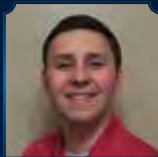


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*THE JOURNAL OF OHIO'S ASPHALT PROFESSIONALS*

FALL 2020

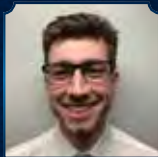
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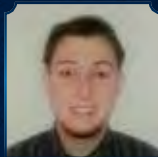
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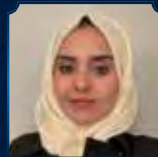
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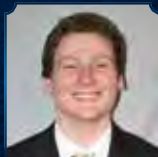
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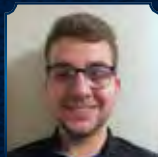
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THE JOURNAL OF OHIO'S ASPHALT PROFESSIONALS

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ON THE COVER: WITH EVERYTHING THAT HAS HAPPENED THUS FAR IN 2020, THE OHIO ASPHALT PAVEMENT INDUSTRY SCHOLARSHIP PROGRAM IS A SILVER LINING. MEET THE 2020-2021 SCHOLARSHIP RECIPIENTS, BEGINNING ON PAGE 12.



*Flexible Pavements of Ohio is an association for the development, improvement and advancement of quality asphalt pavement construction.*

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## THE PRESIDENT'S PAGE



**CLIFFORD URSICH, P.E.**  
PRESIDENT & EXECUTIVE DIRECTOR

**“So here we are, faced with an election that any reasonable person would describe as a contest between two diametrically opposed philosophies of what is progress. You are intelligent people. You be the judge.**

**“Your Vote Matters ... Choose Tons!”**

# Your Vote Matters ... Choose Tons!

The countdown to Election Day 2020 has begun, and it has become ever so clear this election will be for the asphalt industry more consequential than any previous.

Early into my career I learned that no matter how much we might want to build quality roads, you have to have tons (of asphalt) to do it. Tons reign king in this business. What's needed in governance are more people who support the type of policy that results in more tons of asphalt being placed. These are people having a philosophy of governance that facilitates free enterprise and unleashes its creativity to create wealth. We're seeing less of this kind of thinking in the hallowed halls of Congress. If there is no wealth creation, there can be no progress – even for the “progressives.” The most notable example of such is the Green New Deal.

We haven't heard much about the Green New Deal of late. It's alive and the elements of it are woven through the House of Representatives' INVEST in America Act – the federal transportation re-authorization bill. Like a tapestry, each element of funding is tied to an environmental initiative. Here are some

initiatives you can expect if signed into law. I'll let you imagine its implications for your asphalt business.

### Carbon Pollution Reduction Program:

- Creates a carbon pollution reduction program to fund projects that reduce greenhouse gas emissions;
- Intercity passenger rail projects are eligible for funding (editorial comment: same pie but more pieces being cut from it);
- EPA to be consulted in determining types of projects that prove most effective in reducing carbon pollution (editorial comment: Yikes! Does this mean EPA weighing in on project selection, pavement type or method of construction for reducing carbon emissions?);
- Grants to universities for development of materials that will reduce or sequester the amount of greenhouse gas emissions generated during the production of highway materials and the construction of highways.

The INVEST bill is reminiscent of ISTEA – the federal transportation bill authorized in the early '90s. It was the first to advance an

## ASPHALT TONS PRODUCED (Non-ODOT)



environmentalist agenda, however, it was more about process. INVEST, unlike ISTEA, has a component that places a bullseye on highway construction processes and materials for carbon generation.

It has been said that creating legislation is akin to sausage making. Whether INVEST survives or not, given the fervor of the proponents, there is the real possibility any substitute legislation will carry some flavor of the Green New Deal.

We've had a good run of it beginning in late 2014 through to 2020 until the order to shutter the nation due to the COVID-19 pandemic. Like other construction materials, asphalt markets were running hot with the non-ODOT market having picked up pace after shaking off the Great Recession hangover and the over-regulation that had part in it. Finally, people were buying again, and as is the beauty of free enterprise, wealth creation was turning out opportunity for our industry. We saw tonnage (non-ODOT) move from nearly 7 million in 2014 to 15 million by year-end 2019.

So here we are, faced with an election that any reasonable person would describe as a contest between two diametrically opposed philosophies of what is progress. You are intelligent people. You be the judge.

Your Vote Matters . . . Choose Tons!

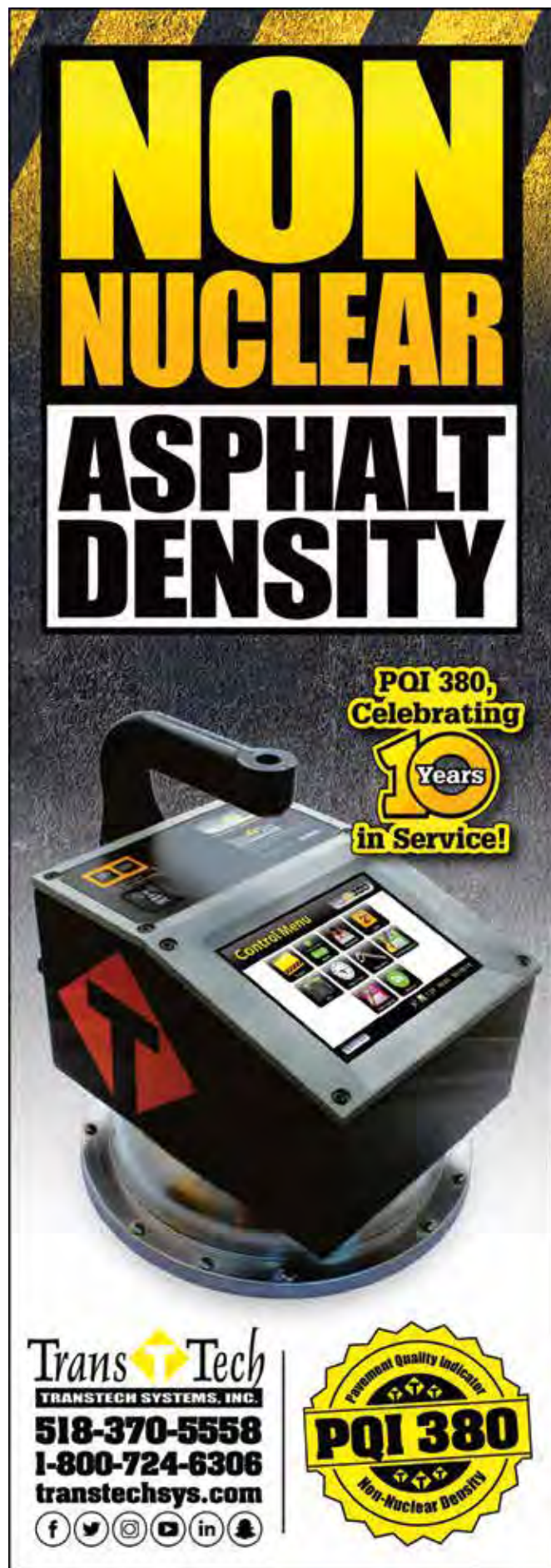


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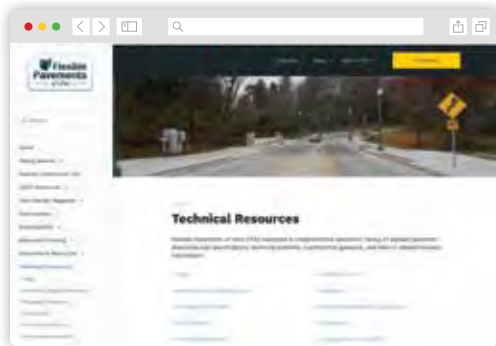


UPDATE...

# FPO UNVEILS REDESIGNED WEBSITE, SOCIAL MEDIA PLATFORM



Flexible Pavements of Ohio (FPO) has launched a redesigned website, replacing an aging, nearly decade-old webpage with improved functionality and organization. Built on a new software platform, the webpage is optimized for viewing on all platforms – including personal computers, smartphones and tablets. The site's homepage highlights current news relevant to Ohio's asphalt industry, *Ohio Asphalt* magazine and includes improved integration with FPO's social media pages.



The website was designed to provide greater accessibility to FPO's extensive electronic library of training materials, technical bulletins and construction specifications. Additional subpages were added to highlight commonly requested technical resources and asphalt materials for pavement owners, designers and contractors. The new webpage highlights extensive pavement design reference materials and links and includes designated pages for asphalt materials, such as Smoothseal, 404 LVT, Thinlay and porous asphalt.



Additionally, the searchable map-based directory of asphalt paving contractors has been greatly improved. This resource is a listing of FPO member contractors and allows pavement owners and specifiers to easily connect with paving contractors in their region of the state.

Visit [www.flexiblepavements.org](http://www.flexiblepavements.org) to view the new webpage.





## FPO Expands Social Media Presence

FPO recently expanded its presence on social media with the launch of an Instagram page. This will add another dimension to the association's communication and outreach efforts and complements the existing Facebook and Twitter accounts.

With more than 500 million active daily users, Instagram will provide FPO with an ever-expanding audience to convey the performance and economic benefits of asphalt pavements.



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# FPO's Technical Training Goes Virtual

July 2020 marked a new era for Flexible Pavements of Ohio (FPO), as it broadcasted its first virtual training: Asphalt Quality Control Technician Training (Asphalt Level-2).

The Asphalt Level-2 training was intended to be held in-person in early June, however, was cancelled due to the COVID-19 pandemic. Instruction for the virtual class was delivered with a webinar format over a three-day period. The students had four hours of instruction each morning, with an afternoon session available for review. This format was chosen to expand instruction in order to maintain students' attention. (Sitting in front of a computer the entire day trying to learn is challenging for me to say the least ... I feel bad for the kids attending online school this fall.)

The instructors, JW Neenan LLC's John Neenan, The Shelly Company's Larry Shively and FPO Pavements, Materials & Field Application Engineer John Crane, who each admittedly prefer face-to-face instruction, were nervous whether this form of training would be effective given the technical nature of the topic. It became apparent to the three that this would be a vastly different teaching experience than they had previously done. Their biggest concern: How would they discern whether the students were grasping the concepts being presented? During in-person training, the instructor can simply see if anyone has the proverbial "deer in the headlight look," which given the technical matter of the training is taken for granted. However, with a webinar there is no consistent visual or audible feedback from the audience. Fortunately, the instructors met prior to the class in anticipation of this challenge and discussed options to handle this issue, which was:

- Developing surveys and poll questions to target key points
- Constantly reminding students to use the chat and Q&A sections to ask questions, revisit information, etc.
- Instructors adjusting presentations to help determine the level of understanding

In the end, the class was deemed successful; the instructors quickly adapted to the new platform of teaching and the training participants seemingly adapted well, as demonstrated through their comments in the poll questions and surveys.



*(From left) JW Neenan LLC's John Neenan, The Shelly Co.'s Larry Shively and FPO's John Crane are among their computers and A/V equipment as they teach the Asphalt QC Level 2 Technicians course.*

Learning from this experience, FPO is looking forward to offering an array of classes and workshops in the coming months to satisfy the thirst for asphalt knowledge. Keep a look out on FPO's website for details on upcoming technical seminars, which will cover topics like: Pavement Maintenance & Repair; Overlay Thickness Structural Design; Rehabilitation Techniques (mill and inlay, fractured slab, structural overlays and pavement replacement); Mix Type & Thickness Selection; and Surface Preparation with Tack Coat Applications. This fall, FPO will also be hosting a virtual Field Quality Control Supervisor (FQCS) session.

Stay tuned for updates by visiting [www.flexiblepavements.org](http://www.flexiblepavements.org), [www.facebook.com/flexiblepavements](https://www.facebook.com/flexiblepavements), [twitter.com/Ohio\\_Aspphalt](https://twitter.com/Ohio_Aspphalt) or [flexpaveoh.org](http://flexpaveoh.org).



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## FPO Scholarship Program

Trully a Silver  
Lining for the  
Year that is 2020  
*19 Students  
Awarded  
Scholarships in  
Silver Anniversary  
of Program*





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### **If a silver lining is ever needed in the year 2020 it is the Ohio Asphalt Pavement Industry Scholarship Program.**

And speaking of silver, it's the 25th year that the scholarship program has been helping Ohio college students earn civil engineering or construction management degrees. This year marks the Silver Anniversary of the Ohio Asphalt Pavement Industry program promoting the importance of asphalt pavement technology and the advocating for its instruction at Ohio colleges.

Since 1995, and with the addition of this year's 19 recipients receiving scholarships, 506 students have benefitted from the Ohio Asphalt Pavement Industry Scholarship Program. Six students are repeating as FPO Scholarship recipients for 2020-2021. This fall, the recipients are receiving one-year scholarships of \$1,000, \$2,000 or \$2,500, totaling \$32,000. Since the program's inception \$697,099 have been awarded. The number of sponsored awards is growing as well, as Husky Asphalt is sponsoring a scholarship for the first time, increasing the number of designated awards by companies and/or individuals to 13.

Prior to the creation of the Ohio Asphalt Pavement Industry Scholarship Program, universities in Ohio generally did not provide coursework in asphalt pavement technology. This changed with the formation of the scholarship program, as courses in asphalt technology are now offered at a growing number of universities throughout the state. As a result of the vision contained in FPO's 1994 Long Range Strategic Plan, which established the scholarship program, an increased awareness in asphalt technology is benefitting not only the students and academic institutions but also the flexible pavements industry.

Since its inception, the Ohio Asphalt Pavement Industry Scholarship Program, which is administered through

the National Asphalt Pavement Association Research & Education Foundation (NAPAREF), has maintained its original objectives:

- Encourage students to gain knowledge in flexible pavements by requiring each scholarship recipient to take at least one course in asphalt pavement technology
- Promote the offering of training by colleges/universities in asphalt pavement technology by creating a student demand for the course
- Provide close ties between the asphalt industry and universities to raise the awareness of asphalt pavement technology in the academic community and foster asphalt pavement-related research
- Create a workforce trained in asphalt technology

For the 2020-2021 academic year, asphalt technology classes are being offered at 11 Ohio universities.

Much has changed in 2020 due to the COVID-19 virus, including the in-person recognition of the Ohio Asphalt Pavement Industry Scholarship recipients – which typically takes place at the year's Ohio Asphalt Expo. This does not, however, diminish the honor awarded the recipients and the students' academic achievements and excitement in their intended fields of study.

Let's meet the 2020-2021 Ohio Asphalt Pavement Industry Scholarship recipients on page 14:

**See scholarship fund contributors, page 15**



# 2020-2021 FPO Asphalt Pavement Industry Scholarship Recipients



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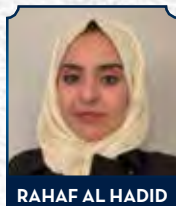
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Flexible Pavements  
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Student Scholarship

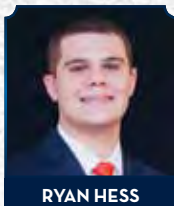
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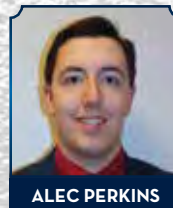
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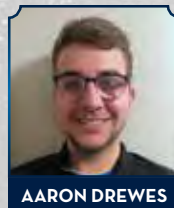
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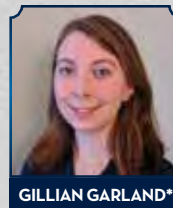
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## 2021-2022 FPO Scholarship Entry Dates

Flexible Pavements of Ohio is pleased to announce the 26th year of its Ohio Asphalt Scholarship Program. The period for submitting online applications for the 2021-2022 academic year will be open from Dec. 1, 2020 through Jan. 31, 2021. During this period, students may find information about the program and apply using the online application on the FPO website at: <http://www.flexiblepavements.org/scholarships/asphalt-scholarships-program>.

The college scholarship program is available to undergraduate civil engineering and construction management/engineering students in their sophomore or junior years who will be juniors or seniors during the 2021-2022 academic year. Scholarship recipients must agree to take a course in asphalt pavement technology prior to graduating. Graduate civil engineering students studying asphalt pavement technology are also eligible for an Ohio Asphalt Scholarship.







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## Technical Seminar Topics

# Mix Type Selection to Optimize Pavement Performance *424 Fine-Graded Polymer Asphalt Concrete – The Premium Surface Course Mix*

Before ending our discussion of Mix Type Selection for Optimizing Pavement Performance of Composite Pavements, there is a need to discuss an alternative surface course material that has shown universal appeal. It has been used on all routes with all types of traffic loading (i.e. heavy, medium, or light). The mix is ODOT Item 424 – Fine-Graded Polymer Asphalt.

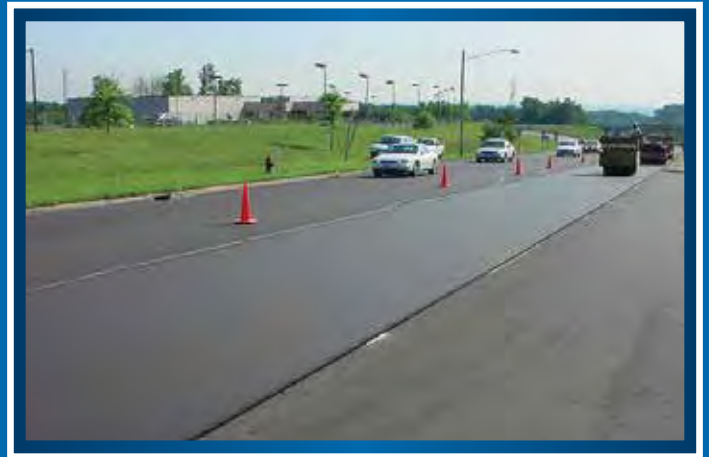
Item 424 Asphalt Concrete is considered a “premium” mix due to its high-quality material and design characteristics as well as a long, well-established history of exemplary performance on all route types. The Item 424 specification offers two distinct mix options: Type A and Type B.

### **424 Type A Composition**

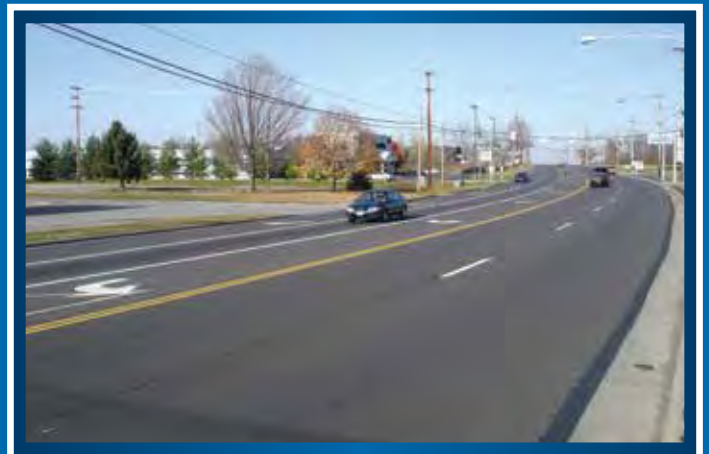
424 Type A is a sand asphalt mix (no coarse aggregate) with 8.5% PG76-22M polymer-modified binder content. The specification requires natural sand with at least 50% silica dioxide by weight to ensure good skid resistance. Enhanced by using polymers in the asphalt binder, the mixture has a high level of toughness and good stability that results in rutting resistance and extended life for this surface course. The earliest projects using this polymer-modified mixture lasted more than 25 years – with the longest life documented at 27 years.

### **424 Type A Placement Requirements**

Type A lift thickness placement parameters are  $\frac{5}{8}$ -inch to 1-inch thick. A typical thickness is  $\frac{3}{4}$  inch. Type A is typically used on local, residential and minor arterial roadways with light traffic and on select two-lane or multi-lane arterials or state highways with medium-traffic loading. The Type A specification is largely unchanged from its inception in the early-mid 1960s. As such, this mix has a well-established history of nearly six decades of dependable performance.



424 Type A – use on suburban arterial in Cuyahoga County



424 Type A – use on a multi-lane arterial in ODOT D-4



#### 424 Type B Composition

424 Type B Fine-Graded Polymer Asphalt Concrete has been dubbed “Smoothseal” for its texture and ride quality. Although there are many similarities, Type A differs in its use of coarse aggregate. Type B incorporates ½-inch maximum-sized coarse aggregate with the blend of sands. Similar to the Type A mix, the specification includes a silica dioxide requirement to ensure good skid resistance. Coarse aggregate is crushed with angularity requirements to create an internal friction that provides strength and stability under heavy traffic. Type B is a (volumetric) Marshall-designed mix and contains a minimum 6.4% PG76-22M polymer-modified binder content.

#### 424 Type B Placement Requirements

The 424 Type B mix has versatile use. It can be designed for urban arterials and state highways with medium-traffic loading, or for major arterials, state routes or Interstate highways with heavy-traffic loading. This mix can be placed at lift thicknesses ranging from ¾ inch to 1 ¼ inches. Placement at 1-inch lift thickness is most common. This mix was introduced in 2001 and has provided nearly 20 years of outstanding performance on many routes, including interstate highways with heavy-truck counts and average daily traffic (ADT) exceeding 100,000 vehicles.



424 Type B – heavy design mix used on Interstate 480



424 Type B – medium design mix placed in Mercer County

#### Ingredients Needed for Making “Premium” Mixes

There is asphalt, and there is “premium” asphalt. 424 Types A and B can be ranked among the most premium of surface courses. What they have that others lack are:

- High binder content, which provides durability
- Highly polymerized PG76-22M binder, which provides stiffness
- Quality aggregates, which provide
  - Silica dioxide for surface friction
  - Crushed/Angularity requirements, which provide internal friction leading to strength and stability (Type B mix)
- Fine gradation that when compacted result in two necessary properties for long life – density and ultra-low permeability
- And super-smooth ride quality

What is true of experienced pavement engineers is their preference for fine-graded mixes – particularly for surface courses for reasons previously mentioned. In fact, NCAT (National Center for Asphalt Technology – Auburn University) has done research that proves that fine-graded mixes like 424 Type A and B have almost complete impermeability – even with in-place air voids in the 6% to 9% range. This is partly why the 424 specification relies upon 448 density acceptance instead of the more-stringent 446 acceptance. The low permeability of these mixes combined with the high-quality component materials provide outstanding resistance to water penetration into your pavement and subgrade structure. This directly relates to long-term durable performance and why these mixes have withstood the test of time on many types of pavements.

#### 424 Types A & B for Pavement Preservation

Both Type A and B mixes have gained acceptance at ODOT, especially as preservation treatments. Type A mix is more commonly seen in northeast Ohio where the mix originated. Type B mix is prevalent in all 12 ODOT Districts on various route types. Type B’s widespread use is validated by its usage since 2001, having surpassed 4.2 million tons on ODOT routes of all traffic levels.

Although these are well-established mixes in the preservation market, there is reason for considering 424 Type mixes as the surface course on your resurfacing or rehabilitation projects. Placing these mixes on full-depth asphalt pavements will optimize performance potential and provide the greatest benefit. However, use as a surface course on Ohio’s composite pavements is common and appropriate.

So, if you are looking for a high-quality mix for your resurfacing or rehabilitation project, consider specifying one of the Item 424 Type A or Type B mixes. In addition to exceptional smoothness, low permeability and curb appeal, you will be pleasantly surprised at the outstanding durability and long-term performance provided by one of Ohio’s “premium” surface course mixes.





# MAJOR REHAB

## TAKES BACKSEAT TO PRESERVATION

*The Shelly Company places ODOT's newest Thinlay on State Route 72 in Clark County from City of Springfield to Village of Clifton.*

The National Asphalt Pavement Association (NAPA) Mid-Year Meeting held virtually in July confirmed the direction that departments of transportation (DOT) programs are headed. The COVID-19 pandemic and ensuing shutdown of the economy and drop in motor-fuel usage has resulted in significant damage to DOT revenue streams. The fallout is that work bid in the remaining days of 2020 and into 2021 will

primarily be of the preservation type. As for the Ohio Department of Transportation, in early May ODOT had already deferred \$200 million worth of major new work to State Fiscal Year 2021. The projects being pushed to the back of the line are the Franklin County Interstate 71 split that courses through the heart of Columbus' Downtown, and the Hamilton County I-74 Millcreek Expressway.



NAPA convened a panel consisting of state transportation directors from Pennsylvania, Iowa, Mississippi, Missouri and Texas who shared their state's new reality brought on by COVID-19. The adage "necessity is the mother of invention" rung true, as these AASHTO representative states spoke of innovations being implemented to ensure safety on the project level and save pennies in the process. The Iowa director aptly put it: "It's gonna be messy but we'll get through this."

All the agencies have taken on some form of e-ticketing, either commercially marketed systems or homegrown. TexDoT, like ODOT, has emphasized flexibility, allowing asphalt producers and agency districts to work out a methodology that works for both entities to comply with the requirements of the contracts.

Valuing the communication needed to ensure an ongoing productive relationship with industry, the Missouri DOT has been deliberate to make opportunities for "keeping in touch." Through regularly scheduled video conferencing, the industry is provided opportunity to flesh out issues whether they arise from the unique limitations caused by the pandemic or the daily back and forth of contract administration.

Distancing restrictions imposed by departments of Health make monitoring asphalt testing a challenge. To overcome this the Pennsylvania DOT has developed virtual inspection protocol. The thought of that may cause some agency inspectors to grimace. PennDOT, however, isn't wearing rose-colored glasses. The specification includes security locks for sample chain of custody and independent assurance with companion and split samples tested by PennDOT's Central Laboratory.

Increasing reclaimed asphalt pavement (RAP) and asset management are being viewed as strategies for economizing. PennDOT, for instance, is raising RAP content for what it describes as lower-risk pavements. All directors affirmed, however, that asset management and the less costly

pavement preservation strategies associated with that system is a path they will take to economize.

The current sentiment at ODOT aligns with these directors. Major rehabilitation and reconstruction projects are likely to be very few and very far between, whereas preservation treatments such as Smoothseal, ODOT's 424 Fine Graded Polymer Asphalt, will continue to see strong use. Thinlay, ODOT Supplemental Specification 860, will turn some design engineers' heads for its eye appeal, smoothness and economy when placed at 3/4-inch thick.

**O A**

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# The Lighter Side of FAA Specifications

As discussed in the summer 2020 issue of *Ohio Asphalt*, the Federal Aviation Administration (FAA) released revision 10H for its Standard Specification for Airport Construction; AC 150/5370, which includes sections P401; and P403 covering Asphaltic Pavements.

Revision 10H updated the asphalt binder grade-selection process, revised the gradation blends, added rutting potential test requirements, as well as adjusted the pavement density calculations and acceptance limits. FAA's P401 specification is centered on airports handling large aircraft and heavy traffic, and as such, it provides a premium product albeit at a premium price. This added expense can be hard to swallow for smaller airfields; enter 10H's revised use of state DOT specifications.

The 10H revision now permits, with FAA approval, a state DOT specification to be utilized within airfields at locations such as:

- Access and perimeter roads, shoulders and other areas not subject to aircraft loading

- Areas where aircraft gross weight does not exceed 30,000 pounds
- On non-primary airports<sup>1</sup> serving aircrafts less than 60,000 pounds

In terms of equivalence, 30,000 pounds is about the weight of a legally loaded single-axle dump truck, and 60,000 pounds is weighted roughly that of a tandem dump truck with push axles for typical roadways. The aforementioned scenarios mimic low-volume roadways, as a non-primary airport with a max annual flight boarding of 10,000 has only an average of 56 flights a day. With common roadway loads and lower-traffic volumes, a good alternative to the FAA P401 specification could be an ODOT 441 Marshall mixture coupled with ODOT 448 nuclear density gauge acceptance. The combination of these specifications would be more economical for the airport and has the potential to offer a longer lifespan.

Economically speaking, the increase allowance of reclaimed material (ODOT's 441 allows up to 25% RAP in surface courses



and 40% in intermediate) and an increased allowance of more economical aggregates like natural sand and gravel will reduce the overall mixtures cost. In addition to a reduction in material cost, one could see a reduction to the costs associated with the density specification. While density targets remain roughly the same among the specifications, the risk level associated to the ODOT 448 is lower than what would have been seen with the P401. This reduction in risk to the contractor is often reflected in a reduction in cost to the owner.

Lifespan is important in every pavement, especially for low-volume pavements. Low-trafficked pavements tend to fail from environmental damage — like oxidation — before structural failures — like fatigue.

ODOT's 441 specifies a higher minimum-binder content along with a high VMA, which allow for the mixture to have a higher percent of "free" or effective asphalt binder. This high-effective binder helps give the aggregate more coating, which reduces environmental damage and extends the life of the pavement; it also aids in compaction.

Rutting warning: While a 30,000-pound truck may be a good weight comparison to a plane, there is a major difference between the two, other than the fact that one flies. I am talking about tires. While each would likely have six tires to distribute load, those tires are quite different. Tires on the main landing gear of a 30,000-pound jet are about half as wide and hold nearly double the pressures as a standard truck tire. What this effectively does is decrease the contact area the tire has with the pavement, forcing the load to distribute over a much smaller area. This high load to the area can lead to rutting. To mitigate any rutting, it is recommended the binder grade be bumped, in most cases to a PG70-22M with modification. In areas like access roads exposed to high levels of traffic or runways with large volumes of aircrafts, where rutting is still a concern, an ODOT 442 Type B could be utilized. This mixture type along with a PG70-22M would add more angular aggregate, which would improve mixture stability and rutting resistance.

FAA's P401 is a great specification that delivers solid performance, but on lower-level airports an ODOT 441 mixture with 448 density may be a great option to stretch the dollar a little further.

*<sup>1</sup>A nonprimary airport is defined as either a commercial airport receiving scheduled passenger flights with between 2,500 and 10,000 aircraft boardings annually, or a public use, general aviation, airport that does not have scheduled passenger services or receive less than 2,500 boardings annually.*

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The Ohio Transportation Engineering Conference (OTEC) is an event attended by more than 3,700 transportation professionals from throughout the nation. OTEC is co-sponsored by the Ohio Department of Transportation and The Ohio State University.

Go to <https://otec.transportation.ohio.gov/wps/portal/gov/otec/> for up-to-date conference information as well as archived material from previous conferences.

**Ohio Asphalt Paving Conference - Virtual Event**  
**February 3, 2021**

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## NEW COURSE ANNOUNCEMENT: Asphalt Plant Monitoring

Later this year, Flexible Pavements of Ohio (FPO) will be offering a course to advance individuals in their career as an Asphalt Plant Monitor. The course is planned to be a self-paced online class to showcase what it takes to be an effective monitor. The class will cover aspects from yard and plant operations, truckload outs, laboratory testing and documentation, plant monitor reports and more. The class will consist of videos, recorded presentations, lectures, etc. This new training opportunity is an extension of FPO's strategic plan to ensure quality-control technicians and monitors alike have a working knowledge of quality asphalt production. The course has been developed with agency and consultant inspectors in mind. Keep a look out for further information at [www.FlexiblePavements.org](http://www.FlexiblePavements.org).

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