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OHIO ASPHALT

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- 6 THE PRESIDENT'S PAGE
- 8 IT'S EXPO TIME!
2020 OHIO ASPHALT EXPO SET FOR MARCH 24 & 25
- 10 FINDING THE RIGHT BALANCE
VIRGINIA'S BALANCED MIX DESIGN PILOT PROGRAM
By David T. Lee, Virginia Asphalt Association
- 14 PAVEMENT PRESERVATION ROUNDUP
- 16 TECHNICAL SEMINAR TOPICS
MIX TYPE SELECTION TO OPTIMIZE PAVEMENT
PERFORMANCE – FOR LOW-VOLUME ROADS
- 18 MARK YOUR CALENDAR/ NEW MEMBER WELCOME
- 21 PAVEMENT PUZZLERS CROSSWORD
- 22 INDEX TO ADVERTISERS

CONNECT ON  

ON THE COVER: FEATURING TWO DAYS OF INFORMATIVE SESSIONS AND THE REGION'S LARGEST COLLECTION OF ASPHALT PAVING EQUIPMENT WILL AGAIN MAKE THIS YEAR'S OHIO ASPHALT EXPO A CAN'T-MISS EVENT. SEE INFORMATION AND A SCHEDULE OF EVENTS ON PAGES 8-9



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THE PRESIDENT'S PAGE



CLIFFORD URSICH, P.E.
PRESIDENT & EXECUTIVE DIRECTOR

“Though revenue from motor-fuel fees are constitutionally protected for maintaining roads, local governments may use these ‘new monies’ to supplant local funds previously directed for these purposes. Anecdotaly, FPO has learned from some locals that their new monies will be plowed into their pavement resurfacing program. Kudos to them – and others who faithfully steward these monies for what they were intended.”

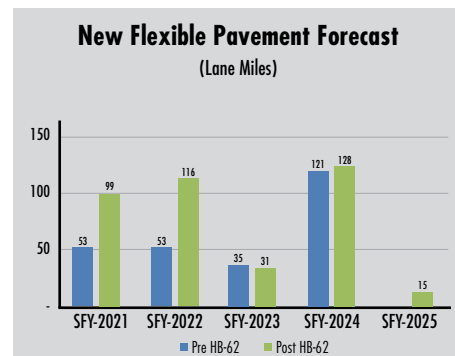
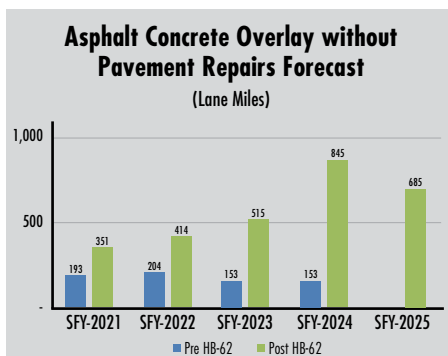
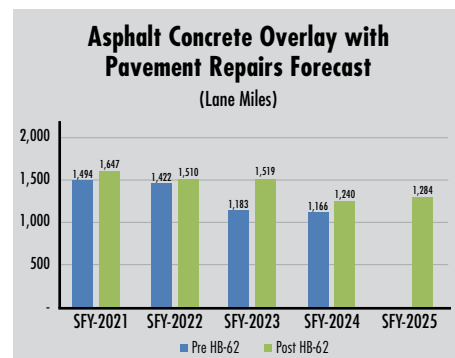
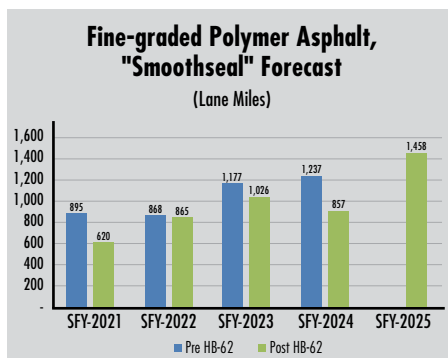
What Difference Did the Motor-Fuel User-Fee Increase Make?

Nearly a year ago the Ohio Legislature voted to increase Ohio’s motor-fuel user-fee. Ohio’s roads and bridges were facing the dire consequences of deferred maintenance – a situation that exacerbates failing pavement conditions and increases repair costs. With an approximate three-quarters-of-a-billion-dollar funding shortfall for ODOT projects in view, Gov. DeWine advocated for a motor-fuel user-fee increase and indexing to ensure Ohio never experiences a future shortfall.

FOR OHIO (Fix Our Roads OHIO), a broad coalition consisting of public and private entities, was the “boots on the ground” educating lawmakers on the need. To his credit, Gov. DeWine doggedly pursued passage of this legislation. The vehicle was House Bill 62 (HB 62) and the outcome was

a split user-fee increase of 10.5¢ per-gallon for gasoline, and 19¢ per-gallon for diesel. Although indexing failed to attain approval by legislators, for the first time a user-fee was assessed on alternative-fueled vehicles. A split of another sort was included in HB 62. Traditionally, the revenue from motor user-fees was split 60%/40% between ODOT and local governments. However, local governments had a big win for their effectiveness in communicating the sizable need for road and bridge improvements, so the most-recent increase in the motor-fuel user-fee features an ODOT/Local split of 55%/45%.

The question that rises the highest in the minds of contractors is: How is this going to affect the market? That is a difficult question to answer when considering the local government market.



Though revenue from motor-fuel fees are constitutionally protected for maintaining roads, local governments may use these “new monies” to supplant local funds previously directed for these purposes. Anecdotally, FPO has learned from some locals that their new monies will be plowed into their pavement resurfacing program. Kudos to them – and others who faithfully steward these monies for what they were intended.

The effect of HB 62 on the ODOT program is made predictable by virtue of its asset management system. For sure, the ODOT districts’ work plans for the next five years are going to focus on pavement preservation. In general, HB 62 is making possible an expansion of various preservation treatment types. Note!: ODOT work plans are updated on an annual basis; what is shown in the out-years is less certain.

Early indications are that asphalt concrete treatments should fare pretty well from the passage of HB 62. The charts speak for themselves.

Asphalt Tonnage Forecast

Using ODOT project scopes, tonnage can be estimated for the lane miles of the various asphalt treatments. Running those calculations indicates the downward slide of ODOT contracts is arrested. Previous ODOT work plans predicted a retreat on the number of tons ODOT would be purchasing in the future. Clearly, this was an indication of the Department going broke and the need for an increase in the motor-fuel user-fee. ODOT has been on the decline since the 2017 state fiscal year. This fiscal year (2020) indicates the low point. A recovery begins in SFY 2021, but it is a modest one.

A Modest Fix

Indeed, HB 62 is a modest fix for what ails Ohio’s transportation funding. Commodity inflation from the mid-2000s had reduced ODOT’s buying power nearly 50%, evaporating the dollars from the 2005 motor-fuel user-fee increase. HB 62 basically brings us back to par. The ODOT work plan forecast (Figure 1) affirms this fact by virtue of the forecasted work plans being largely absent Major New Project construction.

So just in case you were wondering ... that’s the difference the Motor-Fuel User-Fee Increase Makes!

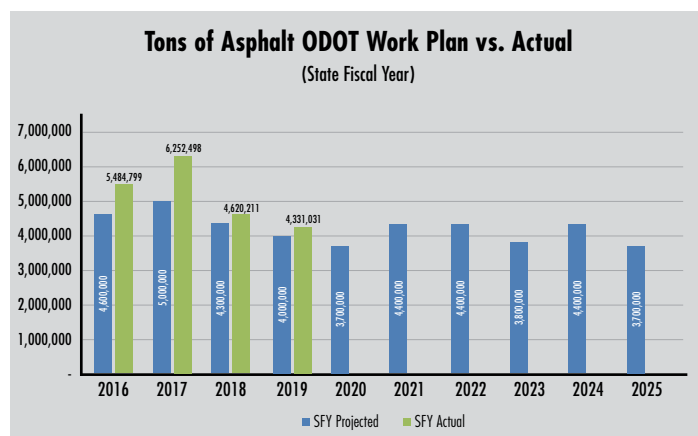


Figure 1

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2020 Ohio Asphalt Expo Schedule At-A-Glance*

Tuesday, March 24

TIME	GEMINI BALLROOM A	GEMINI BALLROOM B	GEMINI BALLROOM C	POLARIS BALLROOM C	POLARIS BALLROOM F
7:30 am	FPO Joint Meeting of the Technical & Field Operations Committees				
8:00 am				EXPOEXCEL	EXPOEXCEL
8:30 am		FPO Member Breakfast & Annual Business Update Jay Hanson, NAPA	Public Agency Forum Cornell R. Robertson, P.E., P.S., Franklin County Engineer, Presiding	Managing Your Plant for Efficiency & Productivity, Part 1 TJ Young, T2ASCO LLC	Quality Audits John Ball, Top Quality Paving & Training
9:00 am					
9:30 am					
10:00 am		Best Practices for Residential & Commercial Paving Brian Hall, LeeBoy Inc.	Milling Strategies for Super Smoothness Tom Chastain, Wirtgen America	Managing Your Plant for Efficiency & Productivity, Part 2 TJ Young, T2ASCO LLC	Are You Ready for Spring Training? John Ball, Top Quality Paving & Training
10:30 am					
11:00 am					
11:30 am					
12:00 pm	<div></div> <div>Dr. James Winford Jr</div> <div>Polaris Ballrooms A, B, C, D, E & F Quality Asphalt Pavement Paving Awards Luncheon Presentation of Quality Asphalt Paving & Master Craftsman Awards and NAPA Chairman Dr. James Winford Jr., Prairie Contractors Inc.</div>				
12:30 pm					
1:00 pm					
1:30 pm					
2:00 pm					
2:30 pm					
3:00 pm			The Use of Thinlays – How it's Done in Texas! Chuck Fuller, Texas Asphalt Pavement Association	Managing Your Plant for Efficiency & Productivity, Part 3 TJ Young, T2ASCO LLC	Selecting the Right Workhorse John Ball, Top Quality Paving & Training
3:30 pm					
4:00 pm					
4:30 pm					
5:00 pm	<div>Polaris Ballrooms B, C, E & F</div> <div>Chairman's Reception & Asphalt Pavers' Celebration!</div> <div>An evening of fellowship & networking with the men and women of Ohio's asphalt industry</div>				
5:30 pm					
6:00 pm					
6:30 pm					

Wednesday, March 25

8:30 am	Laws & Ethics for Professional Engineers & Surveyors Ron Erb, S&ME & Pat Devine, IceMiller	Internal Traffic Control Emmett Russell, Safety Consultants	Ohio Department of Transportation Update Craig Landefeld, P.E., Office of Pavement Engineering Julie Miller, P.E., Office of Construction Administration	 Dr. Richard Vedder, PhD
9:00 am				
9:30 am	Polaris Ballrooms A, B, D & E Scholarship & Individual Awards Breakfast Keynote: Dr. Richard Vedder, PhD, Distinguished Professor of Economics Emeritus, Ohio University			
10:00 am				
10:30 am				
11:00 am				
11:30 am				

*Program and speakers subject to change

SCHEDULE LEGEND:

General Educational Sessions

EXPOEXCEL Education Tracks

FINDING THE RIGHT BALANCE

Balanced Mix Design Pilot Program

David T. Lee, P.E., Vice President of Engineering, Virginia Asphalt Association

Virginia continues to help lead the national effort towards Balanced Mix Design (BMD). As part of Virginia's journey, the Virginia Department of Transportation (VDOT), the Virginia Transportation Research Council (VTRC), and the Virginia Asphalt Association (VAA) embarked on a pilot program in 2019. As a largely voluntary effort, a number of producers/contractors in Virginia stepped up to assist in this significant undertaking. In 2019, Superior Paving Corp, a producer in Gainesville, VA, and Boxley Asphalt, a producer in Lynchburg, VA, were the contractors who agreed to run the initial phase of the pilot.

Virginia's BMD focus has centered around three specific tests: the Ideal CT (ASTM 8225-19) for cracking, Cantabro (AASHTO TP-108) for durability, and Asphalt Pavement Analyzer, or APA (AASHTO T340-10), for rutting. The pilot program is also broken down into multiple elements. These include control mixes which are designed and produced in accordance with VDOT's standard mix design and production requirements; pilot mixes designed and produced in accordance with VDOT's mix design procedures with BMD testing; and pilot mixes that are designed, produced, and tested solely based on BMD optimization.

The initial phase of this pilot focuses on the use of high recycled asphalt pavement (RAP) contents in asphalt mixtures. For purposes of this pilot, high RAP is defined as mixtures containing 40% or greater RAP. These higher RAP contents are typically accomplished in a number of ways. Methods include the use of "rejuvenators" to reactivate the RAP binder (in conjunction with a typical PG64-22 base binder) and the use of softer base binders such as a PG58-22 or PG58-28.

Superior Paving Corp Bull Run Pilot Effort

Superior Paving Corp began the first BMD/high RAP pilot project in June of this year using both of the referenced methods. This effort utilized an SM-9.5A control mix with 30% RAP and PG64-22, a 40% RAP mix with a rejuvenator, a 40% RAP mix with PG58-28, a 40% RAP mix with PG64-22, and a 30% RAP mix with PG58-28. These mixtures were produced at their state of the art Bull Run facility in Chantilly, VA. Aside from the standard asphalt content, gradation, and volumetric testing, all previously referenced specific BMD tests were performed.

Both Superior and VDOT/VTRC are performing the referenced testing. So far, test results are favorable with both Ideal CT, Cantabro, and APA tests passing their preset targets. Superior's initial test results indicate average Ideal CT results ranging from 99.1–183.2 (minimum is 70) and Cantabro results ranging from 3.2–4.4 (maximum is 7.0). Additionally, VDOT/VTRC so far report similar results with Ideal CT tests ranging from 101–136 and Cantabro tests ranging from 3.5–4.2. VTRC is also performing APA rut testing with as-designed results ranging from 4.8mm–5.2mm.

Danny Poole, Superior Paving's Director of Quality Assurance, shows reserved optimism following this initial phase of work, saying, "We are pleased with the initial results from our pilot work at the Bull Run plant. The fact that we are able to meet all of the preset targets with each of the mixes is encouraging."

Superior Paving Corp Powell Lane Pilot Effort

The second phase of Superior Paving Corp's effort moved to their Powell Lane Plant in Fredericksburg, VA. This time they focused primarily on the use of various rejuvenators. This effort utilized an SM-9.5D control mix with 30% RAP, a 40% RAP mix with PG64-22, a 40% RAP with Rejuvenator A, a 40% RAP with Rejuvenator B, and a 40% RAP with Rejuvenator C. All mixes used a PG64-22 liquid asphalt. The mixtures were laboratory prepared and tested with no plant production to date. Aside from the standard asphalt content, gradation, and volumetric testing, all previously referenced specific BMD tests were performed. It is noteworthy that all Ideal-CT tests failed to meet the minimum target of 70. Additionally, all but one of the mixes failed the Cantabro test.

As with the other pilots, both Superior and VDOT/VTRC are performing the referenced

Superior Paving Corp - Bull Run

Mix	Ideal-CT		Cantabro	
	Design	Production	Design	Production
SM-9.5A				
30% RAP Control	60.5	127.6	7.1	4.4
40% RAP w/Rejuvenator	104.6	110.7	4.0	3.4
40% RAP PG58-28	73.5	99.99	4.0	4.1
40% RAP PG64-22	111.0	99.1	5.5	4.6
30% RAP PG58-28	157.4	183.2	3.5	3.2

Boxley - Lynchburg

Mix	Ideal-CT		Cantabro	
	Design	Production	Design	Production
SM-9.5D				
26% RAP Control	N/A	99	N/A	5.1
Rejuvenator 1	N/A	216.8	N/A	5.2
Rejuvenator 2	N/A	156.1	N/A	5

tests. As noted above, test results are not favorable for either the Ideal-CT or the Cantabro. Superior's initial test results indicate average Ideal-CT results ranging from 23.9–55.1 (minimum is 70) and Cantabro results ranging from 5.9–7.8 (maximum is 7.0). The VTRC has not completed all testing as of the writing of this article.

Boxley Asphalt Lynchburg Pilot Effort

Boxley Asphalt joined the BMD pilot effort in July of this year with a primary focus on how the use of rejuvenators would impact their standard mixes. The control mix is an SM-9.5D with 26% RAP. They produced two mixes, both based on the control mix, utilizing two different rejuvenators. Boxley joined the effort after the initial design work of the control mix was completed. Therefore there is no as-designed performance data included.

As with the other pilots, both Boxley and VDOT/VTRC are performing the referenced tests. Thus far, test results are mixed with Ideal CT, and Cantabro tests passing their preset targets on average. Boxley's initial test results indicate average Ideal-CT results ranging from 99.0–216.8 (minimum is 70) and Cantabro results ranging from 5.0–5.2 (maximum

is 7.0). However, there is significant variability in the Ideal-CT data. Sample fabrication and processing seems to be the primary area of concern. The VTRC has not completed all testing as of the writing of this article.

Andre Royal, Boxley's Asphalt Quality Control Manager, indicates enthusiasm for the future, saying, "It's nice to be on the cutting edge of tomorrow's better mixes. Boxley is proud to be a participant in the Balanced Mix Design program."

Concerns with Sample Preparation Seen in NCAT Round Robin

A recent article, *Preliminary Results from NCAT Performance Test Round Robin*, by Adam Taylor (Assistant Research Engineer, NCAT), highlights a potentially significant concern with how sample preparation can impact the Ideal-CT test results. "In this phase, the between-lab mean CT Index was 103.7, the standard deviation was 11.5, and the COV was 11.1%. These results reveal how much effect sample fabrication has on variability. In the case of the Ideal-CT test, the COV was reduced from 33.3%–11.1% from Phase 1 to Phase 2, indicating that differences in sample fabrication from lab to lab contributed to two-thirds of the overall

between lab variability of the test. This is an important finding that emphasizes the need for thorough hands-on training as part of implementation plans for performance tests used in mix design or production testing." This concern is validated with much of the testing performed to date during the pilot effort. While not reported here, to date, there is significant variability in Ideal-CT results (both in-lab and between-lab). A future focus on sample fabrication and processing is necessary.

Concerns with Pine Press

During this initial phase of Virginia's pilot effort, information became available from Pine Test Equipment, indicating that the Pine 850T Test Press did not meet the requirements for ASTM D8225-19 (the Ideal-CT test procedure). The issue stemmed from whether or not the Pine 850T maintained a consistent 50 ± 2 mm/min for the entire test. There are generally two types of presses used for this testing, a servo-hydraulic machine (a.k.a. Testquip, now distributed by Troxler) and the screw-type machine as produced by Pine. Since that time, some effort has been made to determine the true impact of this issue. Preliminary results indicate that while the Pine Press does not meet the load rate requirement set forth in ASTM D8225-19, there is likely no statistically significant difference between the two types of machines. Certainly, there is more information to come on this issue. While this issue has not directly impacted the data collected to date, it is one that is being followed closely.

Conclusions

If you solely looked at the initial effort from Superior Paving Corp's Bull Run facility, you could easily conclude that there are no issues with meeting the performance requirements. In fact, there was a discussion as to whether or not the targets were set too low. Yet, as can be seen following the efforts from Superior Paving's Powell Lane facility and Boxley's Lynchburg facility, it is clear that there is much left to learn. This is a multi-year pilot effort that will certainly require many adjustments along the way. As testing and trials continue, Virginia will continue to be a leader in the field of Balance Mix Design. 🏗️

Superior Paving Corp - Powell Lane

Mix	Ideal-CT		Cantabro	
	Design	Production	Design	Production
SM-9.5D				
30% RAP Control	38.2	N/A	5.9	N/A
40% RAP PG64-22	23.9	N/A	7.4	N/A
40% RAP Rejuvenator A	45.9	N/A	7.5	N/A
40% RAP Rejuvenator B	55.1	N/A	7.8	N/A
40% RAP Rejuvenator C	50.7	N/A	" "	N/A

OHIO WORKING TOWARD BMD

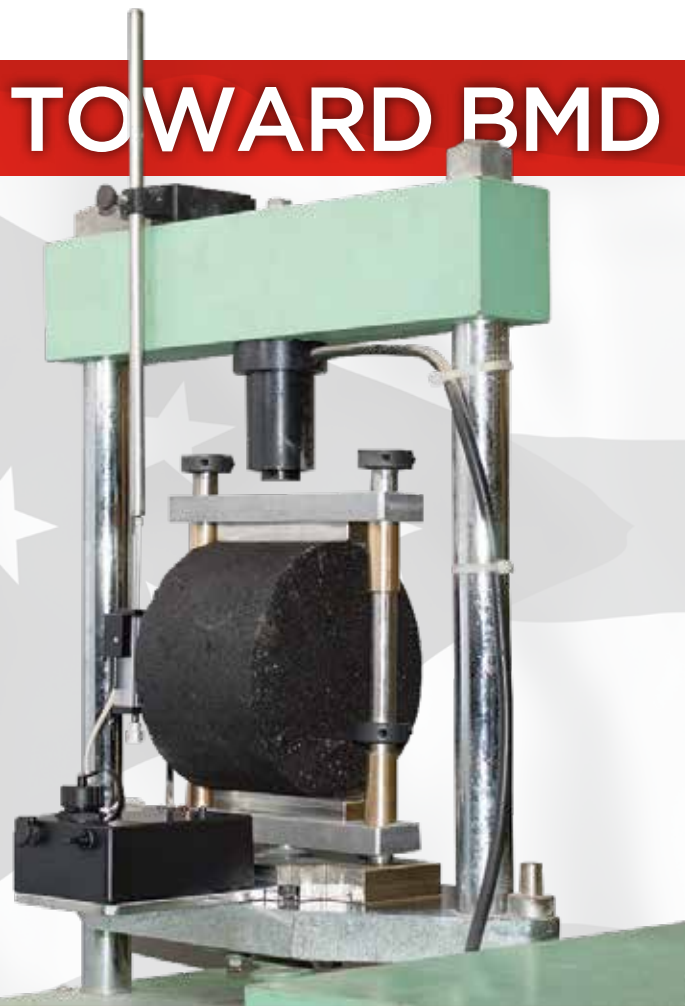


Ohio's asphalt industry is no exception to the national trend toward utilizing the concept of Balanced Mix Design (BMD), which uses laboratory performance tests to predict that an asphalt concrete mixture will perform satisfactorily on the road and under traffic.

The Ohio Department of Transportation already requires mix design tests for resistance against rutting by using the Loaded Wheel Tester (LWT), ODOT S 1057, and for resistance against moisture damage, AASHTO T 283 as modified by ODOT S 1051.

The missing element needed for Ohio to have complete BMD testing is resistance to cracking. Currently, ODOT has research being conducted at the University of Akron comparing the Illinois SCB I-FIT flexibility index (FI) test and the IDEAL-CT test to determine the suitability of each, and produce recommendations for specification limits and test standards. Once this ODOT testing is completed, which is expected in 2021, BMD testing should be available for implementation.

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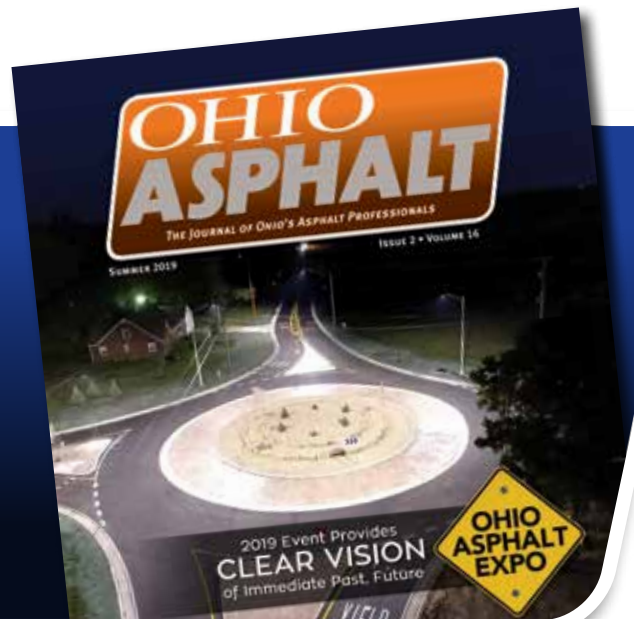
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Pavement Preservation Roundup

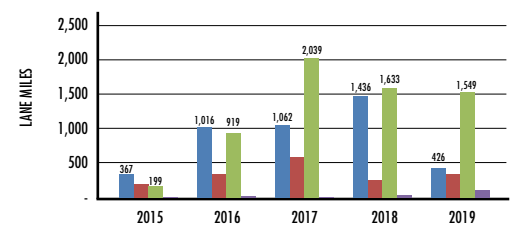
State Fiscal Year (SFY) 2019 (July 1, 2018-June 30, 2019) showed strong use of asphalt preservation treatments, as Item 424, Fine Graded Polymer Asphalt Concrete, Type B (aka Smoothseal) once again led all preservation treatments. Also, for the first time, “Thinlay” asphalt registered enough use to make it more than a blip on the graph, as ODOT deploys projects to build a performance history.

The ODOT Asset Management program drives treatment selections. Underpinning the program is a massive database of pavement condition ratings for every roadway on the state system. From this database, ODOT tracks the performance life of preservation treatments. Over time, prediction models are developed that give ODOT a capability to select the appropriate treatment for a pavement of particular age and condition – therein optimizing cost and performance.

By virtue of use, asphalt mix treatment Smoothseal (Item 424, Fine-Graded Polymer Asphalt) is providing ODOT high value as a preservation treatment. (See usage figures).

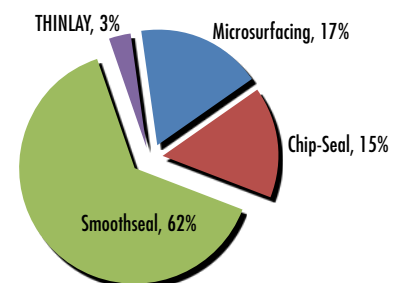
In SFY 2020, with the prospects of new money through the April 2019 passage of House Bill 62, it is anticipated that asphalt tonnage for pavement preservation will continue to grow.

Trend - Lane Miles - All PM Materials
SFY-2019



	2015	2016	2017	2018	2019
Microsurfacing	367	1,016	1,062	1,436	426
Chip-Seal	219	333	638	278	379
Smoothseal (424 Types A & B)	199	919	2,039	1,633	1,549
THINLAY	0	17	9	32	158

ODOT Preservation Market (Lanes Miles)
SFY-2019



o A

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Technical Seminar Topics

Mix Type Selection to Optimize Pavement Performance – For Low-Volume Roads

As we approach the conclusion of our Composite Pavement Rehabilitation Series of Technical Articles, this issue will continue reviewing the very important topic of mix selection. In prior issues, we covered mix selection for Heavy- and Medium- Traffic applications (OA Fall 2019) and mix selection for High-Stress Applications (OA Winter 2019). In this article we will address mix type selection for low-volume roadway applications. In other words, we will review mixes designed specifically for light-traffic applications such as residential roadways, minor arterials and other local municipal, county, township roadways, alleys or paths.

First, let's attempt to define what would be considered a low-volume roadway. This sounds easy, but there are actually several different definitions depending upon the agency, manual or specific asphalt concrete mix considered for use. This is where a little experience and engineering judgement is needed to help make good decisions.

One of the more common definitions, and the one referenced in ODOT's Location and Design Manual, defines Low Volume as a local road with an average daily number of vehicles using the roadway (ADT) < 400. That definition is a good starting point or rule of thumb to generally indicate when a designer should begin considering mixes designed specifically for

low-volume applications. But there are other definitions and additional criteria often associated with a specific asphalt material or mix design. So, it is always important to review individual specifications and designer notes to ensure an appropriate mix is used for the type and volume of traffic on your specific roadway.

Before we review mixes, let's identify some of the qualities desired in low-volume asphalt and the mix characteristics beneficial to help achieve those attributes. Since truck counts are very low on most local roadways, rutting is almost never a concern. Instead, cracking and long-term durability typically rise in importance.

So, what attributes are desired for low-volume asphalt?

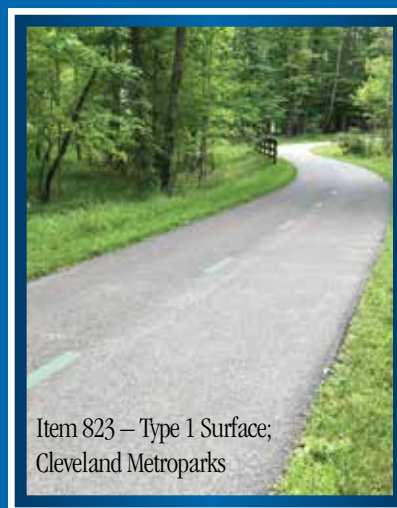
How about mixes that are . . .

- Resilient (self-healing, less brittle, improved crack resistance, slower oxidation)
- Uniform in texture and resistant to segregation
- Low in permeability
- Aesthetically positive to the owner/agency and user

And what mix characteristics are required to achieve those attributes?

- Softer binders
- Higher-binder content
- Finer-aggregate gradations

Now that we've identified the mix characteristics important for low-volume roadways, let's review some mix options that are available. Note that all materials listed below have two or more of the desired characteristics that make them appropriate for low-volume roadways, parking lots, all-purpose paths and similar facilities.



Item 823 – Type 1 Surface;
Cleveland Metroparks

ODOT SS-823 Light-Traffic Asphalt

The mixes included in this supplemental specification are very similar to Item 441 Asphalt Concrete. Type 1 Surface, Type 1 Intermediate and Type 2 Intermediate mixes are available. The mix design used in this specification requires slightly finer gradations and higher

PG 64-22 binder contents (than 441 mixes), making them appropriate mixes for low-volume roadways.

ODOT SS-860 Thinlay Asphalt Concrete and FPO Specification Thinlay Asphalt Concrete

The Thinlay specification was originally developed as a preservation treatment that could be placed as thin as $\frac{3}{4}$ inch to extend pavement life. SS-860 includes mixes designed for Medium and Light traffic. The FPO Thinlay specification includes mixes for Heavy, Medium, Light and Ultra-Light traffic. Although originally designed as a thin preservation treatment, these mixes can also be placed at 1 inch or 1 $\frac{1}{4}$ inch as a surface course on your low-volume resurfacing project. Design characteristics of the light and ultra-light mixes include finer gradation, softer binders and higher binder contents, providing all desirable characteristics for low-volume roadway applications.

For additional information regarding these materials, refer to the appropriate ODOT Supplemental Specification or the Technical Resources section of the Flexible Pavements of Ohio website <http://www.flexiblepavements.org/>.

So the next time you're designing your low-volume resurfacing project, instead of using the standard highway mixes designed for medium or heavy trucks, consider some of the low-volume asphalt concrete identified in this article. If selected, you may find that mixes designed to have finer gradations, higher-binder contents and softer binders perform surprisingly well in light-traffic applications where resistance to cracking, oxidation and segregation is more important.

O A



Thinlay Type ULT
(ultra-light traffic)

404LVT

This specification describes a recipe mix based upon the popular and widely utilized Item 404 Asphalt Concrete used by ODOT from approximately 1965-2002. This mix is similar to Thinlay asphalt concrete and carries forward the same desirable low-volume traffic characteristics including finer gradation, higher binder contents and softer binders (when PG 58-28 is used). This mix is gaining in popularity, especially with some County Engineer offices.



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Ohio Asphalt Expo

March 24-25, 2020

Columbus/Polaris Hilton Hotel
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The Ohio Asphalt Expo is the state's premier asphalt pavement event with multiple concurrent educational sessions and an indoor and outdoor trade show and exhibition. If you construct, inspect, manage or maintain local or private transportation infrastructure, the Ohio Asphalt Expo has the information you need to ensure a successful, long-lasting asphalt pavement.

Visit FPO's website at www.flexiblepavements.org for more information regarding these events.

Field Quality Control Supervisor Training

April 2, 2020

The Conference Center at OCLC
6600 Kilgour Place
Dublin, OH 43017-3395

This seminar provides the training required to become approved to perform the Field Quality Control Supervisor (FQCS) function required under ODOT specifications or to acquire re-approval after five years since the previous training. This session will include training to become approved to construct porous asphalt pavement.

Level 2 Asphalt Quality Control Technician Training

May 6-8, 2020

Ohio University Lancaster Campus
1570 Granville Pike
Lancaster, OH 43130

Flexible Pavements of Ohio (FPO) offers this training course to prepare individuals having basic lab familiarity to take the ODOT Level 2 Asphalt Technician Exam. Following the training, students will have the opportunity to take the ODOT written examination for Level 2 Asphalt Concrete Technician approval.

Visit FPO's website at www.flexiblepavements.org for more information regarding these events.

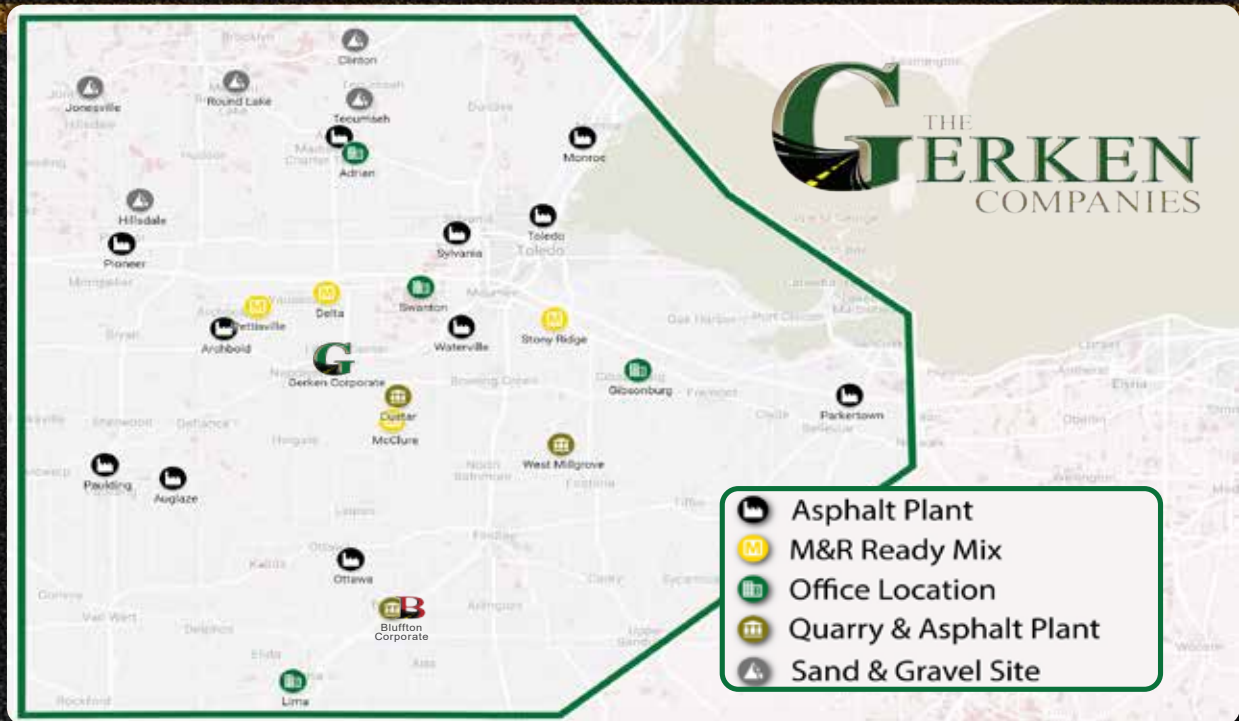


NEW MEMBER WELCOME

Flexible Pavements of Ohio would like to welcome Gencor Industries Inc. as an Associate Member. Gencor is headquartered in Orlando, Fla., and is a manufacturer of asphalt plants and related system equipment for the road and highway construction industry.

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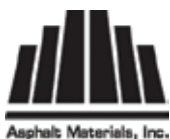
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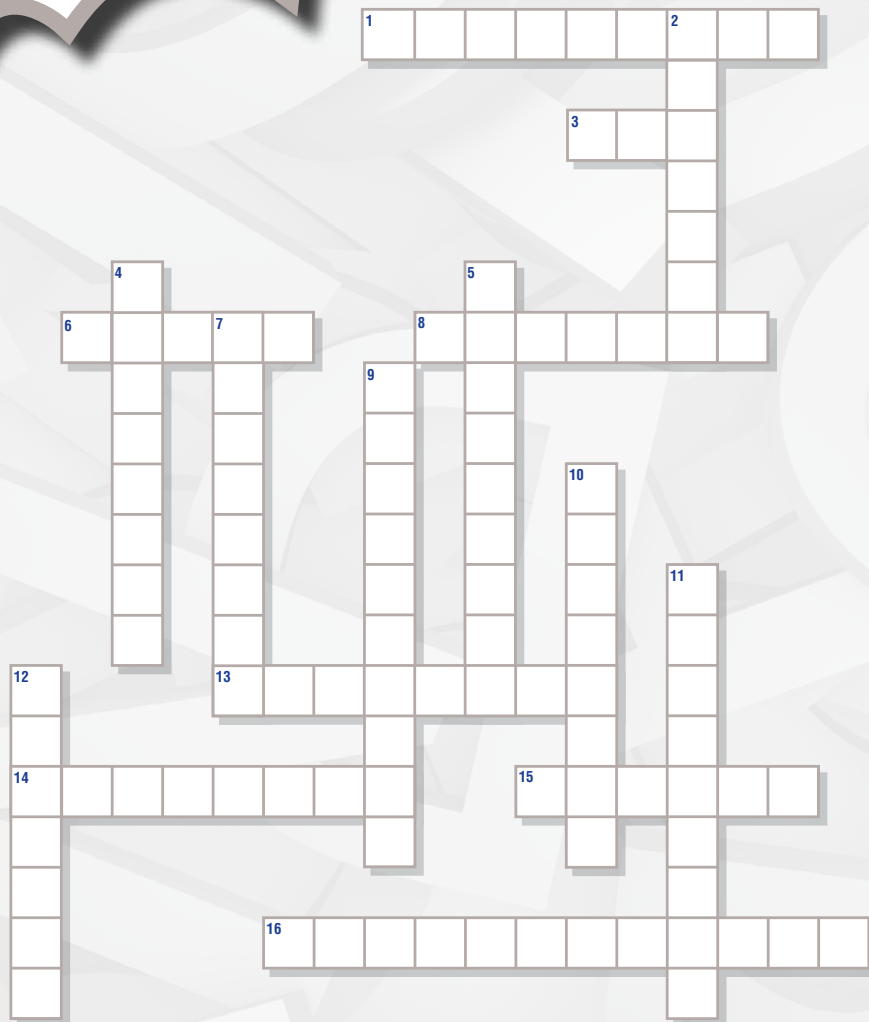
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PAVEMENT PUZZLERS

Find out how well you know your
pavement-related vocabulary?

Puzzle solution on page 22



ACROSS

- 1 Superior performing pavements
- 3 Millings from a previous asphalt surface
- 6 Emulsion color change
- 8 Degree of compactness
- 13 RAS: Reclaimed Asphalt _____
- 14 HMA pavement preservation
- 15 Pavement type which water drains through
- 16 Method to produce asphalt cement

DOWN

- 2 The smoother, quieter, more economical pavement type
- 4 Location of the world's largest natural asphalt reserve
- 5 Enduring forever
- 7 Volumetric property
- 9 Public's largest metric for a quality pavement
- 10 Tack coat material
- 11 Resistance of a liquid to flow
- 12 Permanent deformation

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The Gerken Companies	19	Roadtec	3		
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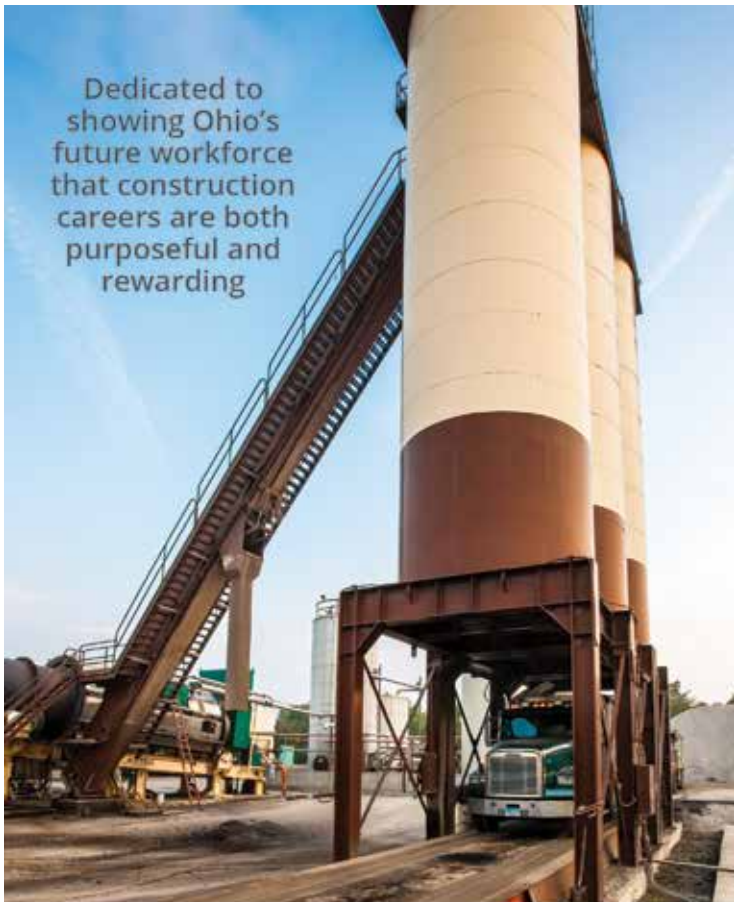
✓ PAVEMENT PUZZLERS SOLUTIONS from page 21

Across

- | | |
|--------------|------------------|
| 1. SUPERPAVE | 13. SHINGLES |
| 3. RAP | 14. THINLAYS |
| 6. BREAK | 15. POROUS |
| 8. DENSITY | 16. DISTILLATION |

Down

- | | |
|--------------|---------------|
| 2. ASPHALT | 9. SMOOTHNESS |
| 4. TRINIDAD | 10. EMULSION |
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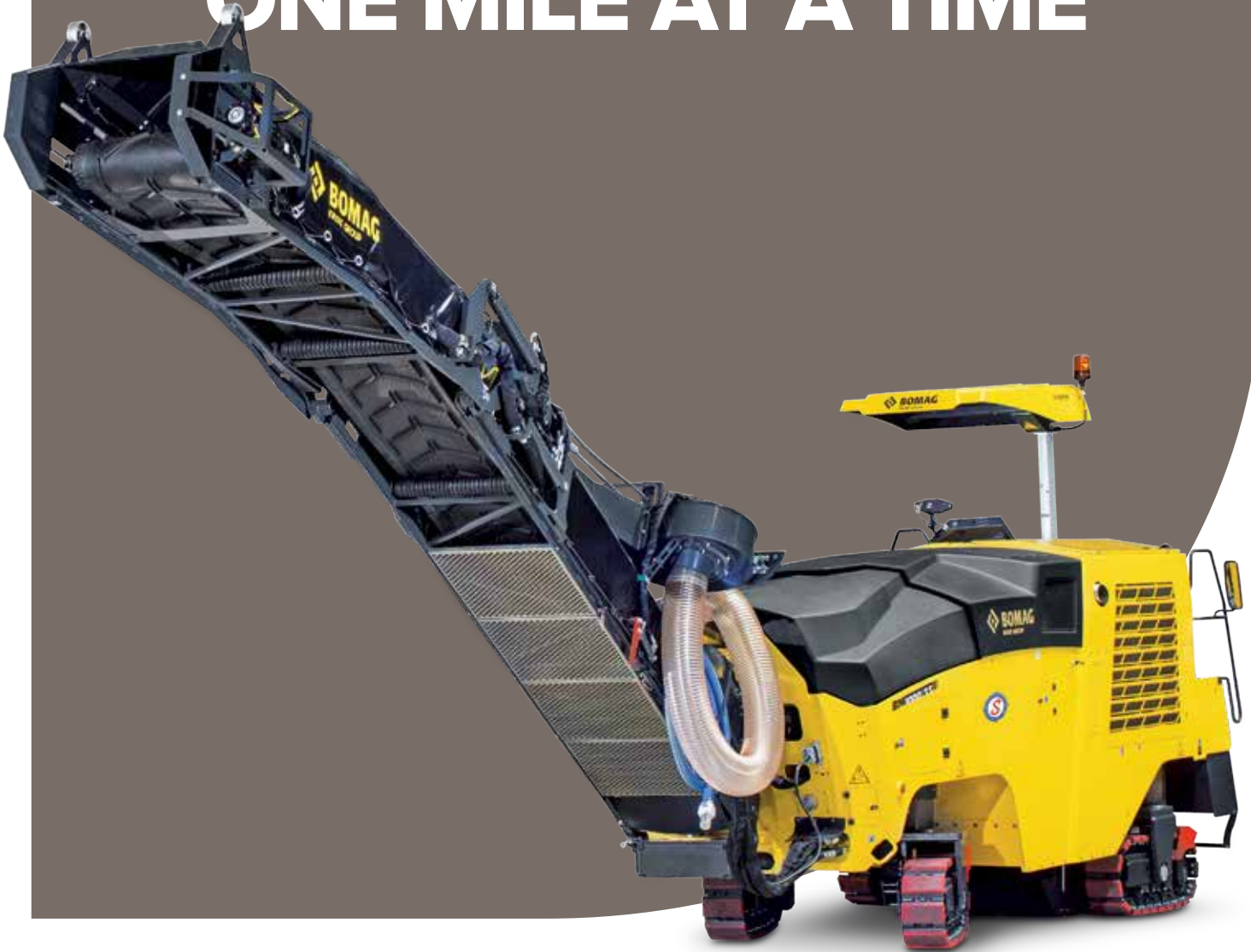
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