

OHIO ASPHALT

Issue 1, Volume 3


Winter 2006

Special insert:
FPO Customer Survey
Response Plan



Flexible Pavements at '05 OTEC

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ON THE COVER:

Ohio University's student asphalt mixture team was honored during the Ohio Transportation Engineering Conference for winning the national title in the National Asphalt Mixture Competition. For more coverage about Flexible Pavements' participation at OTEC see page 6.



Flexible Pavements of Ohio is an association for the development, improvement and advancement of quality asphalt pavement construction.
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FRED F. FRECKER P.E.,
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‘And The Survey Says ...’

They say, “If you do not know where you are going then any road will take you there. But if you have a specific destination in mind then you need to plot out a course that will ensure you get there.”

One of Flexible Pavements of Ohio’s “destinations” is evident in its mission statement – *An Association dedicated to the development, improvement and advancement of quality asphalt pavement construction*. The word “quality” was added to this mission statement about 10 years ago; it reflected the main focus of Flexible Pavements’ first strategic plan, which was developed in 1994. A lot about Hot Mix Asphalt has changed since then; polymers, warranties, Superpave, performance graded binders – even the old workhorse Item 404 isn’t in the ODOT spec book anymore. All of this change was to improve quality.

In 2004, the FPO Board of Directors wanted to assess where we were on our quality journey. That brought to light a significant shortcoming: we did not quantify where we started from in 1994, or “benchmark” as the popular term for this has now become. We knew where we wanted to go, as we plotted a course to get us there, and while we had a general idea of where we were, we failed to lock-in the exact coordinates of our starting point.

As such, in 2004, FPO conceived the idea of doing a customer survey. The goal of the survey would be to benchmark where we are with quality at this given point in time, assess whether it is an improvement over where we were in 1994, and also try to benchmark where we are with the services FPO provides as an organization. While not being able to exactly quantify any improvement since 1994, we would at least be able to ascertain if we were moving in the right direction and have a current benchmark to judge future improvements and services.

To aid us in this task we partnered with the American Public Works Association, the County Engineers Association,

American Council of Engineering Companies and the Municipal Engineers Association of Northeast Ohio. These groups provided input into the survey design and aided in surveying their members. Since the Ohio Department of Transportation was a specific governmental entity, rather than an umbrella association, it chose not to be a specific partner. However, ODOT did allow us to independently survey its employees.

In return for their help, we promised the participating associations that we would make public the results of the survey – good or bad. We also promised that we would develop a plan of action to address any consensus concerns or problems that the survey brought to light.

This survey is now complete and the results have been tabulated and, along with FPO’s initiatives to address the consensus concerns, are detailed in the insert enclosed in this magazine. While this survey indicates improvements have been made in HMA quality, we certainly are not satisfied with the level of current customer satisfaction with our product. It is said that the race for quality has no finish line and it appears we still have a long way to go.

This information will be invaluable to FPO as we plan for the future. As such, we would like to sincerely thank those organizations that helped us and all those individuals who took the time to respond to the survey. Be assured it was not a wasted effort.



Flexible Pavements at '05 OTEC

The Ohio Transportation Engineering Conference (OTEC) is the state's largest highway related conference. The 2005 conference drew approximately 2,000 participants from the public sector, construction industry, consulting firms and universities to the Greater Columbus Convention Center.

Flexible Pavements of Ohio (FPO) had a major presence at the 59th annual event. It sponsored two asphalt pavement

technical breakout sessions, "Skid Resistance Methods and Materials" and "Perpetual Pavement Concepts and Design Validation;" presented the National Mix Design Competition award; showcased its "Quality Paving" awards; and exhibited in the trade show along with many of our associate members.

The 2006 OTEC event is scheduled for October 18 & 19.



Cliff Ursich, executive vice president of Flexible Pavements of Ohio, helped open the conference.



The winning National Asphalt Mixture Competition team from Ohio University included Jonathan Kovach, Brett Mann and Yun Liao (not pictured) and faculty advisor Dr. Sang-Soo Kim.



Fred Frecker, FPO executive director, presented the National Asphalt Mixture Competition trophy to the team from Ohio University.



Akron University's Dr. Robert Liang spoke at the Asphalt Pavements session on "Skid Resistance Methods and Materials" along with ODOT's Jim Marszal and Aric Morse.



FPO's Quality Paving Award winning projects were featured at OTEC's "Wall of Recognition."



FPO exhibited in the OTEC Trade show with the assistance of (center) Jorge Villacres, PE, consultant and retired Asphalt Institute district engineer.



Dr. Steve Muench, of the University of Washington, and Dr. Shad Sargand, of Ohio University, made presentations at the "Perpetual Pavement-Concepts and Design Validation" session. FPO's Jerry Wray (right) also moderated one of the Asphalt Pavement sessions.

Upcoming Professional Development Opportunities

We've recently completed the **Ohio Asphalt Paving Conference** and the first rounds of the training for the Field Quality Control Supervisors, but it's not too late to register for additional professional development opportunities:

- **February 28** – SEM Materials is providing a workshop on **Reflective Cracking Relief** at the Quality Inn in Richfield.
- **March 28 & 29** – The **44th Flexible Pavements of Ohio Annual Meeting and Equipment Exhibition** will be held at a new location for the association's convention, the magnificent Hilton Columbus hotel at Easton (pictured below) in Columbus.



- **April 4** – An additional round of the **Field Quality Control Supervisor** training is scheduled in Columbus.

See details and register at www.flexiblepavements.org for these conferences and other educational events for the asphalt pavement community.





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What Does Hurricane Katrina Mean to Your Company?



BY DONALD W. GREGORY, ESQ.
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Beyond the obvious tragic personal and financial impacts associated with the unprecedented disaster of Hurricane Katrina on the Gulf Coast, there may well be a “ripple effect” on the Ohio construction industry that should be anticipated by local contractors, subcontractors and suppliers.

Many remember the impact of escalating steel and other material prices over the last few years. Contractors experiencing unanticipated dramatic price increases often found no relief as the doctrine of “impracticability” required satisfying a tough to prove standard that the material was unavailable AT ANY PRICE.

With damage to certain manufacturing and shipping facilities, and labor and materials expected to flow to the Gulf in unprecedented numbers (and the possibility of an Executive Order directing that) to assist in the reconstruction, material price increases or shortages may occur. Wise contractors may want to consider inserting price escalation clauses in bid proposals and contracts.

An example of a price escalation clause is as follows:

In the event of significant delay or price increase of material occurring during the performance of the contract through no fault of the contractor, the contract sum, time of performance, or contract requirements shall be equitably adjusted by change order in accordance with the contract. A change in price of an item of material shall be considered significant when the price of an item increases (blank) percent between the date of this contract and the date of installation.

Only if a contractor reserves the right to seek an equitable adjustment of the contract sum in the event of unanticipated or excessive price increases will a contractor preserve the ability to avoid assuming a disastrous loss. Now is the time for preventive action before it is too late.



Analysis Looks at Cost-Effectiveness of Preventive Maintenance Treatments

An interim report analyzing Ohio Department of Transportation (ODOT) preventive maintenance projects shows that when compared to other preventive maintenance (PM) materials, hot mix asphalt (HMA) surfacings in all cases provide the highest benefit for their associated cost. As for life-cycle cost, PM using chip seals on low- and medium-volume pavements were cheapest. In the majority of cases evaluated, however, an HMA surface (either thin overlay or not treating the existing asphalt pavement at all) provided the least-cost strategy. In only one of the 12 scenarios evaluated did PM strategies using microsurfacing have the lowest life-cycle cost.

The report, "Preventive Maintenance Process Analysis," was prepared for ODOT by Applied Research Associates, Inc. The December 2005 interim report is part of a three-year study required by Ohio House Bill 68, the Department of Transportation's budget bill. Included in the scope of the study is an evaluation of the cost-effectiveness of various PM treatments. The study results are preliminary and may change with refinements in the 2005 and 2006 updates.

PM Defined

For the scope of the study, PM includes only work performed on a structurally sound pavement, generally in the form of a surface treatment, intended to preserve the pavement, retard future deterioration and maintain the functional condition without substantially increasing the pavement's load-carrying capability. The ultimate goal of PM is to extend pavement life and enhance highway system performance in a cost-efficient way. Critical elements to a successful PM program have been defined as applying the right treatment at the right time for the given road condition.

Basis for Evaluating Treatments

PM treatments for asphalt, composite (asphalt over concrete) and concrete pavements were considered in the study. However, a lack of data on concrete pavement preventive maintenance methods prohibited its analysis. Treatments evaluated for asphalt and composite pavements included chip seals, microsurfacing, Smoothseal™ Type B, NovaChip®, thin (less than 2") HMA overlays with repairs, and thin HMA overlays without repairs. Smoothseal™ Type B was also dropped from the analysis due to a lack of data.

Cost-effectiveness served as the basis of the comparison of the treatments and it was determined both by evaluating life-cycle cost and benefit attained for the cost outlay (i.e. Benefit-Cost ratio). For purposes of the study, life-cycle cost represents the total cost of maintaining a pavement over a 35-year period. Treatments resulting in low-life-cycle costs are typically preferred since their use means less outlay of dollars over time. Benefit-Cost (B/C) is determined by assessing the improvement to pavement condition resulting from the treatments applied over a pavement's life and dividing by the cost of the treatments. B/C is a measure of value; the higher the B/C ratio the greater the value of a treatment.

Pavement condition must be known to determine the "Benefit" of a treatment. Pavement condition is a measure of the distress a pavement is exhibiting and is measured in terms of Pavement Condition Rating (PCR). A pavement in like-new condition will have a high PCR. As the pavement condition deteriorates the PCR rating declines. A treatment that maintains a high pavement condition over an extended period of time will have a higher value (B/C) than a treatment having similar cost but deteriorates more quickly.

Comparing the cost-effectiveness of the PM treatments to each other and to a "do-nothing" scenario enabled the determination of those traffic and pavement conditions where using PM makes the best sense. This was a major goal of the study. The do-nothing scenario sought to model how a pavement is typically maintained. It assumed no use of PM treatments but rather, 3 to 4-inch thick overlays occurring at 9 to 11^{1/2}-year intervals. Thickness and timing of the overlays depended upon traffic amount and the road's priority classification. The appropriateness of the scenario has been questioned because of its apparent excessiveness and that it makes no differentiation between the performance of asphalt and composite pavement types. The researcher will be giving this further consideration in the next interim report, which is being issued in December 2006.

Evaluation of the PM treatment performance was made in consideration of four factors expected to have an effect on treatment performance:

The first factor considered was the pavement type (i.e.

(continued on page 10)

deep-strength asphalt, composite) onto which the treatment was placed. In general, a PM treatment on a deep-strength asphalt pavement will perform better than a treatment placed on composite pavement. This is because reflection cracking and the associated deterioration from such is less likely to occur on a deep-strength asphalt pavement.

A second factor was the treatment's exposure to traffic. That is, was the treatment exposed to low, medium, or high levels of traffic? High levels of traffic will cause a PM treatment to deteriorate more rapidly. Accordingly, pavements experiencing medium and low traffic levels deteriorate to a lesser degree.

The third factor was the condition of the existing pavement, whether it was in fair or good condition. Treatments placed on pavements in good condition will generally have a longer life.

Finally, the priority classification of the pavement served as a factor. Priority classes used in the study were General/Urban and Priority. Typically, priority classification only impacts a treatment's performance in that the thicknesses of pavements having the "Priority" label have been designed using engineering principles. Many pavements in the General or Urban classifications have not been designed but rather simply built up with overlays over their years of existence.

Interim Results

The results from the interim report are shown in Tables 1 and 2. These results will change as future data becomes available. Shaded cells in Table 1 indicate the treatment having the lowest life-cycle cost relative to other treatments. Chip seals placed on low and medium traffic flexible (deep-strength asphalt) pavements in fair to good condition, of the General/Urban priority class have the least life-cycle cost. Thin HMA overlays are least costly for the Priority class where pavements are in fair condition. For pavements in this same class but in good condition, either the "do-nothing" or NovaChip® alternatives are most cost-effective. Microsurfacing has the least life-cycle cost when placed on Fair condition Composite Pavements of the Priority Class experiencing medium traffic levels. For the same pavement type, priority class and condition, NovaChip® is least costly when traffic levels are high. Lastly, good condition composite pavements of the Priority class have the least life-cycle cost when either nothing is done to the pavement or a thin HMA overlay is placed on a repaired pavement.

Table 2 provides a summary of cost-effectiveness as measured by B/C. As in Table 1, shaded cells indicate the best alternative. In all cases an HMA alternative provides the greatest benefit for the cost outlay. In 8 of the 12

(continued on page 18)

Table 1: Summary of Cost-Effectiveness as Measured by Life-Cycle Cost

Pavement Type:	Flexible (deep-strength asphalt)								Composite			
Priority Class:	General/Urban				Priority				Priority			
Condition:	Fair		Good		Fair		Good		Fair		Good	
Traffic Level:	Low	Medium	Low	Medium	Medium	High	Medium	High	Medium	High	Medium	High
Control ("do nothing")	\$24.37	\$25.23	\$24.37	\$25.23	\$24.98	\$27.98	\$24.98	\$27.98	\$24.45	\$29.27	\$24.45	\$29.27
Chip Seal	\$22.40	\$22.94	\$23.20	\$23.78								
Microsurfacing	\$23.37	\$23.91	\$24.51	\$25.10	\$23.84		\$25.40		\$23.55		\$26.04	
NovaChip®	\$23.34	\$23.82	\$24.32	\$24.83	\$23.89	\$25.63	\$25.26	\$27.22	\$23.59	\$26.72	\$25.91	\$27.98
Thin HMA Overlay/ No Repairs	\$23.43	\$23.91	\$24.17	\$24.68	\$24.44	\$26.22	\$25.59	\$27.55	\$24.13	\$27.35	\$26.79	\$28.98
Thin HMA Overlay/ Repairs	\$22.51	\$22.92			\$23.35	\$24.81			\$23.99	\$27.11	\$25.64	\$27.49

Note: Cost computations are based on a 4-percent discount rate.

Table 2: Summary of Cost-Effectiveness as Measured by Benefit Cost

Pavement Type:	Flexible (deep-strength asphalt)								Composite			
Priority Class:	General/Urban				Priority				Priority			
Condition:	Fair		Good		Fair		Good		Fair		Good	
Traffic Level:	Low	Medium	Low	Medium	Medium	High	Medium	High	Medium	High	Medium	High
Control ("do nothing")	\$43.43	\$41.36	\$43.43	\$41.36	\$40.46	\$37.80	\$40.46	\$37.80	\$40.62	\$35.71	\$40.62	\$35.71
Chip Seal	\$47.45	\$44.54	\$45.19	\$41.99								
Microsurfacing	\$45.47	\$42.73	\$43.37	\$40.25	\$45.26		\$42.73		\$45.31		\$40.65	
NovaChip®	\$47.24	\$45.22	\$45.34	\$43.00	\$46.14	\$42.86	\$43.89	\$39.93	\$46.11	\$40.12	\$41.98	\$37.85
Thin HMA Overlay/ No Repairs	\$46.43	\$44.28	\$45.45	\$43.09	\$44.73	\$41.36	\$43.12	\$39.27	\$44.29	\$38.23	\$39.92	\$35.56
Thin HMA Overlay/ Repairs	\$49.41	\$48.07			\$47.32	\$45.11			\$45.64	\$40.07	\$43.68	\$40.38

Customer Survey Response Plan

In 1994, Flexible Pavements of Ohio (then known as Flexible Pavements, Inc.) adopted a long range plan to improve the quality of asphalt pavements constructed in Ohio. The Board of Flexible Pavements of Ohio (FPO) dedicated the association to meeting the challenge by focusing on the needs of customers in order to accomplish the mission. Working with its major customer, the Ohio Department of Transportation (ODOT), it has made many changes since that start. The manner in which asphalt pavement is specified and produced has changed in almost every respect.

In 2004, Flexible Pavements of Ohio realized it needed to assess where it is in order to plot a course for the future. FPO conceived the idea of doing a survey of customers in

order to obtain feedback on its present condition and future needs. FPO sought the assistance of several major Ohio associations in developing and executing a survey of the various asphalt pavement customer constituent groups in Ohio, including municipal and county public works officials, consultants and ODOT.

FPO promised the participating associations and the individuals it would report the survey results along with its plan of action to address concerns identified by the survey.


This, then, is FPO's report to its customers on the results of the Flexible Pavements of Ohio Customer Quality Survey.



Mission Statement

As an association for the development, improvement and advancement of quality asphalt pavement construction, Flexible Pavements of Ohio is dedicated to providing its members with the technical, educational, marketing and legislative support that will best aid them in the production and installation of the highest quality of asphalt pavements. FPO will re-dedicate itself to improving the quality of asphalt pavement construction in Ohio, while acknowledging that achieving high value for the dollar spent is an equal concern of its customers.

For further information about Flexible Pavements of Ohio contact us by phone at (614) 221-5402, (888) 446-8649 (Ohio only) or by e-mailing us at info@flexiblepavements.org



The following are key items FPO will do in response to issues raised in this quality survey.

Specific initiatives within this overall goal will be:

- Provide additional training to the industry to improve the level of workmanship being delivered on asphalt paving projects. As a specific first initiative, FPO is developing a training program in cooperation with ODOT to implement ODOT's Field Quality Control Supervisor (FQCS) specification.
- Strive to educate local government customers on ways to improve their specifications and quality assurance to realize the most cost-effective performance of their pavements. FPO will develop a model specification and standard, based on ODOT specifications, for use by local government that will aid them in implementing the advancements in asphalt pavement technology in a practical and economical way.
- Research and strive to implement technologies which will reduce the cost of pavement construction without compromising performance. Technologies to be investigated may include perpetual pavement design, increased recycling of reclaimed asphalt pavement, warm mix production and modified asphalt binders.
- Use all of its existing conduits of communication – *Ohio Asphalt* magazine, the flexiblepavements.org website, *Ohio Hot-Mix Asphalt Current News* e-mail newsletter, our conferences and seminars – to educate customers and members on the most cost-effective use of asphalt pavement.

SUMMARY CONCLUSIONS

from HMA Customer Surveys

As regards to product, the opinions concerning the performance of HMA on new and reconstruction pavement vary over a remarkably small range. The widest disparity in appraisals was between ODOT (highest) and CEAO (lowest). All respondents believe HMA has improved over the last five years, but ODOT's response indicates a higher level of improvement than local agencies.

ODOT uses high-stability mixes and polymer modified asphalt to resist rutting and improve durability. Local agencies are much less inclined to do so, although all respondents reported rutting resistance has improved. Pavement choice for new construction and preventive maintenance response reflects the current market, with 95% preferring a new asphalt pavement and 70% an asphalt overlay.

As might be expected, the resurfacing performance rates are somewhat lower, possibly as a result of deteriorated existing conditions and less than adequate treatments. The most frequently cited concerns about pavement performance are workmanship and cost.

Where they have been used, Superpave and Smoothseal have both achieved customer satisfaction. The products are generally more used, and are rated higher, by ODOT than by local agencies. Where they were critiqued, respondents wanted Superpave to have higher AC content, finer gradation and be smoother. Some would like to see a thin lift surface. There is some concern about skid resistance.

Warranties and incentive pavements generally received good marks from ODOT. 100% of ODOT personnel are using the ODOT manual and website for pavement treatment guidance. Several agencies acknowledged a need to improve their designs, specifications, and quality assurance. Quality of aggregates was mentioned as a concern. The need for specifications intended specifically for local governments was noted.

Finally, how are we doing as an organization? FPO conferences received 89% approval. The OCAPE certification program is neither widely known nor used: 55%. *Ohio Asphalt* received a rating of 7.99/10. www.flexiblepavements.org was rated 7.39/10. 62% of respondents receive the e-mail newsletter; 97% of these say it is useful. And most who responded to the survey want more education, training and information sharing.

PREVENTIVE MAINTENANCE

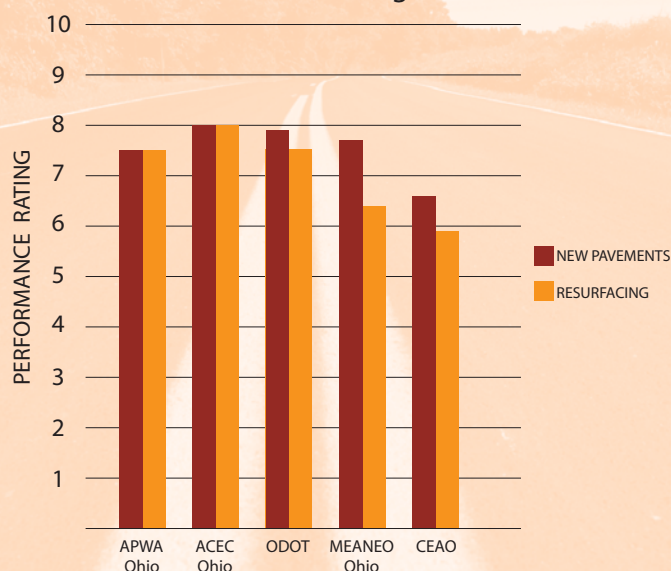
American Public Works Association (APWA Ohio)

70% of respondents said a thin asphalt overlay was their first choice because of its low cost, strength, performance, and ease of construction. Principal reasons for not using an asphalt overlay were cost and curb reveal concerns. Alternative products employed include slurry seal, micro-surface, crack seal, rejuvenator, or chip seal.

American Council of Engineering Companies (ACEC Ohio)

None of the respondents identified a thin asphalt overlay as first choice. One said it used Reclamite.

New Pavements & Resurfacing Performance



Despite overall customer satisfaction when using asphalt for new pavements and resurfacing, deteriorated conditions and less than adequate treatments of existing surfaces may have reduced satisfaction among respondents on resurfacing projects.

Ohio Department of Transportation (ODOT)

88% of respondents said a thin asphalt overlay was their first choice. Reasons most frequently mentioned for using asphalt overlay were low cost and performance. Those not using an asphalt overlay identified cost and the need to match the treatment to existing distresses as their principle reasons. Alternative products used include slurry seal, micro-surface, crack seal, novachip, or chip seal.

Municipal Engineers Association of Northeast Ohio (MEANEO)

None of the respondents identified a thin asphalt overlay as their first choice. Alternative products of choice include crack and chip seal for cost and expedience. None said they had tried Smoothseal.

County Engineers Association of Ohio (CEAO)

75% of respondents said a thin asphalt overlay was their first choice. Low cost, appearance, and the need to treat as many roads as possible were the reasons most often cited for using asphalt overlay. Principle reasons for not using an asphalt overlay were that roads needed more than a thin overlay to build strength. Some agencies said they use micro-surface or chip seal because of shoulder build-up concerns.

PAVEMENT OF CHOICE

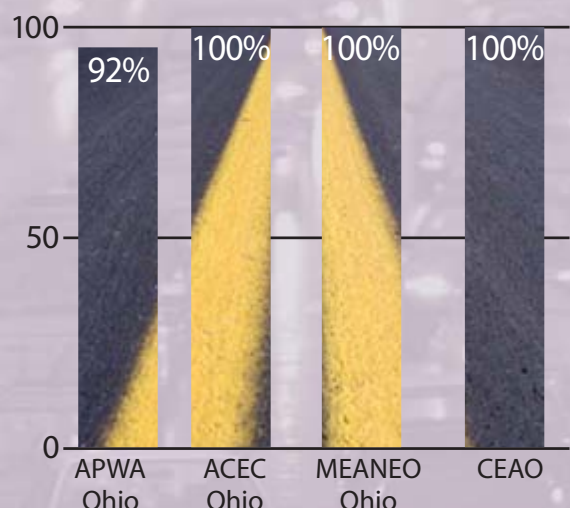
APWA Ohio

92% of the respondents indicated that asphalt was their first choice for new pavement; reasons given were cost, ease of maintenance, constructability, smoothness, durability, structural capacity, and traffic impact. Those not choosing asphalt indicated they do consider it, together with concrete.

ACEC Ohio

100% of the respondents indicated that asphalt was their first choice for a new pavement depending on traffic and the application.

Asphalt: Pavement of Choice



Cost, ease of constructability, smoothness and maintenance are just some of the overriding characteristics making asphalt the pavement of choice for FPO customers.

MEANEO

100% of the respondents indicated that asphalt was their first choice for a new pavement because of cost, performance, and ease of maintenance.

CEAO

Again, 100% of respondents indicated that asphalt was their first choice for a new pavement, citing cost, ease of maintenance, constructability, smoothness and traffic impact. One agency did say they use concrete for areas with heavy truck traffic and for intersections.

RUTTING RESISTANCE AND DURABILITY

APWA Ohio

62% of respondents said they have used high-stability mixes to prevent rutting. 69% said they have used polymer modified asphalt to improve rutting resistance and durability of their pavements. Overall, rutting resistance is slightly improved (+0.4 average on a scale of -2 to +2).

ACEC Ohio

25% of respondents said they have used high-stability mixes to prevent rutting, while 75% said they have used polymer modified asphalt to improve durability. Here, again, rutting resistance is slightly improved (+0.8 average on a scale of -2 to +2).

ODOT

93% of respondents said they have used high-stability mixes to prevent rutting, while 94% said they have used polymer modified asphalt to achieve longer life of their pavements. Once more, rutting resistance is slightly improved (+0.4 average on a scale of -2 to +2).

MEANEO

None of the respondents reported using high-stability mixes to prevent rutting or polymer modified asphalt to improve rutting resistance

and durability of their pavements. Nevertheless, rutting resistance of pavements is reported improved (+1.0 average on a scale of -2 to +2).

CEAO

33% of respondents have used high-stability mixes to prevent rutting. An identical percent said they have used polymer modified asphalt to improve the pavement's rutting resistance and durability. Overall, rutting resistance is about the same (+0.2 average on a scale of -2 to +2). Several respondents said this is not an important concern to them.

ODOT Warranty Pavements

ODOT (responding to questions relating to Warranty Pavement Performance)

100% of respondents indicated they have used warranty pavement with an Average Performance Rating of 8.0 out of 10. Users had concerns about the quality and workmanship of bases placed under warranty specifications. 93% said the incentive specification is successful in improving pavement quality. 100% said the improvement is worth the cost, improves quality, and have used warranty pavement for smoothness.

Agency Challenges in Improving the Quality of its Pavements

APWA Ohio

Respondents agreed that a lack of adequate financial resources is the biggest challenge, along with increasing traffic and the need for better quality control and workmanship. Among other challenges are weak and outdated pavement structures. Several APWA respondents indicated a need to improve their specifications and quality assurance procedures, while some think that more competition among contractors is needed.

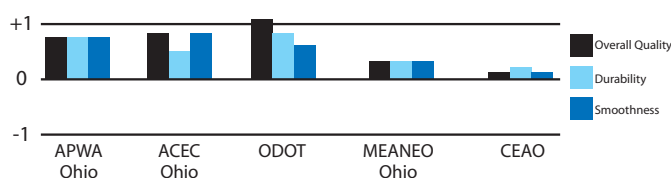
ACEC Ohio

Respondents had concerns about the consistency of contractor quality and workmanship and would like to see better training of workers.

ODOT

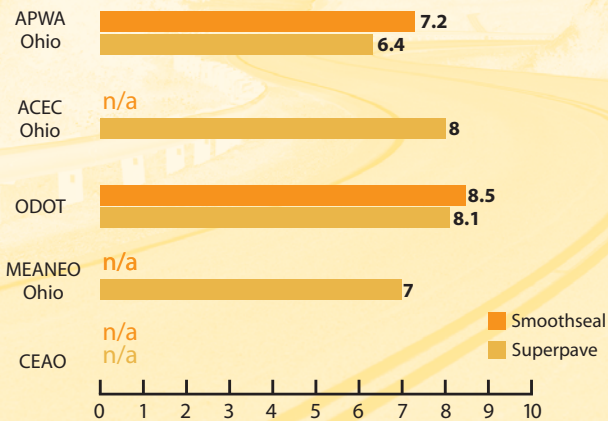
The common challenge, according to respondents, is improper workmanship, along with cost and inadequate design. Respondents would like to see more training of workers and inspectors. Other needs include thicker lifts, eliminating poor aggregates, improving warranty and specifications, and looking into a means of providing

Asphalt Product Improvements



Across the board, HMA customers report that rutting resistance, durability, smoothness and overall quality has improved over the last five years.

Smoothseal & Superpave



Survey respondents have an overall customer satisfaction with Smoothseal and Superpave, where they have been used.

higher skid numbers. 100% of respondents said they followed the ODOT Pavement Manual and used the ODOT website to obtain specification and procedures information.

MEANEO

Respondents say a lack of adequate financial resources is the most common challenge. Some respondents would like to increase their asphalt contents, lift thicknesses, specify higher quality aggregates and improve their maintenance programs.

CEAO

Once again, lack of adequate financial resources was cited as the biggest challenge for respondents, together with increasing traffic and the need for better quality control and workmanship. A need to improve specifications and quality assurance procedures were also identified. Some said specifications written especially for local governments are also needed, while others believe more competition among contractors is needed. Some still want to use “404” specifications.

FPO Customer Service: “What Can FPO Do to Help?”

APWA Ohio

93% of respondents said existing FPO conferences and seminars meet their needs for technical information, education and training. Only 46% were aware of the OCAPE, Hot-Mix Asphalt Technician Certification Program. Response to *Ohio Asphalt* magazine was good, receiving an average rating of 7.8 out of 10, while the FPO website received an identical rating (7.8 out of 10) – most respondents, however, indicated they had never visited the site. 55% of respondents said they currently receive the FPO e-mail newsletter and 92% of those said it was useful. Suggestions for improvement include more and better education, training and communication. One suggestion called for FPO to develop sample specifications geared specifically for local government and continuation of the “causes and cures” series.

ACEC Ohio

The existing FPO conferences and seminars meet the needs for technical information, education and training for 67% of respondents.

Only 50% were aware of the OCAPE, Hot-Mix Asphalt Technician Certification Program. Response to *Ohio Asphalt* magazine was good, receiving an average rating of 8 out of 10. However, the FPO website only received a rating of 5 out of 10. 100% of respondents currently receive the FPO e-mail newsletter.

ODOT

87% of respondents said existing FPO conferences and seminars meet their needs for technical information, education and training. 75% were aware of the OCAPE, Hot-Mix Asphalt Technician Certification Program, and 88% of those felt it met their needs for training. Response to *Ohio Asphalt* magazine was good, with an average rating of 8.1 out of 10. The FPO website received a rating of 7.3 out of 10. 69% of respondents said they receive the FPO e-mail newsletter and 78% said it was useful. Most suggestions for improvement include more and better education, training and communication.

MEANEO

Existing FPO conferences and seminars meet their needs for technical information, education and training for 67% of respondents, adding that they would like to see more programs and publications. Only 33% were aware of the OCAPE, Hot-Mix Asphalt Technician Certification Program. Response to *Ohio Asphalt* magazine was fair, with an average rating of 6 out of 10. However, the FPO website did better with a rating of 7.3 out of 10. 67% of respondents said they receive the FPO e-mail newsletter and 50% of those said it was useful.

CEAO

100% of respondents said existing FPO conferences and seminars meet their needs for technical information, education and training. 58% were aware of the OCAPE, Hot-Mix Asphalt Technician Certification Program. Response to *Ohio Asphalt* magazine was fair, with an average rating of 7.3 out of 10, while the FPO website received a rating of 7.0 out of 10. Several respondents indicated they had never visited the website. 60% of respondents receive the FPO e-mail newsletter and all of those said it was useful. Most suggestions for improvement include more and better education, training and communication, including training for government employed operators. A suggestion was made that FPO develop sample specifications specifically for county governments. Mixes for lower-volume roads with higher-binder contents was also suggested. Others want more articles in *Ohio Asphalt* of interest to county governments.

Participants/Opinions

Flexible Pavements of Ohio would like to thank the members, associates and personnel from the American Public Works Association (APWA), American Council of Engineering Companies (ACEC), Ohio Department of Transportation (ODOT), Municipal Engineers Association of Northeast Ohio (MEANEO) and County Engineers Association of Ohio (CEAO) for their participation and input in the “Customer Survey Response Plan.”

Opinions expressed in this survey are of the individual participants, and do not necessarily represent the opinions of the associations, organizations and departments as a whole.

Laying Rubber & Asphalt in Toledo

In Toledo what goes around comes around, especially when you're talking about rubber tires.

Last October, Lucas County had the northern portion of King Road coated with an asphalt blend containing ground tire rubber (GTR). Along with the Lucas County Engineer's Office, other FPO members involved in the eight-tenths-of-a-mile demonstration project were Gerken Paving, of Napoleon, and Seneca Petroleum Company, of Crestwood, Ill.

While blending tire rubber into the asphalt binder increased the price of the project by 11 percent, the Lucas County Engineer's Department wanted to experiment with the ground tire additive. "We decided to do it, to give it a try and see if it is better, like (the manufacturer) claims," said Lucas County Engineer Keith Early in a *Toledo Blade* article. "We will look at it over the winter then decide if we want to pursue a grant."

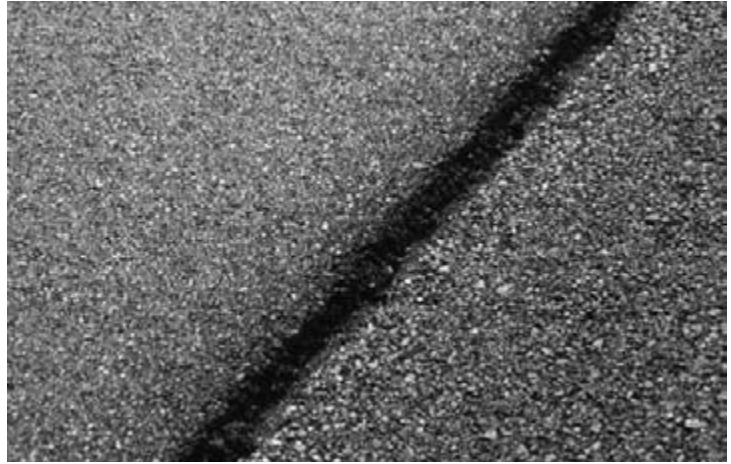
Typically for its surfaces, Lucas County uses high-performance asphalt modified with polymers.

The performance of GTR as an asphalt additive is marketed like other forms of polymer modifications, which includes more durable pavements that resist deformation and cracking. It's also believed GTR reduces noise caused by vehicle tires. Maintenance departments are watching to see if the GTR additive keeps the asphalt blacker longer, which keeps the pavement warmer and may reduce the amount of road salt needed in the winter. The equivalence of 2,000 ground up tires were included in the more than 1,000 tons of asphalt used on the King Road project.

"It's definitely a different material, although people driving over it won't know the difference," Early said.

The demo project involved a one-inch Smoothseal (ODOT Item 424, fine-graded polymer asphalt concrete) application over a 1/2-inch conventional leveling course (ODOT 441, Type 1). Gerken Paving, which has much experience in producing and placing Smoothseal, used an aggregate blend of #8, #9 and #10 and natural sand to make the strict gradation that is required for Smoothseal, Type B.

For the King Road Project, Seneca Petroleum was chosen because it produces an asphalt binder that is modified with reclaimed tire rubber. The Seneca Petroleum binder



Lucas County is testing the use of ground tire rubber (GTR) in asphalt binder on a section of Toledo's King Road.

(PG76-22 GTR) is produced by modifying the base asphalt with ground tire rubber and Vestenamer reactive polymer supplied by Modified Asphalt Solutions of Macon, Mo.

Like most solid waste management districts, Lucas County and the city of Toledo are trying to come up with alternatives to its tire disposal. In 2004, it cost \$76,600 to dispose of 41,500 tires in Lucas County. Because GTR can be used as asphalt binder similar to what is found in polymer modified asphalt (ODOT PG76-22M specification or PG64-22 binder with the addition of 5 percent Styrene Butadiene Rubber (SBR) polymer) needed in the application of Smoothseal, a landfill alternative may have been found.

"Right now, tires are used in landfills and sometimes as mulch, or ground up for playgrounds," said Jim Walters, manager of the Lucas County Solid Waste Management District. "But if you look at it overall, how much of those tires are really getting used. There's a little more cost incurred (with this asphalt). But if it does what it says, it's worth the investment."

For further information on Seneca Petroleum's GTR binder, contact Hugh Chapman at (708) 878-9074, or for more information on Smoothseal, contact Flexible Pavements of Ohio at (888) 446-8649.

SemMaterials: New Kids on the Asphalt Block

BY COLLEEN STOKER

In June 2005, SemMaterials, L.P. officially moved into the asphalt industry with the acquisition of Koch Materials Company. SemMaterials is a subsidiary of SemGroup, L.P., a midstream service company in the energy industry that provides diversified services for crude oil, natural gas, refined products – and now asphalt – consumers.

SemMaterials, an FPO member based in Tulsa, Okla., features 63 asphalt terminals (50 in the U.S. and 13 in Mexico), one new asphalt terminal under construction in Kansas, 6.7-million barrels of storage, 300-plus finished products, five state-of-the-art laboratories, and numerous worldwide patents.

“When you look at the capabilities of SemGroup as an overall company, we are providing services around what comes into a refinery and what goes out of a refinery. One of the logical things would be asphalt,” said Brian Majeska, vice president of Technical for SemMaterials. Majeska said the company was attracted to the acquisition because of the product development and innovation potential they saw in the asphalt industry.

The company’s future goals are to increase product development and innovation, as well as continue to grow the business. “This business was bought completely on the basis that the asphalt industry was a vibrant area that could really grow,” Majeska said. He explained that SemGroup



Asphalt trucks are loaded at SemMaterials’ Dodge City facility in Kansas.



A contractor applies NovaChip, an ultra-thin bonded wearing course product offered by SemMaterials.

is in the process of building a 140,000 square-foot corporate headquarters for SemMaterials, which will house a state-of-the-art research and development facility and will be staffed with 35 to 50 scientists and technicians to work on innovation of products and technologies for the asphalt industry. “I think you’re going to see us really grow through acquisitions, more capital expenditures into facilities and product development and innovation,” Majeska said. “Product development and innovation will be key and exciting areas for our future.”

Majeska believes SemMaterials’ product development and innovation sets it apart from other asphalt producers. He added that the company likes to partner with the contractor as well. “What you’re going to see with us is that we’re going to try and do product development with more of a partnering mentality, and we’re going to try and figure out how to work in cooperation with others and with our customers.

“... Typically we are looking at the contractors as our key customer, and when we talk within our organization, we talk about the contractor as our partner. We understand that working with a contractor contributes to success in an agency.”

SemMaterials is the nation’s largest manufacturer of emulsions and polymer modified asphalt. Though the company does not currently have any facilities in Ohio,

(continued on page 17)

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TTL Associates, Inc.: On the Cutting EDGE

BY JENNIFER MANKARIOUS

Found and operated by professional engineers and one of the few companies of its kind to provide in-house training to its engineering technicians, TTL Associates, Inc. is making a name for itself in a unique way – and in a relatively short time.

Nov. 1, 2003 marked the emergence of TTL, a collaboration of the Environmental and Testing Services Divisions of Toledo Testing Laboratory (TolTest). Unique to other firms, TTL was founded and is run by professional engineers, all of whom were former TolTest managers. A multi-disciplined firm led by President/CEO Thomas R. Uhler, P.E., TTL provides services that include geotechnical engineering, environmental site assessments, Phase's 1 and 2 site assessments, asbestos/lead surveys, industrial hygiene consulting, materials testing and drilling.

According to TTL Vice President Curtis Roupe, P.E., one of the five company founders, getting back to basics and traditional services were what the FPO-member company wanted to focus on when it was formed 27 months ago. Headquartered in Toledo, TTL concentrated on its core businesses closer to home by working throughout Ohio/Michigan, as well as the Midwest.

Two years in existence, the 100-employee company is expanding geographically. TTL can now be found working

in Baltimore, Chicago, post-Hurricane Katrina New Orleans, where it is helping to rebuild the city through its environmental services, as well as California and Maryland. TTL has provided environmental, drilling, engineering, testing, and inspection services to governmental, commercial and industrial clients that have included NASA, the U.S. Army Corps of Engineers and Fortune 500 companies.

"We built on our strengths as a solid engineering company," said TTL Business Development Manager Timothy G. Pedro. "Using that solid foundation, we've been able to branch out geographically while still performing traditional services, such as geotechnical, environmental and materials testing, as well as drilling."

Among its services TTL conducts construction quality-control testing, which includes asphalt. Accredited by both the American Association of State Highway and Transportation Officials (AASHTO) and AASHTO Materials Reference Laboratory (AMRL), the company has Level 1 and Level 2 Ohio Department of Transportation (ODOT) inspectors. TTL runs the gamut of asphalt testing, doing performance-grade binder testing; marshall mix design and density; superpave mix design; extraction/gradation/hot bin analysis; specific gravity of compacted mix; and in-house lab asphalt cement testing is performed for viscosity, penetration and multi-grade cements, emulsions, and cutbacks.

TTL also prides itself in having well-qualified associates working with its clients. "We are one of the few firms that we know of, if not the only one, that takes engineering techs and trains them in-house," Pedro said.

"Winter is when we evaluate our company, and that's when we hold training," Roupe added. "Prior to being hired, we train our technicians in an eight- to 10-week, Saturday program held in the materials testing labs at the University of Toledo."

However, new technicians aren't the only ones continuing their industry education. With 90 percent of its business coming from repeat



TTL Associates Inc. is a collaboration of the Environmental and Testing Services Divisions of Toledo Testing Laboratory.



Just one of the services TTL provides is materials testing.

clients, TTL goes straight to the source for feedback. "We often sit down with repeat customers to gain a better understanding of the various projects we work on in order to gain as much knowledge about the industry as possible," Pedro said.

One of its achievements came in January 2005, when the Equal Employment Opportunity Division of the Ohio Department of Administrative Services awarded a letter of certification to TTL as a participant in Ohio's Encouraging Diversity, Growth and Equity (EDGE) program. "We're pleased that we have been recognized by Gov. Taft," Pedro added. "As one of the few firms of its kind in the region with this certification, we can help clients meet EDGE qualifications."

TTL is providing quality-assurance testing for ODOT on the Interstate 280 Maumee River Crossing project, the most-expensive single project undertaken by the state's transportation department.

TTL's future goals are continued growth – both geographically and in its client base – at a controlled rate. According to Roupe, the company wants to stay focused on services in which it excels, as well as sticking to its core values of focusing on quality, commitment and continuous improvement.

"We want people and potential clients to think of quality and integrity (when they hear of TTL)," Roupe said. "We want to be a trusted and preferred partner in the customer process. At TTL, we believe that we not only perform the test, but help clients overcome obstacles helping to achieve a successful pavement project outcome."



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The Diamond Achievement Commendation

More and more Ohio producers are achieving the **Diamond Achievement Commendation for Excellence in Hot Mix Asphalt Plant/Site Operations** awarded by the National Asphalt Pavement Association (NAPA). NAPA developed the Diamond Achievement Commendation to encourage excellent practices including fostering good community relations.

Five Flexible Pavements of Ohio-member producers and 24 of their plants received the Diamond Achievement Commendation for 2005:

Barrett Paving Materials, Inc.

- Carthage # 1051
- Cleves # 1001
- Fairborn Plant # 1531
- Fairfield # 1121
- Mason # 1031
- Moraine Plant # 141
- Newtown Plant
- Reading # 1111
- Sidney Plant # 111

Kokosing Materials, Inc.

- Fredericktown Plant
- Mansfield Plant

Shelly & Sands, Inc.

- Mar-Zane Plant # 2, Marietta
- Mar-Zane Plant # 13, Byesville
- Mar-Zane Plant # 21, Mansfield
- Mar-Zane Plant # 29, Morristown



Shelly and Sands, Mar-Zane Plant #13, Byesville



Shelly Materials, Reynoldsburg Plant

The Shelly Company

- Allied Downtown Cleveland Plant # 76
- Reynoldsburg Plant

Valley Asphalt Corporation

- Plant 6, Dayton
- Plant 9, Cincinnati
- Plant 14, Newton
- Plant 17, Cleves
- Plant 19, Cincinnati
- Plant 23, Cincinnati
- Plant 25, Troy

The "Diamond Achievement Commendation" is earned through a self-assessment process, which addresses six aspects of plant and site operations: appearance, operations, environmental practices, safety, permitting and compliance, and community relations. Qualification for this commendation is representative of a plant/site's attention to excellence and quality in all aspects of the facility's operations.



(SemMaterials continued from page 12)

it serves the state's market through plants in Indiana, Pennsylvania and other partners. "SemMaterials has anywhere from three-quarters of a million to 2-million square yards of product in Ohio in a given year, and we're hoping to grow that with further investments," Majeska said.

"The state of Ohio seems to be working hard on the preservation perspective by cooperating with others and considering new ideas," he added. "SemMaterials is looking for growth opportunities in Ohio. We believe that Ohio is a great market and an area where we want to participate."

SemMaterials offers asphalt emulsions and polymer modified asphalt for virtually every type of paving need, including surface treatments, cold mixes, tack coats and

recycling. They also sell pavement maintenance materials as well as chip seals, crack fillers and patch mixes. Some of SemMaterials' brands include:

Recycle Plus, recycled asphalt pavement

Flex-A-Fill, crack sealant

RoadArmor, high-performance chip seal

Ralumac, micro-surfacing

Stylink, polymer modified asphalt

ReFlex, emulsion cold in-place recycling

Strata, reflective crack relief system

NovaChip, ultra-thin bonded wearing course

Encore, hot in-place recycling

Fortress, full-depth reclamation granular base stabilization



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(Preventive Maintenance continued from page 10)

analyses a traditional HMA overlay provided the greatest benefit for the cost, while 4 of the 12 analyses found NovaChip®, a proprietary HMA product, to be cost-effective as well.

Chart 1: Cost-Effectiveness as Measured by Life-Cycle Cost – Occurrences Where Treatment is Least Costly

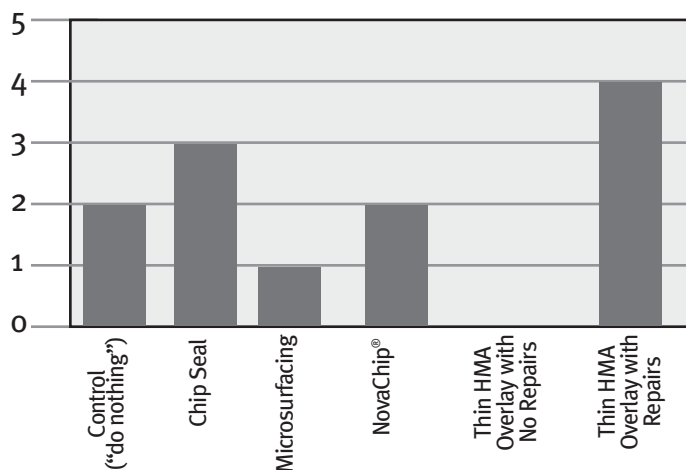
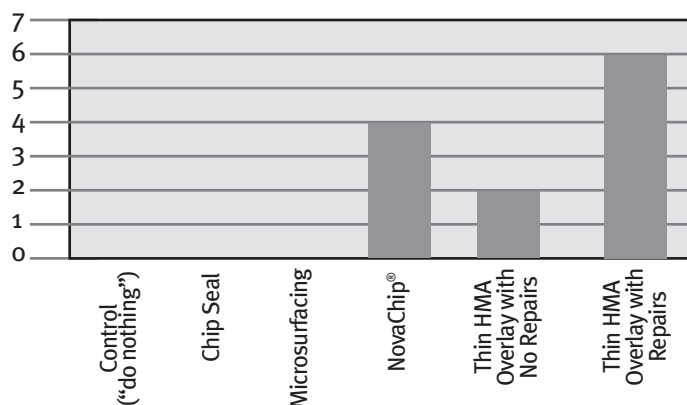


Chart 2: Cost-Effectiveness as Measured by Benefit Cost – Occurrences Where Treatment Provided Greatest Benefit Cost



Charts 1 and 2 allow us to evaluate the number of occurrences a PM treatment provides the lowest overall life-cycle cost, or highest B/C. Chart 1 indicates that of all the scenarios evaluated, the PM treatment proving to have the lowest life-cycle cost the majority of the time was a Thin HMA overlay that included pavement repairs. Similar to this result, Chart 2 indicates that a Thin HMA overlay that included repairs provided the greatest B/C.

The PM Process Analysis being conducted for ODOT will continue for two more years. More data will come available in that time that will have an impact on these interim findings. Look to future additions of *Ohio Asphalt* as FPO tracks the cost-effectiveness of PM on Ohio pavements.



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