the racers they have built and driven to victory in their home communities. And over the many years thousands of dollars in scholarships have been awarded to contestants.



Team Asphalt included racer Elias Markley and his pit crew, which consisted of brothers Isaiah, Jedidiah, Josiah and their father, Lloyd.

The goals of the Soap Box Derby program have not changed. They are to teach youngsters some of the basic skills of workmanship, the spirit of competition and the perseverance to continue a project once it has begun.¹

Prior to advancing to Akron, competitors participate at the local level. Children ages 8 to 17 compete in various classes — Stock, Super Stock and Masters. A fourth division, "Special Kids," is for children having physical or mental disabilities. Soap Box Derby races are held in cities all around the nation and in foreign countries. The winners of the events converge on a July day in Akron to race at Derby Downs.

One local event is the Greater Columbus Soap Box Derby, which was held this year on June 21 at Derby Hill, located in the Big Run Metro Park. Elias, in his Asphalt Racer, competed on Derby Hill's 954-foot stretch of the world's fastest pavement — ASPHALT!

That day saw contestants give it their best to win a trip to Akron, and *Team Asphalt* was no exception. This year was a first experience for *Team Asphalt*, but that didn't deter Elias from bringing home the "goods" — a fifth-place trophy, a great time of fun and learning, and a wetted appetite for bigger and better accomplishments.

Elias is quick to give credit where credit is due. On the back of his racer you'll find the inscription, "*Ride With Jesus.*"

Flexible Pavements cheers on Elias and *Team Asphalt* as they race the Asphalt Racer to future victories on the world's fastest pavement — ASPHALT!

¹All-American Soap Box Derby

Alternative Mixes for Safety, Economy

Smoothseal HSR

Many transportation agencies are faced with safety “hot spots,” where wet pavement accidents are abnormally high – often because of geometric problems or traffic congestion. Where other remedies cannot be deployed, often the situation can be improved by applying a highly skid-resistant surface course.

In the past, the material most commonly used for a highly skid-resistant surface was Ohio Department of Transportation (ODOT) Supplemental Specification 803, Rubberized Open Graded Asphalt Friction Course, which required a slag aggregate. This treatment was extensively covered in the Winter 2004 issue of *Ohio Asphalt* (see http://www.flexiblepavements.org/ohio_mag.cfm to view the article).

Now, there may be a better alternative. Experience with Smoothseal (ODOT Item 424, Type B) has shown excellent and consistent skid resistance. This has been attributed to the requirement for high-silica content sand required by the 424 specification. The accompanying chart tracks the skid test performance data collected by ODOT on many of the Smoothseal projects. As can be seen, skid numbers tend to remain in the high 40s to near 60, even after years of service.

The high skid number (63) on the chart corresponds to a Smoothseal that was produced using a slag coarse aggregate. Previous experience with SS 803, using slag, has shown that high-skid numbers can be expected from mixes containing slag. Other experiments have shown similar high-skid resistance from mixes containing trap rock (crushed igneous rock).

Based on this experience, Flexible Pavements of Ohio (FPO) has crafted an experimental specification for Smoothseal HSR (high-skid resistance) that requires both the high-silica sand and either slag or trap rock coarse aggregate. Download the specification at <http://www.flexiblepavements.org/documents/SmoothsealHSR27apr07.pdf>.

The gradation of Smoothseal HSR makes it a practical application for a wearing surface as thin as $\frac{3}{4}$ inch. As such, it should prove ideal for treating “hot spots” that may benefit from a highly skid-resistant surface.

404LV

Even though Spec. 404 has not been in the ODOT specifications since 2002, many local agencies still specify 404 for their local roads and streets. Historically, 404 mixes tended to be sandy, fine-graded and asphalt-rich mixes that made them easy to place and compact in thin lifts, and proved durable in light-traffic applications. By the 1980s, rutting due to ever higher volumes of heavy trucks led ODOT to develop specifications for coarser, leaner mixes that would resist rutting as represented by its current Type 1 mix design requirements.

As agencies cope with tighter resurfacing budgets, many are again looking for the traditional mixes that can be placed as thin as 1 inch as a maintenance treatment on their low-volume pavements. Spec. 404 fits the bill. However, ODOT no longer provides its traditional 404 mix designs, and the current Type 1 mixes are not quite the same.

To address this need, FPO has developed a specification for 404LV (low volume). There are several important and unique features incorporated in the specification. Based on the recipes of the traditional 404 mixes,

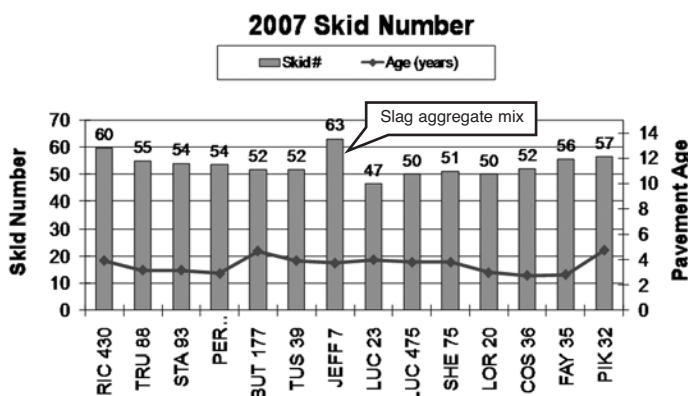
404LV contains a modified-aggregate gradation band to ensure a finer-graded mix than is typical under the current Type 1 gradation, and a formula for ensuring that the asphalt content is sufficiently high for good durability. In the spec, the asphalt content is specified for bidding purposes, but can be adjusted by the owner agency, if needed, based on field observation and performance. The formula in the Acceptance & Payment Section calculates the pay for the asphalt content actually produced, unless it is higher than specified or adjusted,

ensuring that the owner agency pays for only what it gets – and removing any incentive for the producer to reduce the binder content below what is requested.

For agencies wishing they had an economical, durable surface that they can place thin on their low-volume roads, 404LV may be the ticket.

If your agency would like to consider an experimental project using 404LV, contact FPO, which can provide guidance, a sample specification and help communicate your intent to the local producers.

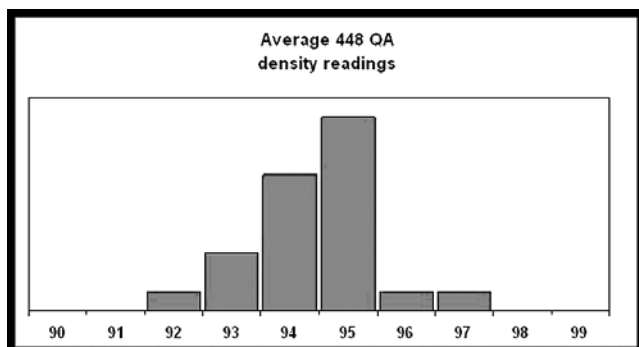
Early Skid Findings for Fine-Graded Polymer Asphalt - Item 424, Type B (a.k.a. *Smoothseal*)



448 Density Specification 1055 Successful in Achieving More Consistency

The Ohio Department of Transportation (ODOT) has a long and proud history of continuously implementing improvements to various asphalt specifications. ODOT started looking at the potential of Quality Assurance/Quality Control (QA/QC) specifications in the early 1980s, at least one decade before most states considered such a change.

Numerous improvements in construction, materials and testing requirements have occurred on an annual basis since that time. These changes have led to a more consistent performance of asphalt pavements under increasingly severe conditions while balancing the goal of performance with cost.



When considering performance, asphalt mat density is the most important criteria to achieve in order to maximize the durability of a dense-graded asphalt mixture. A good durable asphalt pavement will have a density of 93 to 95 percent. Lower-density pavements are more susceptible to water permeability and subsequent failure due to moisture and freeze damage as well as the potential for increased rutting.

In the late 1980s, ODOT placed its first heavy-traffic asphalt pavement with a direct density control based on coring of the pavement. Today, this method is known as ODOT C&MS 446, and is routinely used on all heavy-traffic surface and intermediate courses. However, lower-traffic asphalt pavements continued to be placed under a combination of traditional “method” density specifications per ODOT C&MS 401 and QA/QC specifications per ODOT C&MS 448. The existing method of controlling density of the mat had been by what is known as “roller train capacity,” where the ODOT project staff has the responsibility to enforce the proper number of compaction rollers used based upon

calculations of the rollers capacities and rate of paving. This method had been in place for several decades, and often resulted in very inconsistent and low densities of asphalt pavements. Research in the 1990s showed typical densities ranged from 89 to 92 percent.



A change to a direct density measure on typically lower-traffic 448-type asphalt pavements had been discussed off and on for nearly 10 years, but was always relegated to the back burner due to more pressing issues. As well, there were numerous obstacles to such a change and both ODOT and the industry were not in a position to easily accept the changes needed to implement such a specification.

In 2006, thru the means of an ODOT Strategic Initiative, the opportunity to finally address this lingering problem came about. The effort to address and implement such a change was directed to be ready for projects at least part of the following construction season. To accomplish this, a committee of industry and ODOT personnel began determining objectives that could be met with existing ODOT project staffing and by existing contractor equipment, knowledge and staffing. Early on, it was decided to not increase the districts’ testing office workload by taking cores each day from each pavement placed under the new specification. In addition, it was determined that ODOT would not use the density measure as a direct means of acceptance or payment of the contractor. The existing 448 payment method would still remain by asphalt content and gradation. This allowed ODOT to utilize its current processes and made for rapid implementation.

With the testing and payment decided, the real challenge began — how to create a system for measurement of density that was reliable, verifiable, relatively painless and fair. ODOT had goals of a system that utilized both nuclear and electromagnetic density gauge technology and provided for QA testing. ODOT believed that, although not as

direct a measure as coring, the gauges would provide a consistency and level of density that was leaps and bounds beyond the method which was currently used. In turn, industry believed that an 'on the fly' method of measure, in the manner of an on-going QC processes, was appropriate. Therefore, industry undertook researching this approach and presented a process utilized by another DOT as a starting point of discussion.

One common goal was that the density QC process was to be streamlined and secure (i.e. minimal training would be needed for both DOT and industry staffing to properly control and document the density QC process). Included in this process must be proper calibration and maintenance of the gauges, as well as correlation of the gauge readings to the actual mix density.

What resulted from this effort is now known as Supplement 1055, Asphalt Mat Density by Gauge Testing (1055). This specification was implemented in 2007, by means of tweaking the 448 specification. Supplement 1055 is automatic, in that it kicks in when 448 is called for and specific conditions are met. No plan notes or designer decisions are needed for its application. Supplement 1055 can be found online at: <http://www.dot.state.oh.us/construction/OCA/Specs/SSandPN2008/default2008.htm>

Supplement 1055 has provisions for:

- Equipment and Operation
- Minimum Density Target Determination
- Testing Procedures
- Reporting
- Failure to Follow Requirements
- Appendix with details for operating each gauge type

There are three keys to Supplement 1055's success. First, is the correlation of the gauge on the first day of production by means of cores taken from the mat. This correlation is necessary, as gauge readings without correlation to actual density by cores are meaningless. Once correlated, the second key is determining a gauge density target which

the QC technician will use to actually control the mat density on the project by measuring actual density behind the rolling train. The third key, is the QA method whereby ODOT project staff calls for random location density measures as a means of verifying proper control of density on the project. All of this information is recorded on the Supplement 1055 forms.



Troxler nuclear density gauge

The Supplement 1055 forms are written from the user perspective, as the industry provided much-needed input in their development, so that the QC technician will easily use them as part of his workflow. On the forms, as well, the ODOT project staff can readily validate and record information they are required to address. The Supplement 1055 forms include relevant information



TransTech electromagnetic density gauge

pertaining to the project, gauge, coring and density target determination, as well as actual density QC testing. Any calculations are clearly shown on the form by means of simple equations where needed. Transparency and sharing of information between the ODOT project staff and QC technician is paramount in the process, and the forms facilitate this.

In 2007, 52 projects were placed with the 448 density specification, including 16 with Superpave mixes; the rest were Type 1 Marshall mixes. Project size typically ranged from two to six production days, although a couple very large projects were built. Mat thicknesses ranged from 0.75 to 1.75 inches. The minimum thickness has since been raised to 1.0 inch due to issues with attaining density on very thin overlays.

As a measure of the success of the implementation, stats on actual deductions applied are helpful:

- 92 percent of projects achieved proper density with no deductions applied
- Nine of 12 districts had no deductions on their 448 density projects
- 73 percent of projects achieved minimum densities above 94 percent, which is safely above the minimum density target of 93 percent

Conclusions from the 2007 implementation are:

- Both gauge types proved applicable and reliable
- Specification 1055 should only be applied to overlays where the mat thickness is uniform and at least 1 inch
- Results from density gauges without calibration to actual core samples has no meaning
- The new forms proved user friendly
- While 8 percent of projects did have deductions, only two had more than a half day's production with a deduction
- The specification is successful in achieving more consistent density, and thus a more consistent level of durability across the state for 448 mixes

Contractors Score Victory with Broad Interpretation of ‘Delay’

The Ohio Supreme Court case of *Dugan & Meyers*, with its strict insistence on notice, greatly worried contractors who believed they were being forced to give almost daily written notice of their project impacts and delays, or risk the loss of an otherwise viable claim. Meanwhile, owners confidently believed they finally had a shield against claims for delay costs at the conclusion of a project. Yet, we cautioned clients that the *Dugan & Meyers* case might have little long-term precedential value, as it was decided under a contract signed before the Fairness in Construction Contracting Act (R.C. 4113.62) was enacted, which (in relevant part) provides:

Any provision of a construction contract that waives or precludes liability for delay when the cause of the delay is a proximate result of the owner's act or failure to act, or that waives any other remedy for a construction contract when the cause of the delay is a proximate result of the owner's act or failure to act, is void and unenforceable as against public policy.

A recent case decided by the Franklin County Court of Appeals has broadly defined “delay” within the meaning of the statute to include acceleration or other impact claims. *Cleveland Construction, Inc. v. Ohio Public Employees Retirement System*, No. 07AP-574 (April 3, 2008). Perhaps even more importantly, the Court has ruled that the statute eliminated the need for a time-extension request as required by the contract. This case means contractors will need to worry less about giving formal written notices of delay throughout the course of the project, and that owners have lost the means to defend an otherwise valid delay or impact claim on procedural grounds, such as lack of timely notice or the failure to timely request a time extension.

There is no question that this decision (if not reversed by the Ohio Supreme Court) will embolden contractors to assert claims, even long after the original delay occurrence, when the cause of the delay is arguably the owner’s “actions or inactions.” The pendulum has swung from owner to contractor with respect to delay claims in Ohio — at least for now.

OA

Editor's note: Donald W. Gregory Esq., and four of his fellow attorneys at Kegler, Brown, Hill & Ritter, were recently honored by Chambers & Partners, one of the world's premier guides to legal resources.

Determined by submissions from legal practices, interviews and its own database, Chambers & Partners awards rankings to practice areas and attorneys in Ohio, nationally and internationally.

Gregory, who works in the area of Construction, received a “Band 2 ranking,” a rating system based from 1-6, with 1 being the best. According to Chambers USA 2008, “Group Chair Donald Gregory is ‘practical and forceful’ in providing the full-range of services to his clients. He serves as the general counsel to the American Subcontractors Association, National Ground Water Association and Association of Wall and Ceiling Industry.”

FPO would like to congratulate Donald for this recognition.



By Donald W. Gregory, Esq.
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Member Spotlight: The Shelly Co.

SHELLY'S QUALITY BEGINS AT ITS QUALITY CONTROL LAB Thornville-based company was state's first to receive AASHTO materials lab accreditation

David Bickham, The Shelly Company



Anyone traveling through Ohio is familiar with the people working to make sure our roads and highways are well maintained and constructed with quality materials that will last well into the future. But

there is a group of employees for The Shelly Company, the largest construction materials and asphalt paving company in the state of Ohio, who work behind the scenes to make sure the materials being utilized are the best possible quality.

The Shelly Company Quality Control Lab, with its headquarters in Thornville, and field labs throughout the state, employs 65 technicians focused on one thing: making sure the products used by the company meet the necessary requirements for the job.

"We are a service organization to our company and our customers," said Larry Shively, vice president of Quality Control. "We test it all — aggregate, liquid asphalt and perform Hot Mix Asphalt (HMA) mix designs. We also ensure The Shelly Company is being environmentally friendly, and devise ways to do what we are already doing better." The Shelly Company is not unique in having its own lab. But its facility was the first in Ohio to receive accreditation from the American Association of State Highway and Transportation Officials (AASHTO) Materials Reference Laboratory (AMRL). At that time, the lab was located in a converted car dealership garage. But as the business grew, so did the lab. Eventually, a new facility was constructed nearby that housed the many aspects of the Quality Control lab as well as a training facility.

"We focus quite a bit on training and safety," Shively said. "For The Shelly Company to remain competitive, we have to stay on top of the advancements being made in the industry. This facility allows us to do just that."

The company's growth didn't just affect the Thornville laboratory. As The Shelly Company, a subsidiary of Oldcastle Materials, acquired

companies throughout the state, the need for testing near to where the work was being performed required the company to put field laboratories in place. Today, the company has asphalt regional labs in Columbus, Kent and Findlay, and aggregate regional labs in Columbus, Clay Center, Kent, Ostrander, Scott, Maumee and Proctorville. Each HMA plant has a field lab which provides testing for day-to-day production.

"When you are talking about testing the materials used in the construction process, you don't have time to wait for a sample to be taken, driven to the Thornville lab and tested," Shively said. "The field lab allows us to have test results in hours, not days."

Along with the testing process, the lab employees also work on innovation — finding better ways to complete the processes already being performed. One such improvement has been accomplished through the development of a piece of equipment called T-Rex. The T-Rex is a device that allows the technician to take a representative sample of HMA from the bed of a truck without climbing onto the truck. This improves efficiency and safety.



The industry seems to change all the time, and The Shelly Company's Quality Control Laboratory remains a leader in finding new ways to do a process that has been around for years. Currently, the lab's experienced staff is working with Warm Mix Asphalt (WMA), a new twist to the process.

"Warm Mix Asphalt gives you the same compactability as its hot counterpart while enabling us to mix the asphalt at lower temperatures. Lower temperatures mean lower energy usage, which promotes energy conservation and greater plant efficiency," Shively said.

OA

David Bickham serves as the Public Relations Manager for The Shelly Company.

Ohio Group Seeks Congress' Support for Transportation Funding

On May 21, a group of 21 individuals representing the Ohio Department of Transportation (ODOT), Ohio Contractors Association (OCA), Ohio Aggregates and Industrial Minerals Association, Operating Engineers and Carpenters Unions and Flexible Pavements of Ohio (FPO) joined forces to call on the Ohio Congressional delegation to seek its support for transportation funding. This trip was part of the Transportation Construction Coalition Fly-In.

The most urgent topic discussed with the legislators is the need to "Fix the Highway Trust Fund," (HTF) to prevent its projected negative balance in federal fiscal year 2009. As reported by Gordon Proctor in the Spring 2008 issue of *Ohio Asphalt*, the Federal DOT will have to drastically reduce construction funds to the states if additional revenue is not added to the HTF prior to the beginning of the federal fiscal year in October.

Other issues covered at the Fly-In were:

- Support for Baucus-Grassley HTF Fix
- Gas Tax Holiday
- Full funding of \$41.2 billion for FY 2009
- Reject reduction in transit investment and provide \$10.3 billion for the program
- Increase Airport Improvement Program to \$3.9 billion
- Passage of FY 2009 transportation appropriations bill in a timely manner

- Passage of multi-year reauthorization of the federal aviation programs prior to October 2009

OCA divided the group into four teams and set up appointments so that the teams could call on nearly every Ohio member of Congress.



Ohio's contingent of transportation advocates participating in the Transportation Construction Coalition Fly-In, held in May in Washington, D.C., included more than 20 representatives from ODOT, construction associations – including Flexible Pavements of Ohio, and the operating engineers and carpenters unions.

Members or staff that were visited included: Senators Sherrod Brown and George Voinovich; Congresswomen Betty Sutton, Jean Schmidt, and Stephanie Tubbs Jones, and Congressmen Zack Space, Bob Latta, Charlie Wilson, Steve Chabot, Ralph Regula, Steve LaTourette, Tim Ryan, Mike Turner's aide, Joe Heaton, Jim Jordan, Pat Tiberi and House Minority Leader John Boehner.

While the teams were well received by the Senators and members of the House of Representatives, the results of the discussions were not encourag-

ing. There seemed to be almost universal acceptance that transportation needs to be a high national priority and that we have been under-investing in our transportation systems for a long time. However, there didn't seem to be any hope at addressing the funding issue, or for a HTF fix prior to October. There seemed to be little support for passing any transportation appropriations this year. We were told to expect no gas tax increase – legislators are getting too much heat from constituents on fuel prices. Sen. Voinovich doesn't believe a public works stimulus package will come through;

but, does expect a big push for transit in the next transportation bill.

If there was any good news, it was that the proposed Gas Tax Holiday, which would have further reduced revenue to the Highway Trust Fund, was "dead on arrival."

But, perhaps the trip did raise the awareness of the disaster facing the HTF. As of this writing, Congress had taken up a measure to "fix" the HTF by transferring \$8 billion from the General Fund. The House had approved the bill (HR 6532) by a vote of 387 to 37, but the Senate declined to consider it before the August recess with another chance in September. The Bush Administration threatened a veto; so, stand by for further developments.

Individuals participating in the 2008 Fly-in were: ODOT Director James Beasley and Assistant Director Steve Campbell; Doug Rauh and Steve Lillich of The Shelly Co.; OCA's Chris Runyan and Angela



Van Fossen; FPO's Cliff Ursich and Bill Fair; Pat Jacomet and Mike Jacomet of the Ohio Aggregates & Industrial Minerals Association; Brian Burgett, Kokosing Construction; George Palko, Great Lakes Construction; Mark Sterling, Beaver Excavating; Ed Svec, Austin Powder Co.; Mark Totman, Operating Engineers Local 18; Dick Moreno and Anthony Peto, Carpenters Union; Bruce Huff, The Harper Company; Jim Ruhlin, The Ruhlin Co.; Joe Prus, Prus Construction; and Joe Fisher, LaFarge.

All national associations and Congress' own Transportation Revenue and Policy Commission have adopted positions advocating a continued, strong federal involvement in transportation funding. It's important that all constituents maintain contact with their representatives and keep them aware of the need for an increased federal transportation program.

OCA

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Summit County Metro Parks Builds Porous Pavement



(Editor's note: The Summit County Metro Parks recently completed construction of a porous asphalt pavement road and parking lot at Sand Run Park. Paul D. Wilkerson, P.E., construction supervisor/civil engineer, describes the design and construction of the facility. Plan to attend the Asphalt Pavement technical session at the Ohio Transportation Engineering Conference on October 28 to hear Wilkerson's presentation of the latest information about this porous asphalt pavement project.)

By Paul D. Wilkerson, P.E.
Summit County Metro Parks

Introduction

The first two miles of the Sand Run Parkway Jogging Trail opened in 1990, and it was an instant success. Parking for the trail was located within the first half mile, the intent being that people walk or jog to the turnaround point at Sand Run Road then return. However a considerable number of trail users continued the 0.6 miles past Sand Run Road to Revere Road, within the park but on the park road. Pedestrians would also walk in from the neighborhoods, again using the park road. In 2005, the trail was extended off-road west to Revere

Road, and planning began for a parking lot at the west end. At the same time, Metro Parks Serving Summit County was increasing its efforts to promote and implement sustainability as a principle in capital improvements. Being by definition a conservation agency, sound environmental principles have always been a part of planning and operations, and recent stormwater regulations — as well as evolution in stormwater management practices — make porous pavement a viable option for parking areas.

Historically, Metro Parks' parking lots have been curbed, paved in conventional asphalt, with inlets and piped conveyance. Gradually, curbs were replaced by parking blocks and sheet runoff, occasionally to a stormwater best management practices (BMP), like a grass swale or infiltration trench. The new parking lot for the Jogging Trail parking lot was the first Metro Parks project using porous asphalt.

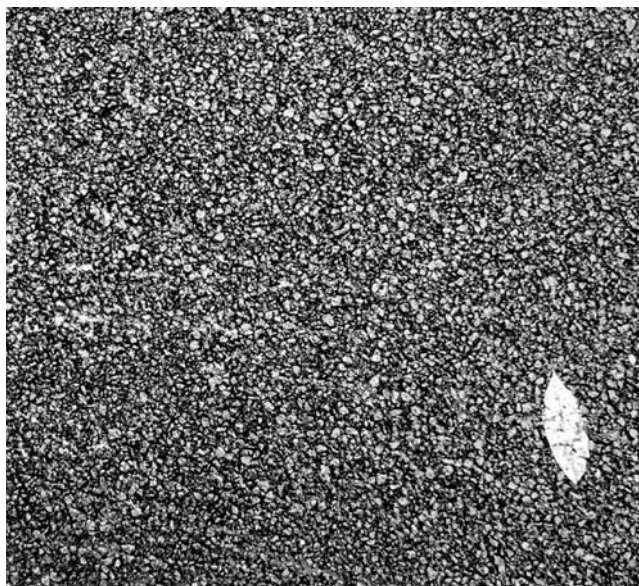
Site Preparation

The project is on the site of a former residence, a 0.67-acre lot with a concrete driveway off Revere Road. To improve traffic and pedestrian safety, the concrete drive was removed and a new entrance was constructed off Sand Run Parkway, beginning at a lower elevation. This required considerable earthwork using the native sandy-silt loam and

some fill, resulting in sub-grade that is slightly steeper (about 5 percent) and less pervious than what is preferred for stormwater infiltration. However, it is what we had to work with and we were determined to try porous asphalt.

Stormwater Management

Design guides for porous pavement suggest designing the pavement base with sufficient void space to store the runoff volume of the 2-year storm, with a factor of safety of 2. The open-graded stone is assumed to have 40-percent voids. For stormwater management, the asphalt parking lot is considered to be impervious, and the storage volume assumes no infiltration. On this site, there are no other significant impervious surfaces, so the storage volume could easily be detained in the voids of the stone base (the National Asphalt Pavement Association recommends a minimum of 8 inches of stone base just for pavement structure). A redundant-edge drain was used along the lower edges. This simply meant continuing the stone base 2 feet beyond the pavement edge, bringing the #57 stone to the surface. At the extreme low end of the entry drive, a perforated pipe picks up any base water that does not infiltrate.



Typical Pavement Section

The pavement section consists of geogrid on sub-grade, followed by a minimum of 9 inches of #1/#2 crushed concrete, a 2-inch choker course of #57 limestone, and 3 inches of porous asphalt.

Many designers will call for a non-woven geotextile to separate the first stone base course from the sub-grade. However, concerned about future clogging of non-woven fabrics, Metro Parks opted to use geogrid Contech BX1100 as a separator. As long as water movement is downward through the system, the geogrid should be an effective separator and add strength to the section.

Mix Design

The approved mix was designed for >18-percent air voids, draindown 0.34 percent, binder grade 64-22 at 5.6 percent plus 2-percent SBR. Limestone proportioned as 70-percent #8 and 30-percent #9 are the only aggregates.

Construction Notes

Besides getting the mix right, construction practice is the most critical aspect for successful porous asphalt. Assuming the sub-grade is essentially sound, it should remain as undisturbed and un-compacted as practical. For this lot, the soil is finer than ideal and it was substantially compacted during construction. The contractor did make an effort to loosen the sub-grade surface just prior to placing the geogrid and base stone. On the hot porous asphalt, one or two light roller passes after cooling to about 300° F is the only compaction, and traffic should stay off for 24 hours, especially preventing truck traffic. It is important to prevent soil washing onto porous asphalt from adjacent areas; and obviously, don't apply any seal coats!

As the general contractor, Thomarios, of Akron, performed all grading and base preparation. Karvo Paving, of Akron, was the paving subcontractor. The quality of the work was excellent.

The 1,320 square-yard entry and parking lot paving was completed at a cost of \$39,000 for the grid, base and asphalt. The asphalt material was supplied by Allied Corporation of Kent.

Maintenance

The new porous asphalt will be monitored closely for its durability and porosity. Park staff expect to vacuum sweep the parking lot at least once yearly. The parking lot was paved in November 2007, but was not opened to the public until spring 2008. Though it has seen significant construction traffic and public use since opening, it has not been swept yet and it is performing perfectly. Plowing will be done with a raised blade, though ice formation on porous asphalt is minimal.

Lessons learned

Design for a relatively flat sub-grade. Pay for soil permeability testing and make sure sub-grade is sound but not over-compacted. Provide for possible overflow. Hard-turning movements, especially when asphalt is hot or green, can shear the surface. Porous asphalt does not have the shear strength of a mix with well-graded aggregates, but appears to perform well for this parking lot.

OA

Warm Mix Update and International Conference



What's hot with warm mix? Much is happening on the development of warm mix asphalt (WMA) technology. The rapid increase in energy cost is spurring increased innovation in the production of hot-mix asphalt (HMA), and especially

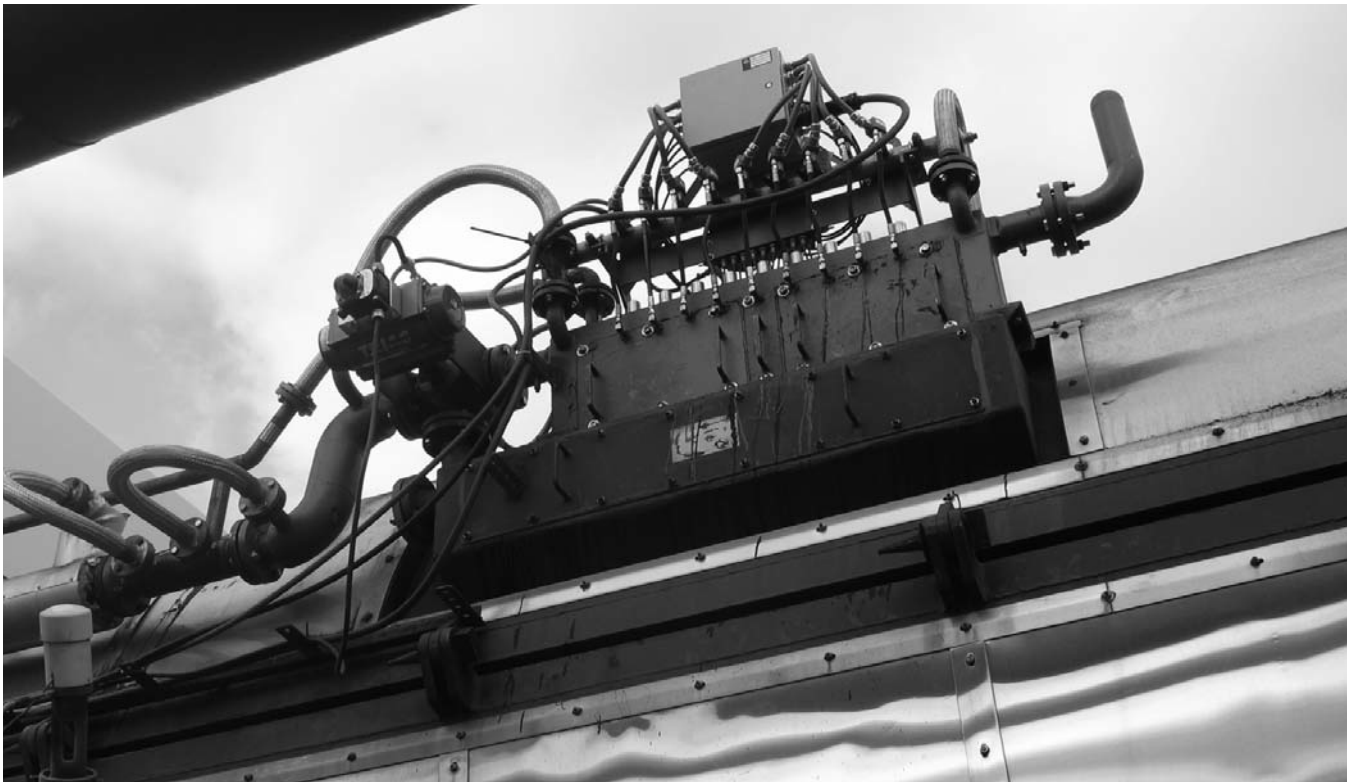
causing increased interest in the potential of WMA technology to reduce energy requirements.

We last reported on WMA in the Fall 2006 issue of *Ohio Asphalt* (see http://www.flexiblepavements.org/ohio_mag.cfm). That article reported on the Ohio warm mix field trial that was done to evaluate three WMA technologies, Sasobit, Evotherm and Aspha-min. All of which are additives that can be simply added to the mix during production to modify the binder viscosity for mixing and

placing at lower temperatures. The processes were evaluated by the research team from Ohio University. All three WMA technologies appear to have been successful, and to-date the pavements are performing as expected of conventional HMA. However, these additives have costs, which offset to some extent the energy savings from their use.

Last year, an exciting, new WMA development was demonstrated in Ohio by The Shelly Company and Astec Industries. Astec's warm-mix process involves foaming the asphalt binder into the mix, improving viscosity for mixing and placing at lower temperature. In Astec's process,





Astec Industries' "Double Barrel Green System" is a modification to the company's "Double Barrel" asphalt plant, which allows binder mixes to have better viscosity for the warm-mix process.

the only additive is a small amount of water (about a quart per ton). The Astec equipment is available as a modification to their "Double Barrel" asphalt plants, and thus can be economically retrofitted to existing plants. Astec calls this plant the "Double Barrel Green System." You can view their brochure at http://www.astecinc.com/literature/images/Double_Barrel_Green.pdf.

Shelly and other producers in Ohio have been using this process on commercial work since last fall, and initial experiences have been encouraging — as no problems have been encountered with the warm mix that has been produced and placed.

The Ohio Department of Transportation (ODOT) was sufficiently interested in the process' potential for energy savings, to let a number of demonstration projects to evaluate the performance of the foamed warm mix. Warm mix projects have been awarded in the following districts:

- District 4: Portage 224- 13.42, project 080386; and Summit 303- 8.14, project 080352
- District 6: Pickaway 62-0.00, project 080342
- District 7: Darke/Miami 49-0.00/0.00, project 080329;

- District 8: Clermont 132-0.00, project 080359
- District 12: Cuyahoga 176-12.76, project 080475

Another project is: District 5, project 070512, which had the 301 base changed to warm mix by change order.

All these projects are expected to be placed this year, and ODOT will evaluate these warm mix projects for their performance both in production and on the road. *Ohio Asphalt* is planning to feature at least an interim report of the results in 2009.

Interest in warm mix technology is so high that the **International Warm-Mix Asphalt Conference** is coming to Nashville, Tenn., November 11-13, 2008. The conference is a joint presentation of the National Asphalt Pavement Association, the Federal Highway Administration and the American Association of State Highway and Transportation Officials. The international conference will deal with the latest developments in WMA technologies and present results from many of the field trials that have been conducted in Europe and the U.S. Find out more about this fall's program by downloading a brochure and registering for the conference at www.warmmixasphalt.com.



Cold Weather Paving Reminder



Autumn, with its cooler weather, is rapidly approaching and the issue of placing Hot Mix Asphalt (HMA) in cold weather always comes up. Projects get delayed, as the weather turns cold and damp.

Specifications generally set weather and temperature limits beyond which paving is to be stopped; but, projects sometimes need to be completed in spite of the specification limits. Everyone wonders whether the HMA pavement placed in cold weather will last.

Research and experience have shown that HMA paving can be successfully accomplished in cold weather without compromising the performance of the pavement; but, to do it correctly, costs will be higher.

The goal is to obtain adequate time for compacting the mix, while it is still in the compaction temperature range (275 to 175 degrees F). Time available for compaction is most dependent upon the temperature of the mix, and the thickness of the layer being placed, and less dependent upon the environmental conditions. Making adequate time available for compaction can be accomplished by taking steps to alter these dependent variables and to minimize the time of exposure of the mix between mixing and compaction. Specific actions may include any or all of the following:

- Increase the mix temperature
- Increase the layer thickness
- Minimize the time/length of haul, insulate and cover haul trucks
- Work the rollers as close to the paver as possible
- Use more and/or higher capacity rollers
- Use warm mix asphalt

Handwork and feathering can probably not be adequately performed in cold weather and, so, these operations should be avoided; or, if necessary, the results should be considered as temporary surfaces to be replaced in suitable conditions.

Of course, placing a thin HMA course in cold weather should be avoided. Placing a relatively thick intermediate course – that can be used as the temporary wearing surface until proper conditions return for placing a thin surface course – will involve little change to construction procedures, little additional cost and little additional risk of poor performance.

For more information on cold weather paving, see the FPO Technical Bulletin at <http://www.flexiblepavements.org/documents/ColdPavingTBJul07.pdf>.



ODOT District 4 to Receive APA Perpetual Pavement Award



An Ohio Department of Transportation (ODOT) District 4 project has been named a winner of a 2007 Perpetual Pavement Award to be presented by the Asphalt Pavement Alliance (APA). The award recognizes asphalt pavements which have stood the test of time.



The pavement recognized was constructed as ODOT Project 138 of 1968, Stark County, U.S. 30, beginning at the Wayne/Stark county line and running 4.7 miles east. The original construction consisted of 10 ½ inches of hot-mix asphalt (HMA) on 6 inches of aggregate base. The pavement was opened to traffic in 1970. Since then the project has received minimal maintenance, a scratch course and a 1 ½-inch overlay in 1987 – 17 years of service for the original surface; a spot mill and fill in 2001; and a complete mill and two-course overlay in 2007.

This project is an early example of ODOT's flexible pavement construction using a thick asphalt base course. Through its service life of 37 years – and counting – this project has received minimal additional thickness (as little as 1 ½ inches and certainly less than 3 inches at most).

The long intervals between resurfacings on this project are representative of the statewide experience on Ohio's thick-asphalt concrete-base pavements. Only considering the two complete resurfacing projects in 1987 and 2007, the average interval between resurfacing is more than 18 years. Even if you include the spot treatment done to the project in 2001, the average interval is still more than 12 years. As such, this project represents an outstanding value to the public and is truly performing as a perpetual pavement.

The award is to be presented November 12 at a ceremony during the 2008 International Conference on Warm-Mix Asphalt in Nashville, Tenn. The APA is a co-sponsor of the conference. See www.warmmixasphalt.com for more information on the conference.

APA is a coalition of the Asphalt Institute, the National Asphalt Pavement Association and the State Asphalt Pavement Associations, whose mission is to further the use and quality of HMA pavements through research, technology transfer, engineering, education and innovation.



Educational Opportunities

Mark your calendars for these coming educational opportunities



**October 28-29, 2008,
Columbus**

The **Ohio Transportation Engineering Conference (OTEC)** returns to the Greater Columbus Convention Center. Flexible Pavements of Ohio will be sponsoring a technical session

on asphalt pavement technology at 1 p.m. on October 28, and exhibiting in the trade show. The asphalt pavement presentations will include:

- Cuyahoga County Constructs a Perpetual Pavement, presented by Brian S. Driscoll, P.E., Chief Highway Design Engineer, Cuyahoga County Engineers Office
- ODOT Experiments with Foamed Warm Mix Asphalt, presented by David Powers, P.E., ODOT Asphalt Concrete Materials Engineer
- Porous Asphalt Pavement Debuts at Sand Run Metro Park, presented by Paul Wilkerson, P.E., Construction Supervisor/Civil Engineer, Metro Parks, Summit County

Register and obtain more information at www.otecohio.org.



**November 11-13, 2008,
Nashville, Tenn.**

The **International Conference on Warm Mix Asphalt (WMA)**

convenes in Nashville. WMA is a HOT topic right now. Learn the latest about WMA from technology producers, researchers and agencies that have had first-hand experience. The conference will feature warm-mix processes, mix production, energy consumption and state of the practice. The event is being sponsored by NAPA, FHWA and AASHTO. The meetings will be held at the Marriott Nashville Airport Hotel. View the brochure and register online at www.warmmixasphalt.com.



February 4, 2009, Columbus
The **Ohio Asphalt Paving Conference (OAPC)** moves to a new location with another outstanding program on asphalt pavement technology. OAPC was attended by

approximately 500 people in 2008. The OAPC is expecting an even bigger attendance in 2009, so it will be held at the Aladdin Shrine Center, 3850 Stelzer Rd. in Columbus. Look for more information and to register for the program this fall on the FPO Web site.



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The **World of Asphalt** is the nation's largest conference and exhibition related to asphalt pavement. Check out the event in Orlando in 2009. In 2010 the World of Asphalt comes to Cincinnati. Details can be found at www.worldofasphalt.com.



**March 31-April 1, 2009,
Columbus**

The Flexible Pavements of Ohio Annual Meeting & Equipment Exhibition returns to the Hilton Columbus at Easton. This convention of the asphalt paving industry in

Ohio features excellent technical programs, awards and an equipment and trade show.



**September 30-October 2,
2009, Columbus**

The **International Conference on Perpetual Pavement 2009** will be held

in Columbus at the Columbus Hilton at Easton. Further information on the conference, which is being hosted by Ohio University, can be found at www.ohio.edu/icpp/.

Monitor the FPO calendar at <http://www.flexiblepavements.org/events.cfm> for the latest information on these and other events.



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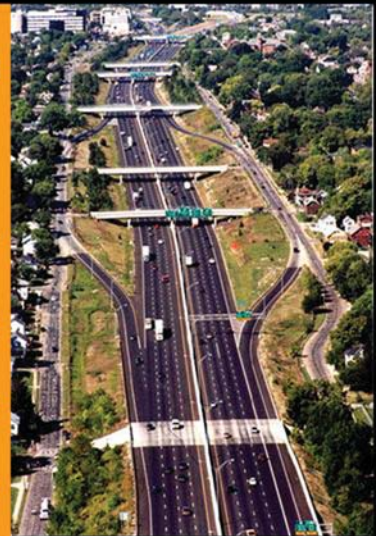
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