Fort Washington Way Reconstruction Begins

Work began in earnest on the major reconstruction of Cincinnati’s Fort Washington Way (FWW), with the award of the first of a series of major contracts on July 31, 1998. Contract #8 was awarded to the C.J. Mahan Co. for $30,108,137.41. Contract #8 is for the reconstruction of the major roadway section of FWW along with retaining walls and overhead bridges. Other major contracts to be let later provide for reconstructing the major bridges at each end of the project and for the boulevards which will parallel FWW on each side. Both the main line and the boulevards will be constructed of full depth asphalt.

The series of projects included in the reconstruction of FWW are intended to compress the through lanes of I-71 into a narrower cross section or “trench”, below the grade of the adjacent surface streets so as to occupy less land and to pose less of a barrier to surface traffic, especially pedestrian, between the Central Business District (CBD) and the river front attractions and parks. The project also provides more lanes and capacity for I-71 through traffic and eliminates most of the closely spaced entrance and exit ramps that impede through traffic flow. Access to the downtown and river front will be provided by two surface level boulevards paralleling the “trench”, new Second and reconstructed Third Streets.

Fort Washington way was originally conceived as a Cincinnati Expressway called the “Third Street Distributor”, which would collect and distribute freeway traffic from the Millcreek (I-75) and Northeast (I-71) Expressways to and from the Cincinnati CBD. With the advent of the Interstate Highway System, the highway was also designed to carry I-71 mainline traffic. Constructed in the early 1960’s, the freeway link was rapidly subjected to greater than anticipated traffic, both because of increases in vehicular travel and the development along the river front including the stadium, coliseum and river front park and entertainment areas. By the 1990’s the freeway needed to be reconstructed, but was also viewed as inadequate for future transportation needs and as a barrier between downtown Cincinnati and the river front.

In 1995 the Ohio-Kentucky-Indiana Regional Council of Governments (OKI) undertook a transportation needs study of the I-71 corridor from the Greater Cincinnati Airport in Kentucky to the Kings Island area in Ohio. Early on, a desire surfaced on the part of the Cincinnati community to reconfigure FWW on the river front. As the ODOT was already planning the reconstruction of FWW, they pressed the City for an early answer as to what changes were needed. The City in turn asked OKI to study FWW as a separate project in May of 1996. OKI first considered the community’s preference of eliminating FWW and...
WHAT WILL TEA-21 MEAN FOR THE HMA PRODUCER?

Much has been said about the increased revenue that is supposed to come from TEA-21, the new Federal Highway Bill. But what will it really mean for the typical hot mix asphalt (HMA) producer? Ohio’s increase of 37%, well below the national average of 44%, amounts to almost $242 million. To know what this means in HMA we must subtract out monies allocated for congestion mitigation, air quality, bridges, planning, transit and the like. This now brings us down to $150 million for actual HMA related work. If you assume ODOT will split this money between resurfacing and new construction along the same lines as existing spending, then 50%, or $75 million will go for resurfacing and a like amount for new construction and half the new construction will be asphalt, half concrete. Now lets say that out of every dollar spent on a resurfacing contract, 70 cents actually goes for HMA with the rest going for mobilization, traffic control, pavement marking, etc. Lets also assume that for every dollar spent on new construction, 25 cents actually goes for HMA with the rest going for earth work, bridges, lighting, guardrail, etc. This means that total HMA dollars are 70 cents of $75 million plus 25 cents of 50% of $75 million or $62 million dollars. Using $20/ton as an average price for all HMA (base, intermediate, surface), this translates to 3.1 million tons of additional HMA or roughly a 15% increase in the total HMA tonnage produced in this state. While a 15% increase in tonnage is something we all appreciate and cheer about, it is a far cry from the 40% windfall being bandied about by many. As someone’s old pappy used to say “The devil is in the details.”

TRANSPORTATION APPROPRIATIONS BILL FOLLOWS TEA-21 BUDGET LEVELS

The increased highway spending “guaranteed” by TEA-21, the recently enacted 6 year highway bill, passed its first test recently. Congress must enact 13 different appropriation bills to set spending levels for the various federal programs for the 1999 fiscal year which starts October 1. These spending levels must be within the limits of the various “authorization” bills passed by Congress, but since many of these are multi-year bills, such as TEA-21, spending levels have to be reviewed annually to ensure the budget balances. Often these levels are less than what was “authorized”. This was prevalent in ISTEA, the last federal highway bill, where the money “authorized” was never “appropriated”.

TEA-21 authorized record levels of highway spending and established budgetary “firewalls” within the bill to ensure spending would be close to gasoline tax income. These firewalls were honored in the appropriation process as Congress set the “obligation limitation” for core highway programs at approximately $26 billion, an increase of $4 billion over the 1998 fiscal year. For Ohio, this means an increase of $242 million or 37% over last year’s program. We still haven’t got the money yet, but it’s another step closer.
re-routing I-71 traffic over other routes. Discussion of that alternative with Federal, State and regional local government officials proved that alternative to be neither feasible nor desirable. However, discussion with these parties did rapidly lead to consensus on the present plan by March of 1997. The City, ODOT, FHWA and Hamilton County came together to fund the improvement.

Because of the planned adjacent construction for new stadiums to house the Bengals football and Reds baseball teams, it was clear that reconstruction of FWW had to be completed in an unprecedentedly short time. Normal highway project development procedures and time frames would not suffice. The City of Cincinnati was empowered to develop and contract for the construction projects by innovative means in order to meet the short completion time required. The City contracted with Parsons Brinckerhoff Ohio, Inc. (PB) to manage the design and contracting process. PB developed the project into multiple phases and contracts that could be designed and let in sequence, allowing for detail design to be performed on a “just in time” basis and which provide for maintaining through traffic and alternate access during construction.

Designers of the project needed a pavement which could be constructed under these tight constraints of time and working space. They also wanted a pavement which would provide long life for this highly visible project. Other design goals included a pavement surface which would be visually distinguishable from the paved shoulders and which would help reduce traffic noise. After reviewing the recommendations of the asphalt paving industry, the designers chose a flexible pavement consisting of 250mm of 304 aggregate base, 200mm of 302 bituminous aggregate base, 125mm of 301 bituminous aggregate base, 45mm of 446 type 2 intermediate course and a surface course of 38mm of stone mastic asphalt (SMA) with a polymer modified, Performance Graded (PG) binder. Because of its exceedingly strong aggregate structure, open surface texture and high asphalt content, it is expected that the SMA will provide the visual differentiation, noise reduction and durability desired for the project pavement.

FPI congratulates the team from the City of Cincinnati, including John Deatrick and Don Gindling, and from Parsons Brinckerhoff Ohio, Inc., including Fred Craig, Ron Ring and Roy Mendelsohn, for bringing this complex project to construction in record time while seeking the highest quality project possible.
Asphalt and concrete paving recently went head-to-head in the bidding for an Ohio Turnpike project to build 2 new travel center plazas at MP 170.1 in Cuyahoga County. The Turnpike Commission set up a bid alternate to take bids for both asphalt and reinforced concrete paving at the travel centers. The project design consisted of multiple pavement design thicknesses depending upon the use of the pavement within the travel center. Asphalt pavements were to be constructed utilizing state-of-the-art polymer modification technology. Alternate S-2 included the cost of comparable designs of reinforced concrete and asphalt paving as shown in the accompanying table.

**Pavement designs included in alternate S-2, Ohio Turnpike project**

<table>
<thead>
<tr>
<th>Design</th>
<th>Material</th>
<th>VS</th>
<th>Design</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 inch</td>
<td>reinforced concrete</td>
<td>vs</td>
<td>10 inch</td>
<td>asphalt</td>
</tr>
<tr>
<td>9 inch</td>
<td>reinforced concrete</td>
<td>vs</td>
<td>11 inch</td>
<td>asphalt</td>
</tr>
<tr>
<td>11 inch</td>
<td>reinforced concrete</td>
<td>vs</td>
<td>13 inch</td>
<td>asphalt</td>
</tr>
<tr>
<td>13 inch</td>
<td>reinforced concrete</td>
<td>vs</td>
<td>15 inch</td>
<td>asphalt</td>
</tr>
<tr>
<td>8 inch overlay</td>
<td>reinforced concrete</td>
<td>vs</td>
<td>9 inch overlay</td>
<td>asphalt</td>
</tr>
</tbody>
</table>

The project offering attracted 5 bidders who bid the asphalt alternate at an average of $2,184,755 versus the average concrete bid of $3,592,096, a savings of 39% with asphalt over reinforced concrete. Results of the bidding are summarized in the accompanying table.

**Bids for alternate S-2, Ohio Turnpike project**

<table>
<thead>
<tr>
<th>Bidder</th>
<th>Asphalt</th>
<th>Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>$2,056,725</td>
<td>$3,654,877</td>
</tr>
<tr>
<td>#2</td>
<td>$1,995,164</td>
<td>$3,428,768</td>
</tr>
<tr>
<td>#3</td>
<td>$2,270,525</td>
<td>$3,428,540</td>
</tr>
<tr>
<td>#4</td>
<td>$2,228,289</td>
<td>$3,796,273</td>
</tr>
<tr>
<td>#5</td>
<td>$2,373,074</td>
<td>$3,652,020</td>
</tr>
<tr>
<td>Total</td>
<td>$10,923,777</td>
<td>$17,960,478</td>
</tr>
<tr>
<td>Average</td>
<td>$2,184,755</td>
<td>$3,592,096</td>
</tr>
<tr>
<td>Difference %</td>
<td>- 39%</td>
<td></td>
</tr>
</tbody>
</table>

This is yet another example of how economics favor using an asphalt pavement, proven by taking alternate bids for both asphalt and concrete pavement designs for the same project. Of course, first cost is not the whole cost of a pavement type decision. The history of Ohio’s Interstate System pavements shows that well designed and built asphalt pavements are less expensive to maintain and have never yet required reconstruction, making asphalt pavement the lowest life cycle cost alternative as well.
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UNSHACKLING INGENUITY
TO MEET DEMANDS OF HIGH STRESS PAVEMENT

Vic Roberts, P.E., City Engineer for the City of Englewood is no stranger to innovation. Early this year his innovative spirit took the city into uncharted waters.

The City of Englewood is very familiar with the use of modifiers in hot mix asphalt. For 15 years Englewood has successfully performed many fiber-modified 404 hot mix projects. Also, it has been successful in using an SBR latex/polyester fiber modified AC-20 based crack sealant formulation for the past decade. This year these two technologies were forged into a new concept following similar logic to the Ohio Department of Transportation’s “Next Step” Technique.

Wenger Road, a main thoroughfare of Englewood, received the overlay using the modified HMA. Having a mixture grading similar to 404, the manufacturing required only conventional methods with slight modification to polymer and fiber feed systems. The paving contractor, Butler Asphalt of Vandalia, placed the mix using standard equipment but found the mix to be very tenacious. Mat smoothness and workmanship were of high quality which evidenced a concern for getting the job done right by the contractor.

For the first time ever in Ohio specifiers are beginning to use multiple modifiers to obtain a synergistic effect on paving mixtures. In the case of Englewood, the engineer chose to incorporate SBR latex and polyester fibers in the HMA. The improved visco-elastic properties of latex modified bitumen and the “roping” together of aggregate particles by the fiber strands enhanced the mix matrix, improved asphalt cement film strength, and improved mix stability. These enhanced mixture properties were just what Englewood was looking for to meet its high stress pavement demands.

Probing the mat of the newly placed Wenger Road project revealed a fibrous matrix containing stone and rich binder which held together with tenacity never before seen. The Wenger Road project is a fine example of what can be accomplished in obtaining mix properties and performance when ingenuity is unshackled; or as Vic Roberts, City Engineer of Englewood says, “Englewood has proven that asphalt pavements can be markedly improved by simply using modifiers which promise significant performance gains. These gains can be reasonably anticipated by understanding basic asphalt cement chemistry along with the all important application of common sense.”

Pictured are (left to right) Vic Roberts, Englewood City Engineer; Pat Welsh, Highway Rubber Products; Blake Moyer, Butler Asphalt
What is the “Next Step” Technique, you ask?

It’s a method used to optimize benefit and cost in the HMA mixture selection. For instance, in a high stress pavement area (i.e. areas subject to truck or bus traffic) which would otherwise require an HMA mix design for “medium traffic”, an HMA mix design meeting “heavy traffic” parameters is specified. In a high stress area which would otherwise require a mix design meeting “heavy traffic” parameters, an HMA mixture such as stone mastic asphalt, or polymerized, or fiberized or a combination of both is specified. Figure 1 provides a visual representation of the “Next Step” Technique.

Following this logical method of HMA mixture selection leads the specifier into the most economical solution for the need at hand. (Further information can be obtained by contacting Flexible Pavements, Inc. at 1-888-4 HOT MIX and requesting the Standard Practice for Treatment of High Stress Pavement Locations Using Hot Mix Asphalt.)

HAVING TROUBLE WITH YOUR METRIC SYSTEM PREFIXES?

The passage of TEA-21 eliminated the requirement to switch to metric. Many states, including Ohio, are now considering the english/metric option. In the meantime, here are a few sample conversions to help you get familiar with those pesky metric system designations. Good Luck!

- 1,000,000,000,000 Microphones = 1 Megaphone
- 1,000,000 bicycles = 2 megacycles
- 500 millinaries = 1 seminary
- 2,000 mockingbirds = 2 kilomockingbirds
- 10 cards = 1 decacards
- 1/2 lavatory = 1 demijohn
- 0.000001 fish = 1 microfiche
- 453.6 graham crackers = 1 pound cake
- 1,000,000,000,000 pins = 1 terrapin
- 1,000,000,000,000,000,000,000 picolos = 1 gigolo
- 10 rations = 1 decoration
- 100 rations = 1 C-ration
- 10 millipedes = 1 centipede
- 3 1/3 tridents = 1 decadent
- 10 monologues = 5 dialogues
- 5 dialogues = 1 decalogue
- 2 monograms = 1 diagram
- 8 nickels = 2 paradigms
- 2 snake eyes = 1 paradise
- 2 wharves = 1 paradox

FPI will have a page of english/metric conversion factors in our 1999 desk calendar. Look for it. Perhaps it will be of some real help.
People who “work harder and more efficient than most” are the backbone behind Northstar Asphalt, Inc., according to Howard Wenger, President of the North Canton, Ohio, company. “The most important asset a company has is the people who work for it,” Wenger explained, adding, that Northstar prides itself on having 50 of the best employees in the state. “The top management people are important, but it goes a lot further than that. We believe we have some of the finest, if not the best, paving operators in the state. The same for the people who operate the milling machine and the lowboy driver.”

Northstar Asphalt is one of three companies headed by Howard Wenger who started the original company, Wenger Excavating, in 1965. Raised on a farm and the oldest of 11 children, Howard went to work after high school operating a backhoe. After a stint in the Army, he returned to Dalton, decided he didn’t want to be a farmer, bought a backhoe and went into business for himself with “just that one piece of equipment.” After two years digging basements and installing septic systems and sewer and water lines, he hired his first full-time employee and continued in the excavating business for 20 years. By 1985 the company included about 60 employees and expanded to a point that they required a lot of asphalt. Because “we were purchasing so much asphalt from others,” Wenger purchased the Stark County Division of Thomas Asphalt and started Northstar. At the same time they purchased a small sand and gravel washing operation in Massillon, Ohio, now known as Massillon Materials.

Today the three separate corporations are based out of the main office in Dalton, with Howard as President and his brother Merle Wenger as Vice President of Operations. Northstar produces between 300,000 to 400,000 tons of asphalt each year, and the three companies combined do an annual business in excess of $25 million. The company also operates a maintenance shop year-round. “Maintenance is important,” said Merle. “In order to get that kind of volume out of one asphalt plant, it’s extremely important that winter maintenance is done correctly. If we don’t produce asphalt, we can’t do any projects.”

Northstar’s three crews operate within a 50-mile radius in northeast Ohio, doing about an equal split of government/private work. While Northstar does many “paving only” jobs, it also does a lot of work in conjunction with Wenger Excavating. “Many projects draw on all three of our companies,” according to Merle, “with aggregate from Massillon Materials, underground work from Wenger, and paving from Northstar.”

One such project was the downtown reconstruction of North Canton where the company went in and “totally tore out everything from store front to store front,” putting in new sidewalks, curbs, street lights and decorative ornaments. “It was quite an undertaking,” said Howard, and a “beautiful project when we were finished.” Other recent ODOT projects of Northstar include street widening and reconstruction projects in Wayne and Stark Counties.

One of the recent most “memorable” projects for Northstar has been the Everhard Road widening project on “one of the busiest streets” in Stark County. “We had some extremely difficult ground conditions

Continued on page 9
that were involved with that project,” according to Howard. “It was a real political thing with the road (an interconnector that brings all the traffic from Massillon and Canton to the Belden Village Shopping Mall) being closed for over a year. There were letters to the editor (of the newspaper) daily.” Construction started in January 1997 with a November 1998 completion date. The company decided to team up with Beaver Excavating, put extra crews on, and worked long overtime hours to finish as soon as possible. While the $3 million project is still not completely finished, the four lanes were open for use by the public in December 1997, a full year ahead of schedule and in time for the peak Christmas shopping season. “We got a fair amount of accolades from people who were originally upset with us,” said Howard.

That customer approval is the “obvious” rewarding aspect of the industry. “You always strive for a ‘10’ on the job,” said Merle. “When you hear from the customer that they are satisfied, that keeps you going through the more difficult times.” Howard agrees that one of the most satisfying parts of his job is “seeing our customers and employees happy as well as having respect for our company.”

While there are a number of extended families working for the company, the Wengers consider themselves more of a “community” company than a “family” company. Merle feels “because we’re in a small town, we’re very integrated into the community. We hire many local people and then others in their family come to work for us. These extended family relationships make us feel somewhat like a community company. When a father can pass on his skills to his sons, it’s not only valuable to the company but it’s valuable to the family.”

Family bringing family into the business is what the Wengers feel make their company special. Two key people who joined the company in 1985 when Northstar was incorporated and who helped train a family member to carry on their work were Bob Hoover and Fred Parcher. Bob Hoover, who ran the asphalt plant from 1985 to 1996, is the father-in-law of one of the current plant operators, Wally Jackiewicz. Wally’s son also is currently working at the plant. Fred Parcher, who was “instrumental in helping us learn about the asphalt business” and who passed away in 1989, was the father of David and Matt Parcher. Matt is the other asphalt plant operator, while David is the general superintendent of Northstar. Other key employees are Howard’s daughter, Stephanie, Payroll Agent; Bryan Shaw, Vice President of Field Operations and Lead Estimator; Connie Tissot, Accounting Manager of Northstar; and Greg Kutz, Controller for all three companies.

Of the 150 employees in the three companies, more than one-third have been with the company ten years or more. When an employee reaches his 10-year anniversary, he receives a ring with one diamond. Another diamond is added every five years. The company hosts an annual Christmas party where employees receive bonuses and “employees of the year” are chosen by their peers. The company also promotes training and encourages the staff to attend workshops.

The community connection goes further than
Have you noticed the construction at your neighborhood gasoline station lately? They are trying to bring their underground storage tanks (UST) in to compliance with the new US EPA standards that take effect December 22, 1998, and, if you have a UST, you must do the same. The new Standards cover spill prevention, overfill prevention and corrosion protection.

Spill prevention involves the construction of some device, such as placing the fill pipe in a manhole, to catch any material that is lost when the transfer hose is detached from the tank.

Overfill prevention is designed to prevent the tank from being overfilled and consists of some kind of automatic shutoff, flow restrictor and/or audible alarm to alert the operator.

Corrosion protection consists of installing cathodic protection for metal piping and either lining the tank or coating it with a dielectric barrier and installing cathodic protection.

Of course, the other option is to eliminate your UST by putting in an aboveground unit (which has its own set of regulations) or fueling your equipment somewhere else. It seems that many are selecting these options as the number of USTs has declined by 21,700 since 1989, a decrease of 40%.

More information can be obtained by calling the Bureau of Underground Storage Tank Regulations (BUSTR) at (614) 752-7938.

Ohio Machinery Co. Con/Agg Division has been selected as the Ohio dealer for Neal Manufacturing Company, Inc.

Neal offers a full compliment of compact pavers with paving widths ranging from a broad thirteen (13) feet to a narrow two and one half (2.5) feet. Perfect for cart paths, jogging trails, trenching, road-widening and side walks, Neal produces the only paver on the market specifically designed for restricted-width paving.

Neal Paver sales, rental and service will be available throughout the state at Ohio Machinery Co.’s seven (7) Con/Agg branches (Cadiz, Canton, Cincinnati, Cleveland, Painesville, Youngstown, Zanesville).

Ohio Machinery Co. CON/AGG DIVISION OFFERS COMPACT PAVERS

(Member Spotlight, continued from page 9)

hiring workers. “You have to be a good community citizen,” said Howard. “You have to give back as much as you can.” He recently completed his 12th year on school board and is on the executive board of Buckeye Council of Boy Scouts and the President’s Advisory Board of Walsh University. In addition, the company sponsors and supports summer sports leagues, junior fair programs, and makes contributions to a number of causes not only in the Dalton area but other communities as well.

The Wengers are committed to being a good neighbor and part of a tightly knit community and
LOAN ASSISTANCE FOR AIR QUALITY PROJECTS

Are you planning to purchase, build or upgrade a bag house or other air quality control facility? Are you contemplating an energy efficiency or conservation project? As ambient air standards grow more stringent, you need to know about the help available from the Ohio Air Quality Development Authority (OAQDA) and its Clean Air Resource Center (CARC).

For twenty-eight years, the Authority has been helping Ohio’s business community successfully face the challenges of meeting environmental regulations in the most cost effective ways possible. The OAQDA can help finance your projects for pollution prevention, reduction and control, as well as those for energy efficiency and conservation. Any air quality project financed through the OAQDA is eligible for exemption from all state and local property, sales and use taxes for the life of the loan. The Authority is an independent agency. It is not part of the Ohio EPA, and has no regulatory duties.

The Clean Air Resource Center is the small business arm of the OAQDA and offers additional services needed by smaller companies. CARC provides these businesses with access to confidential technical assistance including answers to permit questions and even onsite visits to advise them about regulatory requirements, all free of charge.

In addition to the tax incentives which CARC can provide, it may even pay your loan’s closing costs if the project will result in compliance to the Clean Air Act. Any company with 100 or fewer employees and which does not fall under Title V permitting may be eligible for the additional services offered by CARC, but any Ohio company can benefit from the OAQDA’s excellent program of tax savings.

Whether you are dealing with dust suppression, asphalt operations or energy conservation, before undertaking any air quality related project, give the Authority a call at (614) 224-3383 or for small businesses, call (800) 225-5051. Visit the OAQDA’s website at www.state.oh.us/air/ for more information.

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Everyone who drives or rides in a vehicle over the surface of a highway pavement can subjectively judge the smoothness of the ride. In many states, however, the ride is also being judged objectively by new specifications which require the paving contractor to obtain a predetermined level of smoothness when a pavement is constructed or resurfaced.

According to consulting engineer, Jim Scherocman, the process of achieving smoothness is the same whether Hot Mix Asphalt (HMA) is being delivered directly from the haul truck, from a windrow in front of the paver, or from a material transfer device into the paver hopper. Achievement of smoothness requires a return to the basics in the operation of the paving machine.

**Forces on the Paver Screed**

Four primary forces act on the paver screed and affect smoothness.

*Elevation of the tow point on the paver where the screed is attached* – The change in the elevation of the tow point is transferred back to the screed through the tow arms on each side of the paver, causing the angle of attack of the paver screed to change. As the angle of attack changes, more or less mix is passed under the screed. This process is known as the “free floating screed” principle. In order for the paver to produce a smooth pavement layer, it is necessary for the tow point to move with the paver tractor unit. When the tow point moves in this way, the screed places more mix in the low spots in the underlying pavement surfaces and less mix over the high points in that surface.

*Forward speed of the paver* – When the paver increases speed, the angle of attack of the screed decreases, thus reducing the thickness of the layer being placed. When the speed of the paver decreases, the angle of attack increases and a thick pavement layer is constructed. In order to build a smooth pavement, therefore, it is necessary for the paver operator to maintain a constant paving speed.

*Head of material* – When the amount of mix being carried in front of the screed - the head of material - changes, the angle of attack of the screed also changes. An increase in the amount of HMA in the auger chamber in front of the screed causes the angle of attack to increase and a thicker mat to be placed. If the head of material in front of the screed decreases, the angle of attack of the screed decreases, and a thinner mat is constructed. For a smooth mat, it is critical for the paver operator to maintain a constant head of material in front of the screed at all times.

*Thickness Control Screw* – When the paver screed operator manually changes the setting of the thickness control screws, up or down, the angle of attack of the screed, and thus the thickness of the HMA mat, also changes. For mainline paving work, on a state highway, county road or city street, the smoothest mat will be constructed when the screed operator does not attempt to “help” the paver and lets the free-floating screed principle provide the necessary leveling action.

If the paver operator can maintain a constant paver speed, can maintain a constant head of material in front of the screed, and the screed operator can resist from making manual changes in the set-
ting of the thickness control screws, the angle of attack of the paver screed will be controlled by changes in the elevation of the tow point. Thus, the paver will place a smooth mat.

Trading Haul Trucks

It is common practice for paver operators to attempt to keep the paver moving at all times. When the haul truck delivering HMA into the paver hopper is empty or when the end of a windrow is reached, the operator slows the paver down gradually to avoid stopping. At the same time, the operator may run the paver hopper empty, hoping the next truck will arrive and place mix either directly into the paver hopper or into the windrow before he has to stop the laydown machine. Often the paving operation stops anyway, with the paver hopper empty, waiting for the next truck to arrive.

When the paver is slowed down gradually during this process and the amount of mix in front of the screed is reduced, the combined result of these two forces acting on the free floating screed is a decrease in the thickness of the HMA mat being placed - a dip in the pavement surface. When the next truck delivers mix into the paver hopper or into the windrow, the paver operator may overfill the auger chamber with mix in front of the screed and go back to normal paving speed quickly. The net effect of these two actions is a significant increase in the angle of attack of the screed when the paver starts moving again - a bump is built into the pavement surface.

Thus, every time the paver slows down gradually or stops because the hopper is empty, a dip and a bump are constructed in the surface of the new mat.

To build a smooth pavement, it is much better to operate the paver on a “rapid stop, rapid start” basis. If the truck delivering mix into the paver hopper is empty or if the paver reaches the end of the windrow, the paver operator should shut the paver down quickly - from paving speed to dead stop. This will reduce the effect of the change in speed on the angle of attack of the screed. The operator should also stop the paver with the hopper about half-full of mix in order to keep the head of material in front of the screed constant. These two steps will prevent a dip from being constructed in the pavement surface at the paver stopping point.

When the paver hopper is refilled with HMA, either directly from the next haul truck or from the newly placed mix in the windrow, the operator should go back to paving speed quickly, minimizing the effect of the change in speed on the angle of attack of the screed. Since the paver hopper is kept half-full between truckloads, the amount of mix in the auger chamber and the head of material do not change. So the thickness of the mat being placed stays constant - and smooth. The “rapid stop, rapid start” process greatly improves the smoothness of the pavement being constructed.

Material Transfer Devices

A number of different equipment manufacturers currently supply material transfer devices which are used as a “go between” for delivering HMA from the haul truck to the paver hopper. One purpose of these units is to keep the paver moving at a constant speed, with the transfer unit acting like a mobile surge bin. Depending on the capacity of the transfer unit (how many tons of HMA can temporarily be held), however, it is often still necessary to stop the paver if the next haul truck does not arrive at the paving site in a timely manner.

When mix is not available in the transfer device, the paver operator should again practice the “rapid stop, rapid start” paving procedure. The paver should be shut down quickly and with the paver hopper half-full of mix. When mix is once again delivered from the transfer device to the paver hopper, the paver operator should return to paving speed quickly. This process will result in the construction of a smooth mat behind the paving machine.

Keep It Simple

Paving contractors looking to build smoother pavements need to keep it simple, according to Scherocman. “At first, the procedure of rapid stop, rapid start seems too simple to be a solution to the problem of constructing a smoother HMA pavement,” he says. “But it really is just that simple. And the benefits are significant.”
The State Asphalt Pavement Association Executives (SAPAE) from around the country gathered in Cleveland for two days of meetings this past August. Twenty-eight of the thirty-two State Association Executive Directors, along with representatives from the National Asphalt Pavement Association and the Asphalt Institute, were present. The meeting, held each August in a different state, enables the various states to compare notes, be brought up to date on national issues and coordinate various group marketing and technical initiatives. Flexible Pavements, Inc. was pleased to host this year’s meeting and showcase the Cleveland/Lake Erie area to the group.

Dale Decker, Vice President of Research and Technology for the National Asphalt Pavement Association, discusses Superpave issues with SAPAE members.

IN MEMORY

FPI would like to extend its sympathy to the friends and family of two associates that have passed away recently.

On July 11, Mr. Eldo W. Bergman, President of Henry W. Bergman, Inc., a long standing member of FPI, died at the age of 80 years. Mr. Bergman graduated from the US Naval Academy and served 7 years in the Navy during the second world war, attaining the rank of Lieutenant Commander. Returning to Genoa, the place of his birth, in 1947, Eldo joined his father in the family road construction firm which his father, Henry W. Bergman, had founded in 1912. Eldo became President of the firm in 1956 and operated the company for 42 years while raising his 14 children.

On July 26, Mrs. Delores Street, the wife of Ohio Contractors Association Executive Vice President Clark Street, passed away. Mrs. Street had been ill for several years with a form of Amyotrophic Lateral Sclerosis - ALS (Lou Gehrig’s disease).
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