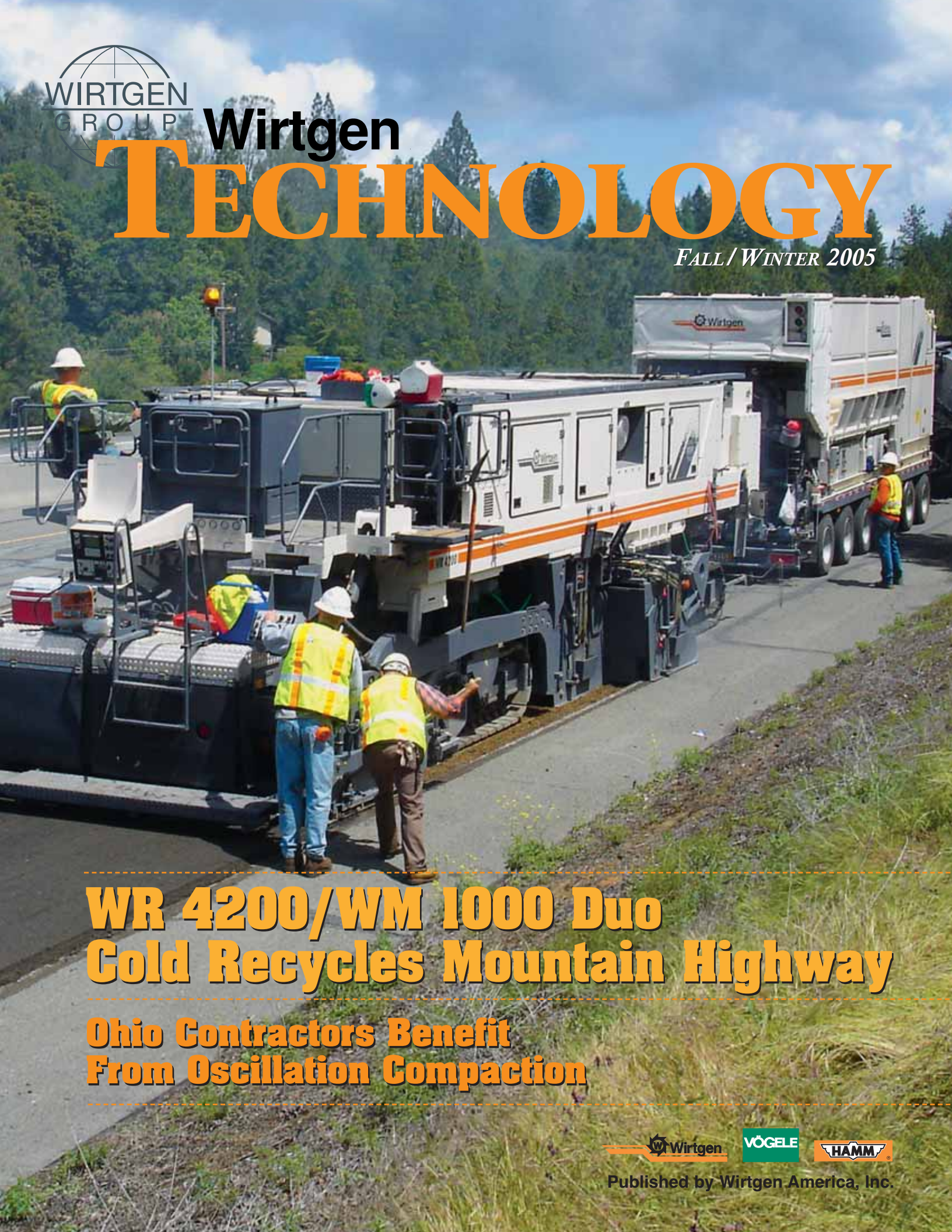

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FALL / WINTER 2005

WR 4200/WM 1000 Duo Cold Recycles Mountain Highway

Ohio Contractors Benefit From Oscillation Compaction

Wirtgen VÖGELE HAMM

Published by Wirtgen America, Inc.

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On the Cover: *WR 4200 is teamed with WM 1000 to foam-recycle I-80 in California's Sierra Nevada range; see page 6.*

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WR 2500
Wirtgen
EXETER
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NEW HAMPSHIRE
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As I see it...

I-80 Recycling The Tip Of The Iceberg

A project just completed this summer has proven that one-pass, 100 percent cold recycling of high-traffic, limited-access pavements is practical, economical, and is environmentally beneficial.

The project — in-place foamed asphalt recycling of I-80 in the Sierra Nevada, a major Interstate highway linking San Francisco with Reno — was completed this summer after the contractor effected a change in the original contract, and demonstrated that in-place foamed asphalt recycling of Interstate-type highways is a powerful alternative to conventional reconstruction.

As a result, successful rehabilitation of I-80 — incorporating one-pass, in-place pavement recycling via the remarkable Wirtgen WR 4200 recycler, and WM 1000 cement slurry mixer — opens the door for similar projects in every state of the union.

"It's the tip of the iceberg," said Teichert Construction vice president Larry Rhoden, in our cover story in the following pages. "It's the future, without a doubt. It just makes sense, and it doesn't matter if it's California, or anywhere else. The savings in raw materials — combined with today's restrictions on aggregates extraction, and the cost of raw liquid asphalt and diesel fuel — all make sense for high-volume, in-place recycling."

A New Era In Recycling

Back in the 1970s, when during the Arab oil embargo the price of a barrel of crude oil topped $80 in today's prices, asphalt cold milling and recycling came into its own in America. Now, 30 years after the highway construction industry adopted cold milling and hot plant recycling of RAP to build roads, we are at the beginning of a new era of large-scale, in-place cold recycling of asphalt pavements. But it's all driven by the same issue: the cost of energy and petroleum.

A new twist for today, though, is the abundance of environmental restrictions on how and where aggregate extraction and hot mix asphalt plants can be located, which drives up the cost of virgin aggregates and adds to delivery costs. In-place, high-volume foamed asphalt pavement reconstruction bypasses both problems.

As they say, money talks. Application of foamed asphalt for I-80 in California provided more than a superior base course; it saved money, big time. The contractor's early estimate is that the foamed asphalt process directly saved over $1 million for California taxpayers over the conventional reconstruction that Caltrans proposed.

But much more was saved. Because RAP already contains existing aggregates that have already been acquired, permitted, shot, loaded, crushed, screened, stockpiled, reloaded and hauled, tremendous savings in extraction and hauling costs were realized. This includes fuel to mine virgin aggregates, fuel to move the aggregates to a processing plant and then to an asphalt plant, fuel used to dry and coat the aggregates, fuel used to haul the asphalt to a paver, and fuel used by trucks to go back and get another load.

Fuel also was saved by motorists — and the air was cleaner — because the one-pass method created a lot less work zone-related traffic congestion. And as Teichert's Rhoden observes in the accompanying article (see the following pages), the average virgin hot mix design will incorporate 5.5 to 6 percent liquid asphalt, but this recycle method used only 2.5 percent liquid asphalt, so there was a huge savings in liquid asphalt alone, especially meaningful these days, when crude oil prices are so high.

Regain That 30 Percent Lost

High energy and asphalt costs have put the American paving contractor in a new quandary. The roadbuilding industry has rejoiced in the significantly higher funding levels of recent federal highway bills. But the runup in world energy prices has taken from the highway contractor at least a third of the opportunities provided by the higher funding.

But Wirtgen is at the forefront of the new technology that will leverage the storehouse of aggregates and residual asphalt in America's pavements to keep costs down, margins up, and the energy dragon at bay. The Wirtgen WR 4200 is a variable-width, traveling, milling, crushing, remixing and repaving machine that cold in-place recycles pavements in one pass, all but eliminating trucks, saving time, money and lots more. Let us show you how it does it.

Hats off to Emil Galasso of Cobleskill Stone Products, in Upstate New York, for the great job he is doing in revitalizing the old Penn-Dixie cement plant and Howes Cave House as an active quarry and a museum of mining and geology. Read about it in the article beginning on Page 28.

S W Murray

Stu Murray
President
Wirtgen America Inc.

Powerful Cold Recycler Foams Mountain Interstate

One of the most powerful cold recycling machines in the world — the Wirtgen WR 4200 — took on one of its biggest projects ever when it foam-recycled the upper wearing courses of I-80 in the California Sierra Nevada Mountains this summer.

The mountain environment and California motorists were big winners as the cutting-edge of cold-in-place (CIP) pavement recycling was used to rehabilitate a major portion of busy I-80 from Auburn to Colfax, north of Sacramento.

The California Department of Transportation (Caltrans), Teichert Construction, and Valentine Surfacing — with the participation of Wirtgen America, Inc. — reconstructed I-80 using the unique CIP foamed asphalt recycling process. A massive 1,280 hp Wirtgen WR 4200 milled up the existing pavement, mixed it with asphalt foam, and mixed it with a cement-water slurry from an accompanying Wirtgen WM 1000. This new innovative material was placed and compacted on the roadway, all in one pass.

A superior pavement was enhanced by the saving of over 130,000 tons of virgin aggregates, elimination of over 130,000 tons of new hot mix asphalt and its heating and hauling costs, and reduction in the overall project emissions. The recycling process produced no excess emissions, no demolition material, no waste heat, and no fugitive cement dust, and resulted in direct savings to California taxpayers of well over $1 million compared to conventional reconstruction.

This project combined the asphalt reclaiming and foamed mix capabilities of the WR 4200 with the cement slurry capabilities of the WM 1000 to recycle in-place nearly 27 miles of traffic lanes (approximately 188,950 sq. yd.), and nearly 49 miles of shoulders, (approximately 315,525 sq. yd.). It represents the first use of the WR 4200 in the United States and one of the largest such projects in the world to-date.

"We thought it was a great success," said Larry Rhoden, vice president and manager, Teichert Construction's Heavy & Highway Division. "More importantly, because it was Caltrans, it's really encouraging for the recycling industry as a whole. It's really the tip of the iceberg of what can be done. It's the future, without a doubt.

Most of driving lanes were recycled at night

"There are so many reasons for recycling," Rhoden said. "Raw resources are becoming very constrained, it's getting harder and harder to permit new aggregate extraction sites. With the price of oil being what it is, recycling just makes sense using this method."

"The work was of an excellent quality," said Wirtgen America president Stu Murray. "The high production standards of the WR 4200 and WM 1000 open the doors to cost-effective, high-volume, in-situ cold recycling in the entire North American market. This is the future of recycling, now."

The quality and the environmental aspects of the project were such that the project was entered into the annual Globe Awards program of the American Road & Transportation Builders Association, which recognizes a project's contribution to environmental protection and impact mitigation.

"The I-80 project was extremely challenging, an application that had never been attempted before on an interstate highway," said Wirtgen recycling specialist Mike Marshall. "Caltrans has carried out extensive testing on the foam-stabilized base produced with the WR 4200 on I-80, and a final report is due late this year. Wirtgen America rose to the challenge and the project ended as a resounding success."

Foamed Asphalt And I-80

Foamed asphalt is a cost-effective way of stabilizing road bases that's gaining interest from coast-to-coast. Foamed or "expanded" asphalt is created by carefully injecting a predeter-

mined amount of water into hot penetration-grade asphalt in the mixing chamber of a pavement remixing unit, and offers a cost-effective alternate for road base stabilization.

The expanded asphalt has a resulting high surface area available for bonding with the aggregate, leading to a stable road base using 100 percent of the existing in-place materials. The benefit is substantial cost savings over use of asphalt emulsions for base stabilization, and complete elimination of the cure or "break" period.

Recycling train renewed I-80 pavement in one pass

On I-80, the foamed material was paver-laid, with an integral Vögele high-density, variable-width screed and compacted, and could accept traffic — including heavy trucks — almost immediately.

Foamed asphalt is produced by adding small amounts of water (approximately 2 to 3 percent by mass of asphalt) to hot liquid asphalt, typically 320 to 350 deg F. The liquid asphalt used for the process can be straight penetration grade; in the I-80 project, it was PG 64-22.

When injected into the hot liquid asphalt, the water evaporates abruptly, thus causing extremely rapid expansion of the liquid asphalt in the saturated steam. Typically the liquid asphalt expands 15 to 20 times its original volume. The intensity and effectiveness of the foaming process can most effectively be governed by controlled operation of the basic physical conditions, such as pressure and temperature.

In Wirtgen recycling machines, unlike competitive machines, this process takes place in individual expansion chambers where the water is injected into the hot liquid asphalt, which has a temperature of 350 deg F and a pressure of 75 psi. Precise addition of water allows control of the rate and amount of expansion. Foamed asphalt technology is built into Wirtgen cold recyclers and stabilizers, not tacked on as an aftermarket add-on.

When using foamed asphalt as a binding agent, the content of fines in the aggregate is very important. The foaming process results in a surface expansion of the liquid asphalt and a simultaneous reduction of its viscosity. The dispersion properties of the liquid asphalt are greatly increased, ensuring that the fines (0.075 sieve) in the aggregates are coated.

This filler and the foamed asphalt together produce a mortar, which binds the coarse aggregates. On the I-80 project, the recycling depth was limited to a maximum of 4 inches, so only the asphalt pavement was to be recycled, instead of pavement plus base. When this occurs, insufficient fines are generated (10 to 20 percent 0.075 minimum) and it's necessary to add fines, in this case in the form of portland cement slurry produced by the WM 1000.

The Caltrans Materials Laboratory determined the optimum mix design for the shoulders as being 2.5 percent foamed asphalt by mass (+ or -0.5 percent), with 1.5 percent cement, and recycling depth of 2.5 to 2.75 inches. For the driving lanes, 2.5 percent foamed asphalt by mass (+ or -0.5 percent) was indicated, with 1.5 percent portland cement and a recycling depth of 4 inches.

As the cold recycling mix design called for 1.5 percent cement, it was decided to use the Wirtgen WM 1000 cement slurry mixer — a totally dust-free and accurate system — in conjunction with the WR 4200. The cement/water proportions for the slurry and the percentage values are entered into the onboard microprocessor, which then regulates the mix and pumps the correct amount of cement slurry into the recycler's pug mill mixer. This system of producing cement slurry on site is totally environmentally friendly and extremely safe, and no free cement dust is created to contaminate traffic, bordering vegetation or adjacent livestock.

Change To Foamed Asphalt

Use of the WR 4200 was the result of a contractor change. A section of I-80 California from Auburn to Colfax had been designated for rehabilitation by Caltrans, and the original contract requirements were for a mill-out of the existing pavement to a depth of 4 inches, and virgin repave, with an estimated contract value of over $40 million.

In prior years, Caltrans had used Wirtgen foam process with the WR 2500 with great success on secondary roads, and had developed a comfort level with the process (see *Rural California Road Benefits From Foamed Asphalt*, Spring 2003; issue downloadable at http://www.wirtgenamerica.com).

"This job was different from the rest of our jobs in which we used foamed asphalt as a stabilizing agent, because they have been full-depth reclamations," said Joseph Peterson, P.E., Caltrans District 3 materials engineer. "Here we decided to use foamed asphalt as a recycling medium, and went down 4 inches on the main line, and 3 inches on the shoulder using foam as the stabilizing agent."

During discussions with Caltrans, Sacramento's Teichert Construction, Valentine Surfacing, and Wirtgen America Inc. presented a Cost Reduction Incentive Proposal (CRIP), enabling part of the project to be changed from conventional mill-and-fill to CIP recycling. The change of rehabilitation method to cold in-place recycling would provide a number of

benefits, including a relatively high reduction in traffic congestion, or avoidance of congestion, during the in-place, moving construction, as well as a reduction in costs.

Following discussions between Wirtgen, Caltrans, Teichert and Valentine, the CIP recycling process that most closely matched Caltrans' benefit criteria was foamed asphalt. The agreed CRIP included recycling a total of 26.84 miles of traffic lanes (about 188,950 sq. yd.), and recycling a total of 48.68 miles of shoulders (added later, about 315,525 sq. yd.).

"Originally the contract called for us to mill out 4 inches of existing asphalt, and replace with new asphalt," Teichert's Rhoden said. "With virgin asphalt, the average mix design will incorporate 5.5 to 6 percent liquid asphalt. But the recycle method used only 2.5 percent liquid asphalt, so there was a huge savings in liquid asphalt alone. And the elimination of truck trips was a substantial benefit, both financially and environmentally."

"This was particularly important in California, where diesel engine emissions are Public Enemy No. 1," Wirtgen's Murray said.

Recycling Full Width In Single Pass

The recycling train — consisting of WR 4200 and WM 1000 slurry mixer — recycled the Interstate across the full lane width in a single pass, at the average recycling depth of 4 in. Generally, the hard shoulders were recycled during the day, and the driving lanes always at night. The recycled lanes were immediately opened to traffic the following morning. After the completion of project sections, the recycled base layer was to be overlaid with 75 mm (3 inches) of dense-graded asphalt, and later, 70 mm (2.75 inches) of open-graded friction course, resulting in a completely new driving section.

The recycled base material makes a very high quality base course, and the mixing results can be compared to those of stationary mixing plants. That's due to the WR 4200's integrated twin-shaft pug mill mixer, which produces a homogeneous construction material mix from the crushed pavement material and binding agents. The mixing capacity is approximately 400 tons per hour.

The recycling train had an average working speed of 15 to 20 feet per minute. An average of 1.2 miles of CIP pavement was completed each night shift.

Pavement was milled to a depth of 4 inches

Integral Vögele high-density, variable width screed placed foamed asphalt mat

Because there were no intrusions into adjacent traffic lanes, disruption to traffic was kept to a minimum. And the cutting width of the recycler is variable from 9-foot, 8-inches, to 13-foot 9-inches, so the entire lane width — including overlaps — could be recycled in one pass, eliminating longitudinal joints in the traffic wheel paths.

"This feature was especially important when recycling the shoulders, where the width was not constant," Wirtgen's Marshall said. "The ability to vary the recycling width on the move allowed changes in pavement width to be accommodated on the near side, while maintaining a constant and straight joint with the offside traffic lane. This feature meant that the recycling equipment remained in one lane, minimizing traffic disruption."

On I-80, the WR 4200 cut the existing pavement to the required depth and width, and the milled material was fed into its pug mill, where the binding agents, foamed asphalt and cement slurry were injected, along with a water spray, to bring the recycled material up to optimum condition for compaction.

On exit from the pug mill, the homogeneous material was then fed into a tamping, vibrating screed unit directly attached to the WR 4200, which placed the recycled material as a new traffic lane. Each of the three spray systems — foamed asphalt, cement slurry and water — were regulated by a microprocessor on board the WR 4200 to ensure that the correct values were delivered to the mixing chamber, in accordance with the mix design, relative to forward speed.

Following the CIP recycling, the reclaimed, stabilized base course material was compacted with a combination of a steel drum vibratory roller and a pneumatic roller. Once the required compaction was achieved, the recycled lane was opened to traffic immediately following the construction shift.

Meeting Environmental, Construction Needs

The I-80 CIP project using the Wirtgen WR 4200 and WM 1000 clearly met the initial project objectives of Caltrans and contractor Teichert.

Caltrans' foamed asphalt design strengths and required densities were based on what it had experienced with full-depth projects, Peterson said. "We're very, very happy that our preliminary falling weight deflectometer testing showed the

in-place material being stronger than our design material," he said. "We will continue to test every six months for the next three to five years."

There was a substantial reduction in traffic congestion on this heavily traveled route, which connects San Francisco with Reno, and follows the Donner Pass over the crest of the Sierra Nevada range. Restriction of the recycling equipment to one lane, with only two deliveries of materials per shift (liquid asphalt and water), meant the adjacent traffic lanes were not affected by the recycling process. The ability to open the recycled lane to traffic at the end of the production shift greatly reduced lane closures and resulting traffic congestion.

The quality of the foamed asphalt pavement was such that it gave Caltrans and the contractor flexibility in getting final driving surfaces on the recycled base course. "We left some of the recycled asphalt exposed to auto and truck traffic for up to two months, and never had any problems," Rhoden said.

"We initially found that, given enough time — typically about four hours — we could run fairly high levels of traffic, uncontrolled, including trucks, on the roadway with no problem at all," said Caltrans' Peterson.

Also, the cost of reconstruction was radically reduced. While a final figure for cost reduction is forthcoming, it's anticipated that a saving on the order of 20 percent will be achieved on the CIR sections.

"Because the equipment proposed by the contractor was an all-in-one unit, we were able to condense the conventional recycle train, which typically is strung out, into three pieces of equipment," Peterson said. "Instead of an over-1,000-foot train, the operation was just a fraction of that size, and that's important from a safety standpoint, because the longer the train is stretched out, the more exposure it presents to motorists. It allowed the contractor to move in a more cohesive unit, with everybody in sight of each other."

There were firm environmental benefits as well. The I-80 project resulted in a saving of over 130,000 tons of virgin aggregates, as reclaimed aggregate was used in-place, taking pressure off local quarries. Associated energy cost savings in production and haulage of over 130,000 tons of virgin hot mix asphalt were enjoyed.

While there were a number of locations from which the contractor could have brought virgin HMA, due to local constraints and permitting, it was necessary for all asphalt to come from Sacramento. This excessive truck traffic was eliminated by the CIP recycling process.

And the elimination of hauling helped prolong the life of local roads, and greatly reduced overall project emissions by haul trucks and stalled traffic caught up in construction congestion. Lastly, emissions from hot mix asphalt plants for the project were avoided, and the in-place recycling process was totally environmentally friendly, with no dust nor waste heat produced.

"The I-80 project utilized a highly innovative and cost-effective process, and environmental impact mitigation techniques," Wirtgen's Murray said. "This cold recycling project used Wirtgen equipment never before used in the states, reflecting the very latest recycling technology used in other countries. I-80 set a new standard for cold in-place recycling, opening up an entirely new application for recycling with all the associated environmental benefits and cost savings."

Peterson is confident that in-place recycling will work for Caltrans in the future. "I can't speak for Caltrans, but I'm confident that what we're seeing on the Interstate is a reflection of what we saw in the full-depth reclamation," he said. "Our first project utilizing foam is going on its fifth year, and it's performing wonderfully. If the I-80 reconstruction behaves the same way, it will be a success and we will have a way to foam-recycle asphalt pavements at a shallow depth on high ADT roadways. We look forward to reusing this process again as candidate projects become available, and we won't want to wait five years."

Full-width milling kept equipment out of traffic

Planing In Paradise: Wirtgen Mill Makes Beachhead In Oahu

Alakona's W 1200 F/T mills Pearl Harbor pavement

One of the first Wirtgen cold mills in the Hawai'ian Islands is "planing in paradise" as it goes to work for Alakona Corp. in Honolulu.

Acquired in January 2005, the W 1200 F/T is permitting the asphalt paving and maintenance firm to expand its operations and better serve customers, said Betsy Wilson, corporate secretary.

"It has increased our efficiency and helped us better utilize our labor for all the paving jobs we do," Wilson said. "We like the capabilities of the machine and appreciate the German technology. We're very happy with the machine as we have discovered what it can do for us."

Serves Private Sector

Alakona was founded in 1982 and is owned by Mervyn de Wolff, president. It specializes in private sector paving, with three small pavers, plus rollers, graders, loaders, tack coat buggies, sweepers and crack fillers and melters. "We do more of the private jobs, like shopping centers, and apartment and condominium parking lots and driveways," Wilson said. "We also do some state and federal work, which often involves cold milling." The mix is about 70 percent private sector, with the remainder public sector work.

In true Western style, on occasion Alakona will rent the W 1200 F/T and operator to another contractor, but a strong backlog has kept the cold mill busy for Alakona itself this year.

As isolated as Hawai'i can be sometimes, it is very much a user of cold milling and reclaimed asphalt pavement (RAP). Limited resources and the high cost of living on the islands encourage reuse of cold millings. The Hawai'i DOT allows the inclusion of RAP in base courses up to 30 percent for batch plants, and 40 percent for drum plants, by weight of aggregate, according to the Hawai'ian Asphalt Paving Industry, the state contractor association.

"Cold milling has been conducted here for quite a while," Wilson said. "The large paving companies here have cold milling machines and have used them extensively. Some of our highways and most of our roadways are asphalt, which are maintained often by cold milling and repaving."

"We have limitations on how much rock we can extract, because we are an island, so recycled asphalt definitely is gaining in interest, and it's being used more and more," said Arist de Wolff, project manager. "Recycling the material means less goes to the landfill."

Even though Hawai'i doesn't get the freeze/thaw cycles that destroy hot mix asphalt pavements on the mainland, the brilliant sun — the islands are as far south as Mexico City — and heavy traffic loads take their toll. "Rain causes pavement deterioration, and when it's not raining, the UV rays do their job," Wilson

"It's really efficient, it leaves a cleaner cut. The material it's giving us comes out consistent and easy to haul, with no big chunks. We can get into little areas, and move it quickly and easily all over the place."

said. "And we have a dense population on Oahu, so our pavements get an enormous amount of wear and tear with stop-and-go traffic."

Most of Alakona's milling jobs are private sector work

Efficiency And Accuracy

The accuracy of the machine's cut is a big plus for Alakona. "The W 1200 F/T will save us a lot of time and manpower," said Arist de Wolff, project manager. "It's really efficient, it leaves a cleaner cut. The material it's giving us comes out consistent and easy to haul, with no big chunks. We're a smaller contractor compared to the bigger guys, with their huge cold planers, and this smaller machine works great for us. We can get into little areas, and move it quickly and easily all over the place."

The operator also is happy with the W 1200 F/T, and that makes a big difference in productivity. "We have an operator who drives the truck and trailer as well," Wilson said. "He can take the machine where he needs it, does the job, puts it back on the trailer, and takes it to the next job. That machine is a one-man show, although he has spotters and ground men at the site already."

Outside the tight areas, the machine is used for patching, where it cuts 20 by 20 patches or larger, 12 inches deep. "We also use it to construct swales and improve drainage," de Wolff said.

"The Wirtgen is working nicely for us in tight areas," Wilson said. "The big boys can't take their huge cold mills in to do the smaller, more delicate jobs, for example, in shopping centers, where you have tons of ins-and-outs to the parking spots and around curbs. The beauty of this machine is its ability to remove a definite amount of material; it makes it easier to complete a large area in phases rather than have to go in and demo a large area at one time."

Search For Right-Sized Mill

Alakona's research for the midsize cold mill began on the Internet, and was followed up by jawboning with peers in the business. "We were looking for a certain-size machine, one that wasn't too big or too small," Wilson said. "The W 1200 was a nice-sized machine for our applications. Mervyn de Wolff also read the trade journals and found the Wirtgen web site very useful for the detail we needed."

Alakona also took advantage of Wirtgen's financing program. "Nashville was very helpful in arranging the financing of the initial acquisition, so we could acquire the machine, and then once it was on the island, refinance it locally," Wilson said. "That made a difference to us, because we were anxious to get the machine shipped and on the job with as little delay as possible."

Some of the training was conducted by area sales director Marty Burks. "Marty helped us to get to know the machine and do much of the training, which was wonderful," Wilson said. "He made himself available and it was very convenient for us. From here in Hawai'i, Wirtgen people have been nice to work with; we deal with people in Tennessee and have had nothing but great service from them."

Burks also provided a list of maintenance parts, such as filters and toolholders, to have on-hand because they are not readily available locally. Alakona also is considering sending personnel to Wirtgen's training sessions this winter. "We have been considering other equipment from Wirtgen in the future, and have been looking at what Wirtgen has in other lines," Wilson said. "It might be worth our while to send someone, especially if we acquire more Wirtgen equipment."

Christening or 'blessing' of new equipment is an Hawai'ian tradition; here the Wirtgen W 1200 F/T is christened on acquisition in January. From left are Mervyn de Wolff, president and owner, Alakona Corp.; the minister, Rev. John Helemanu; Betsy Wilson, corporate secretary; Lane Santiago, project manager; laborers Jeff Gasper and Sila Fuiava; and Bruce Cadirao, operator and maintenance man.

Oscillation Compacts Cool Mats, Offers New Options For Big Ohio Contractor

New HD O120V compacts U.S. 30 near Wooster, Ohio

A major Ohio "Three Amigo" contractor is leveraging its Hamm Oscillation rollers to increase productivity and lower costs.

Zanesville-based Shelly & Sands, Inc. is complementing its Hamm HD O90V with the new HD O120V to compact demanding pavements faster and at reduced costs on a job. In late summer 2005 the firm had two HD O90Vs, one HD O120V, four HD 120HVs, and three HD 110VHV compactors.

In July the firm acquired a new Vögele America, Inc. 2219W paver, which complements two 1110 WBs — predecessor to the 2219W — and an 1110 RTB. A 1900 DC Wirtgen cold mill rounds out Shelly & Sands' fleet.

All were sold by The McLean Company of Hudson, Ohio, a Wirtgen "Three Amigo" distributor. "The firm is good to work with and is really helpful in getting technical information and getting parts to us on time," said Steve Schlosser, equipment superintendent. "That makes a difference, because other distributors seem to be a little bit slower."

Shelly & Sands intensive use of Hamms dates back three years, when McLean took on the Hamm account. "We have lots of Hamms because they are good product," Schlosser said. "The operators and mechanics like working on them, compared to other brands of rollers. It became time to upgrade our roller fleet — they weren't doing the job that quality control needed out there — and Hamm got the call."

Advantages Over Vibratory Rollers

"Vibratory rollers leave much the same impression; some have some advantages over the other," said Ed Morrison, Shelly & Sands quality control manager. "But the Oscillation rollers are providing a significant improvement on some of the tougher mixes, like our airport mixes and Superpave. We will try it on SMA [stone matrix asphalt] later this summer. But typically, on the jobs where we have had trouble achieving density, on intermediate or surface mixes, we have always seen better numbers using our Oscillatory rollers over the competitive units."

There are several reasons for this, he said. "One is we have more time available for compaction," Morrison said. "The Oscillation roller lets us compact at lower temperatures, and it doesn't seem to break the stone like a conventional vibratory roller will. Its 'kneading' action gives us more time to compact, at lower temperatures."

Oscillation compaction works by imparting a horizontal force into the hot-mix asphalt, from side to side, rather than by forcing it downwards by an up-and-down motion. The drum never leaves the mat.

Unlike traditional vibratory com-

"The Oscillation roller gives us more of a chance to get within the spec limits, and possibly achieve a bonus when an incentive is offered."

pactors that achieve compaction by bouncing the drum on the ground, Oscillation technology ensures that the roller drums maintain constant contact with the ground for faster, more effective compaction. In the Oscillation drum of the HD O90V and smaller HD O70V, two eccentric masses turning in the same direction cause a movement around the drum axle; there are four eccentrics in the new HD O120V.

The movement changes its direction of effect during one turn so it generates an oscillating or rocking movement of the drum. Horizontal forces are transmitted from the drum into the pavement. The result is better compaction in fewer passes, with less vibration-related wear and tear on operators and surroundings.

Hamm Oscillation compaction can get density on cooler mats

On an intermediate course in West Virginia, when another brand of vibratory roller was barely obtaining minimum density — 92 percent where 91.5 was minimum — the Hamm Oscillation roller got the numbers up to 94 percent at 130 deg F mat temperature.

"It gives us a big advantage in meeting minimum density specs, and possibly achieve a bonus," Morrison said. "If the compaction density is marginal with the conventional vibratory, once you get down below a certain temperature you will not get any more compaction. You'll just break the stone. The Oscillation roller gives us more of a chance to get within the spec limits, and possibly achieve a bonus when an incentive is offered."

In addition to successfully getting density on asphalt lifts that are past optimum temperature, Shelly & Sands' Oscillation rollers are solving smoothness problems.

"The Oscillation compactors are helping us with our smoothness issues as well," Morrison said. "Today's new polymer-modified asphalt mixes set up a lot quicker, and I feel we have a better chance of successfully compacting the mat and attaining optimum smoothness with an Oscillation roller."

Shelly & Sands acquired Vögele America 2219W in July

Produce HMA At Lower Temperatures?

Ultimately the Oscillation technology may help save fuel and lower costs of asphalt production. Because the Oscillation roller can compact effectively at significantly lower mat temperatures, the opportunity exists to produce hot mix asphalt at a cooler temperature, reducing emissions with the potential of large savings in energy costs, especially considering the size of today's large asphalt plants.

"If you can drop the delivered temperature by 10 to 15 deg F, you can buy an Oscillatory roller with the savings alone after a year's time," said Scott McLean, vice president and field sales manager of McLean Company's Columbus branch. "Instead of mix coming out of the plant at 345 deg F, and running the risk of blowing your bag house out, with added wear and tear and production of excess blue smoke, you can drop the exit temperature to 325 deg F and perhaps delivered to the paver at 290, and the Oscillation roller will still get density."

First Oscillation Roller In Ohio

Shelly & Sands acquired the first Oscillation roller in Ohio, an HD O90V. "We tried it on a job with base mix and did not see a noticeable improvement," Schlosser said. "Then we brought it back onto another job where we had some difficulty, and saw the numbers come up. We decided to rent an Oscillation roller last year, and at the end of the season we decided to buy it."

"On an airport job we put it out as a finish roller as we were instructed," Morrison said. "That's where we saw the most significant improvements. It brought the density up and the consistency as well."

The Oscillation rollers also got Shelly & Sands out of a jam on U.S. 23 in Chillicothe, Ohio this summer. The job requirements were two asphalt 12mm lifts over joint-repaired concrete, but carried smoothness and density requirements.

Conventional vibratory rollers first were used to compact the material. However, joint repair bumps were reflecting through, so Morrison used Hamm Oscillatory roller technology along with a pneumatic tired roller. Both worked very well in getting rid of the bump formation.

A Group Of Companies

Shelly & Sands, Inc. does more than asphalt paving; it's a group of affiliated corporations which embraces new technology and — in the case of its Mar-Zane Materials division — wins national awards for the environmental excellence of its asphalt plants.

Shelly & Sands is not to be confused with another Ohio roadbuilder, The Shelly Co. (see related article in this issue).

Founded in 1944, the first Shelly & Sands job involved a small paving crew of six men on a road outside of the tiny town of Dresden, Ohio. Today, Shelly & Sands serves eight major markets in four states and paves more roads in Ohio than any other company, the firm says.

Its first aggregate operation was purchased for $45,000 in 1946 and named the Muskingum River Gravel Company, after the rich reserves along the river. Now there are five facilities with extensive aggregate reserves.

Its Mar-Zane Materials subsidiary — so named in recognition of its Marietta-Zanesville roots — has 28 plants producing over three million tons of hot mix asphalt (HMA) annually.

Balloon lights make night paving easier for 2219W

About The HD O120V

New at Conexpo-Con/Agg 2005, the 13-ton HD O120V provides an alternate to customers wanting a larger Oscillation compactor than the enormously successful 10-ton HD O90V, introduced in 2003.

The HD O120V is the largest asphalt compactor in North America to incorporate exclusive Hamm Oscillation Technology. This 78-inch-wide, double-drum roller has an operating weight of 26,345 lb. with oscillation in the rear drum, and conventional vibration in the front. The rear drum has an oscillation frequency of 2,160 to 2,520 vpm, and the front with vibration frequency 2,520 to 3,000 vpm.

The HD O120V was developed by Hamm AG specifically for the North American market, where customers of the Hamm HD O90V asked for a heavier and wider oscillation roller. The larger dimensions of the machine, in particular the working width of 2 m, required a re-design of the oscillation drum. For this reason, the HD O120V is the first machine to have a drum with four instead of two eccentric shafts.

Otherwise, the new roller is a close cousin to the well-proven HD 120 HV and offers the benefits of the HD series, such as the panoramic, all-round view, simple operation, excellent maneuverability, and the maintenance-free articulated steering system.

About The Vögele America 2219W

The 10-foot 2219W rubber tired asphalt paver from Vögele America, Inc., Chambersburg, Pa., has gained good acceptance with contractors since its original introduction as the 1110WB in 1998. The Front Wheel Assist (FWA) option provides contractors with a wheel machine that limits the potential for wheel slippage during paving, thus removing a factor that would contribute to a rough surface.

This machine features operator controls that are standard across the Vögele line, including the sliding console and fingertip control of all machine functions. A Cummins QSB5.9TAA diesel engine provides 190 hp with four speed ranges and a top speed of 12 mph.

The Vögele portal axle drive provides true differential steering and the option of differential lock or modulated steer-assist pedals for better traction and handling. Hopper capacity is 225 cubic feet and overall length is 21 ft. 6 in. with excellent operator visibility.

The paver can be equipped with various controls, including the latest non-contact type ski, which produces a mean grade average without the complications of the conventional traveling ski. The highly effective Vögele fume extraction system provides a comfortable environment for the operator and screed operators without inhibiting the view of augers and head of material while paving.

With the importance of Quality Control/Quality Assurance (QC/QA) in today's paving, contractors require equipment that will meet tight specifications, especially with the Superpave mixes in use. The Vögele screeds have long been known for rigidity, providing superior density and mat quality. Curved pre-strike offs — along with curved telescoping strike-offs in front of the hydraulic extensions — produce a tighter, denser finish across the width of the mat.

Oscillation Conquers Changed Density Specs In Columbus, Ohio

A Columbus asphalt paving and pavement maintenance firm is using exclusive Hamm Oscillation compaction technology to tackle jobs that are difficult for contractors with conventional compaction.

And it's being driven by the City of Columbus' shift to density specifications on asphalt paving projects, where Hamm Oscillation compaction is doing what conventional compaction can't do: Meet the new density specs without excessive compaction and disruption to thin lifts.

Decker Construction Co. prides itself on its quality asphalt pavements, and is a recurrent winner of quality pavement awards presented by Flexible Pavements of Ohio, the state asphalt association. The firm uses four paving crews and four stone crews, on jobs that range from large driveways, tennis courts, commercial parking lots, private roadways, public streets and airport runways. And its two Hamm HD O90V Oscillation rollers help make it possible.

"We have used our Hamm Oscillation rollers through three seasons," said Fritz Smith, vice president, Decker Construction Co., Columbus. "We acquired them primarily because the City of Columbus changed its specifications, and went to a density spec for the surfaces of all newly constructed city streets for subdivisions and new housing. We had a tough time getting compaction with the standard roller design, so we changed to the Oscillation rollers, which do a much better job."

The switch to the Hamm Oscillation rollers has done more than meet specs; it's enabled Decker to reduce the number of rollers on a job. "The HD O90Vs are more efficient," Smith said. "We've eliminated a roller off the roller train, and have changed our whole way of thinking about the roller issue."

What Is Oscillation Compaction?

Hamm's unique, non-aggressive Oscillation technology is changing the way contractors work in North America. Hamm's Oscillation technology is non-aggressive because it compacts with a gentle rocking motion, not a vertical pounding, and can be a powerful new tool for boosting asphalt paving productivity and profits.

It's available now from Hamm with the new Hamm HD O120V, the HD O90V and HD O70V asphalt compactors, and the 3412 VIO soil compactor.

Hamm has developed a principle of creating compactive effort through generating horizontal shear forces, as opposed to vertical impacting. Instead of vibrating straight up and down, the Hamm Oscillatory design gives the drum a horizontal or "rocking" force which keeps the drum in contact with the mat.

This is significantly different from competing manufacturers, and is an example of how Hamm moves technology, research and design to new levels. Hamm Oscillation technology attains very high compaction numbers with minimal passes and no shattering of aggregate. And as Decker Construction found, it often permits contractors to remove one or more rollers from a job.

Oscillation compaction has allowed Decker to pull a roller from a job

Decker Construction's staff learned about exclusive Hamm Oscillation from Scott McLean, from Wirtgen "Three Amigo" distributor The McLean Company, and also from Hamm's national sales manager Richard Evans. "The Wirtgen Group does a good job of giving us information when we need it," Smith said. "Then, where there is a technological advantage out there for our customers, it becomes our job to promote it and bring it to them."

"I've been here 25 years, and have watched the whole operation," said Bill Snoke, asphalt superintendent. "The Hamm rollers are our preferred weapon of choice. To reach our density spec, we usually can get it in one pass. It cut our fuel use almost a third from what we were using before. It's really made a difference. It's user friendly and you can see really well out of the cab. It's probably our most asked-for piece of equipment by the operators."

The HD O90V rollers were useful on a recent airport job, where 98 percent compaction was required on a runway. "We were reaching the spec with our double-drum rollers, but they weren't as efficient," said Jonathan Apple, project manager. "The Hamm rollers got density in fewer passes, and with a lot less fuel and water usage. We were able to run five rollers instead of six."

"With the old roller, we might have had to hit it with two to four passes," Snoke said. "With the Hamms we can cut back to one pass. They speed everything up."

The Hamms also have precipitated a change in how Decker's subdivision streets are compacted. "We were running a three-wheeler up front," Snoke said. "We now are running the Hamms up front, following a meeting we went to earlier this year that pointed out that the hotter you hit it, the better it is. We've always said that, but it's hard to get that into the operators' heads."

The smoothness of the suburban mats following the Hamm HD O90Vs also impressed Snoke. "You don't have bumps like you do with a three-wheeler," he said. "We were using three rollers, and now we use two. It means you can cut down on labor expenses."

Change In City Specs

Columbus specifications have changed from "tons per hour per roller", Smith said. "A certain roller would have so many tons per hour that it could compact, according to their science. Then they went to a density specification, where you had to get a minimum of 92 percent of the laboratory density, up to 97 percent, but with no number-of-passes requirement. We couldn't guarantee that we could do that every time, especially as the weather got colder, in the fall of the year, when it seems we do most of our work."

That's because Decker is called by developers to quickly pave subdivision streets before the season shuts down before winter. "As people start to panic, and realize it's almost winter, we're out there getting the last few subdivisions in before the season closes up, and conditions aren't suited for compaction."

The penalty in Columbus for not meeting the spec is that the contractor must supply an extended warranty. "That's something we didn't want to have to get involved with," Smith said. "And we were on the cusp of failure all the time, right at 92 percent. But we wanted to get up higher than that, up into the middle range."

Today, the mix specification remains in flux. "The whole specification is evolving as we speak," Smith said. "They are trying to come with a spec that will give them more longevity for their streets and highways. They're experimenting — sometimes at our expense, it seems — but we're working our way through it. And the HD O90Vs help assure that we won't have a problem."

Exacerbating the situation is the portland cement concrete

HD O90V's efficient water system requires fewer refills

Decker Construction owns two HD O90V Oscillation compactors

HD O90V compacts suburban street

pavement lobby, which is pushing the city to look more critically at HMA paving in its borders. "The lobby claimed HMA was not being tested enough, so the city decided to do compaction testing," Smith said.

Nonetheless, the high technology of the Oscillation system in its twin HD O90Vs is helping Decker meet the challenge from PCC. "They do the job," Smith said. "We're happy with them. They are good machines and they have saved us money by not having to have another extra roller on the job."

In the process of changing specifications, the city went from a single spec of concrete base with a couple of inches of asphalt, to five different kinds of potential mat designs, Smith said. "On concrete, asphalt was a single lift of an inch and a half thick, on a variable surface. Before the Oscillation rollers we had a tough time because we had variable lift thicknesses. It's not that we failed; it's just that we were on the edge of failure, too close to be safe."

Thin Mats Need Oscillation

Other design specs include composite with stone and aggregate base and 1 1/4-inch surface course. "If you roll it too many times, it just breaks over and starts to destroy the mat," Smith said. "We were just getting to the 92 or 93 percent level, and then it would go the other way. With the conventional rollers, half a pass might be too much, but with the Oscillating rollers, they seem to stop compacting the mat at the right time. When it gets as hard as it needs to get, it doesn't go in the other direction. Don't ask me why, but I've seen it, and it's remarkable. We're also getting compaction in fewer passes, which means less time on the job."

Another danger of overcompaction is crushing of the aggregate within the mat, with telltale white streaks on the mat surface. "That can happen," said Snoke. "But what we are having more of is our edges breaking off on us as we try to roll too much out. For that we will use an 8- to 12-ton straight roller on the last 6 to 8 inches."

In addition to the Hamm rollers, Decker owns a Wirtgen W 1200 F/T. It uses its W 1200 F cold milling machine to cold-mill up to 13 inches deep and 4 feet wide in a single pass. The machine executes pavement repairs on light-duty parking lots, long trenches for utility installations — which eliminates the need for a saw cut — and full width milling of arterial streets.

More To Decker Than Just Paving

Decker was started in Columbus in the 1950s by Ed Decker. It was acquired in the 1960s by Marble Cliff Quarries, and later by Medusa Aggregates. In 1981, Roger Apple and Fritz Smith — both employed by Marble Cliff — purchased the assets from Medusa and reincorporated in the name of Decker Construction Company.

Today, Decker operates within a five-county area in central Ohio, and specializes in a remarkable number of construction niches, including asphalt paving, asphalt maintenance, cold milling with the Wirtgen W 1200 F, roller-compacted concrete pavement, concrete construction, and new construction related to road widening, excavation and storm sewers. The firm completes approximately 350 commercial and public projects per year.

During the peak of the season, Decker employs approximately 150, with four paving crews, four stone crews, six maintenance crews, six concrete crews, and four excavation crews.

And its Greensboro Corp. subsidiary manufactures and distributes a fast-setting, innovative flowable fill granular material that can be paved on in 30 minutes, called *Flash Fill*. It's used for utility cut repair and has the advantage of being easily excavated at any point.

Via its Apple-Smith subsidiary, Decker sells hot mix asphalt all year around, including the dead of winter, the only such plant open during the winter. "We produce asphalt in a limited way," Smith said. "We have a small batch plant, a 1-ton plant, that we use for our specialty purposes, such as our patching operation, that has long-term contracts with the local utilities to do utility cut restoration. But as a result, we are the only plant in the Midwest, I think, that is open in the wintertime. We're open 365 days a year, and it enables us to do cut restoration without having to use cold patch, and having to come back and re-excavate it later. Instead we can do a permanent patch, whenever it needs to be done."

For peak season work, Decker obtains hot mix asphalt (HMA) from a variety of local providers. "Their plants are larger and more efficient than ours," Smith said. "We lay anywhere from 300,000 to 400,000 tons per year through three or four paving crews."

HD O90V offers unexcelled operator visibility

'Three Amigos' Give Oldcastle's Shelly Co. Edge In Northern Ohio

One of the largest paving contractors in Ohio is combining Hamm exclusive Oscillation technology, big-size cold mills from Wirtgen, and pavers from Vögele America to better serve its customers and enhance its bottom line.

The Shelly Co. — an Oldcastle subsidiary — operates in Ohio under three construction divisions, out of Findlay, Thornville, and Twinsburg.

In 2005 The Shelly Co.'s Twinsburg, Ohio division became a Wirtgen Group "Three Amigo" purchaser, acquiring two HD O90V Oscillatory rollers, a W 2000 cold mill, and two Vögele America pavers, a 10-foot 1110 RTB, and an 8-foot 2116T track unit. But its experience with Wirtgen goes back a lot longer.

"We've been using Wirtgen mills since 1997, when we bought a 1900," said Douglas C Rauh, vice president and general manager. "Our division uses five milling machines. Even though Wirtgen America was only 10 years old at that time, it was clear that their technology, high output, ease of maintenance, and overall maintenance and repair costs were superior to everybody else's, and it's proven to be correct."

In addition to the W 2000, the division operates an additional 2000 and a 1900. Non-Wirtgen cold mills were acquired through the buyout of another contractor.

The versatility of Wirtgen cold mills means Shelly Co.'s Twinsburg division can use them over a wide variety of jobs. "We do everything from four-lane Interstates one day, to a two-lane country road 80 miles away the next, and everything in-between," Rauh said. "We use them for road widenings, shoulder excavation, main line milling, and more."

The Twinsburg division is gradually shifting to use of Wirtgen Rhino bits and teeth. "We find that they are outlasting the competitors' teeth," Rauh said. "They cost a little bit more money, but when you look at the life you're getting out of the tooth, it's clear that they constitute more bang for the buck in certain applications."

The life of a milling tooth is extremely dependent on how high the horsepower the machine is, and what type of material is being milled, Rauh said. "Up here [in northern Ohio] we have two distinct types of materials: sand and gravel, and limestone," he said. "Sand and gravel is much harder than limestone, and we will go through two to three sets a day when milling it. But we may get two days from a set of teeth milling limestone."

Getting To Sheldon Hayes Award

The Twinsburg division has come close to winning the coveted *Sheldon G. Hayes Award* from the National Asphalt Pavement Association, for excellence in construction of an asphalt pavement using over 50,000 tons. It was a runner-up in 2000, and in 2003, for its work on the Ohio Turnpike.

"It's a very rigorous competition," Rauh said. "They consider the smoothness of the job, the quality assurance test results, overall look of the job, and even tightness of joints. There is a whole questionnaire that must be filled out, and it's a tough evaluation."

Just to get to that level of competition is a major undertaking, Rauh said. "To get to that level of quality of pavement, you have to have your organization in sync," Rauh said. "There must be extraordinary attention to detail at every level. It begins with production of

The Shelly Co. owns two HD O90V rollers

Shelly Co.'s HD O90V gives extra compactive force to Superpave lifts

Cut smoothness of W 2000 helped Shelly Co. qualify for Sheldon G. Hayes award in 2003

aggregates, how the asphalt is made, trucked and placed. It's easy to get that first 90 percent; but it's very difficult to get that last 10 percent." It helps that The Shelly Co. is vertically integrated, and produces most of its own aggregates and asphalt, and can control those processes. The Twinsburg division alone has 16 QC technicians.

"In our experience, you can't turn quality on and off," Rauh said. "In the old days we tried to do that; where it counted, we built a quality pavement, and where there was no incentive, there might not have been such a strong attention to detail. But you can't do that and be successful. With every job we do now, we go out with quality in mind to build the best quality product we can."

Rauh attributed part of the achievement of the 2003 runner-up to the Hayes Award to The Shelly Co.'s W 2000 cold mill. "Smoothness is built from the ground up," he said. "The Multiplex system on the W 2000 gave us a smooth base to work with right from the start, and a good base on which to lay asphalt. The Type III drum is the best drum on the market, bar none. The pattern you get and its bulletproof operation are absolutely phenomenal."

While the Twinsburg division doesn't have the experience with the Vögele America pavers and Hamm rollers that it has with the Wirtgen mill, Rauh said he likes what he sees. "We've owned the Vögele pavers for a year, but our early experience is very positive," he said. "The 'Ozzie' [Oscillation] technology drew us to the Hamm rollers. It gives us extra compactive force on our Superpave mixes. We're very happy with both lines to date."

History Of Achievement

The firm was founded by Charles J. Shelly in 1938. From the start, it was focused on surfacing roads to a high standard. By the 1950s, the Shelly Co. became synonymous with road construction throughout central Ohio, due not only to its size, but also the company's intense focus on customer service and quality, the firm says.

In 1961, Shelly procured its first portable asphalt plant, ushering in a new era for the expanding company. Shelly made its first of many acquisitions when it bought the larger L. P. Cavett Company of Lockland, Ohio. The success of that acquisition led to many others throughout the 1970s and continuing today. Shelly now has 24 subsidiaries in Ohio, Indiana and West Virginia.

CRH plc purchased the Shelly Holding Company in March 2000. Since the purchase, Shelly has grown significantly through additional acquisitions. Shelly employs about 2,000 employees during the busiest construction months of May through October.

CRH is the holding company for Oldcastle Materials, a leading, vertically integrated supplier of aggregates, asphalt, ready mix concrete, and paving services in the United States. Annually the group produces 148 million tons of aggregates, 37 million tons of asphalt, and 7.7 million cubic yards of ready mix concrete at more than 650 locations nationwide.

About the Wirtgen W 2000

The Wirtgen W 2000 is a high-performance, powerful, compact large-volume milling machine with broad cutting width for removing deteriorated asphalt pavements, or complete roadway structures down to 13 in. in a single pass.

The W 2000 boasts a 565 hp engine and features front loading of RAP for ease of operation. It has a basic cutting width of 79 or 87 inches, can operate at speeds up to 180 fpm, and has an operating weight of 63,931 lbs. It can be equipped with Wirtgen's unique Flexible Cutting System (FCS Light), which incorporates interchangeable, different pattern cutter drums for asphalt cold milling machines, and provides road contractors tremendous versatility in undertaking different milling projects with one machine.

Wirtgen Mills, Hamm Oscillation Helps Kokosing Maintain Paving Quality

W 2000 is one of four Wirtgen cold mills owned by Kokosing

"Wirtgen's technology is ahead of everyone else. On two-lane mill-and-fill projects we run Wirtgen's Multiplex averaging system. It's a wonderful, non-contact electronic averaging system that eliminates mechanical skis, and stringlines. It produces a very smooth, nice surface."

Cold mills from Wirtgen America Inc., and new HD O120V Oscillation rollers from Hamm Compaction division, are among the weapons Kokosing Construction Company, Inc. is using to maintain its high level of quality in pavement construction, and to keep projects moving and profitable.

A long-time Wirtgen user, Fredericktown, Ohio-based Kokosing owns a W 1200 F/T, and three big W 2000 half-lane machines, their complete complement of cold mills. Earlier this year the firm acquired two 78-inch Hamm HD O120V rollers, the largest rollers in the United States incorporating exclusive Hamm Oscillation technology.

Dedicated to quality pavements, Kokosing works hard to make sure its employees know how to build smooth asphalt pavements that will satisfy drivers, trigger bonus payments, and perhaps even win national awards.

Kokosing won such an award in 2000, and part of the credit lay with a quality manual the firm developed for its employees. In 2000 Kokosing won a *2000 Quality in Construction Award* for excellence in construction of an asphalt pavement from the National Asphalt Pavement Association. The company was honored for its construction of a section of the Butler County, Ohio, Regional Highway. To date Kokosing's Highway Asphalt Division has been recognized with nine national asphalt paving awards for major new and reconstruction.

Developed Paving Manual

To ensure the highest-quality roadway possible, Kokosing put together a *Paving for Quality Manual* that documented specific task and job responsibilities for its employees. As it was a five-year-warranty project, the company chose asphalt mixes and paving practices that would not only meet, but exceed the five-year period. The company won a bonus for the smooth roadway it produced.

"Our philosophy is that you start from the ground up," said Wayne Brassell, vice president, Kokosing Construction's Highway Asphalt Division. "It starts at the subgrade and aggregate base level. Once you've established that, with good underdrains, you're off to a good start."

The Highway/Asphalt Division of privately owned Kokosing is just a part of this highly diversified general contractor, which enjoys over $400 million in annual sales. The firm celebrated its 55th anniversary in 2005. "The Highway/Asphalt Division is vertically integrated, where we will build three-lane highways, major reconstructions, and bridge structural work," Brassell

said. "Depending on the year, we represent 40 percent of the company's total volume."

Ohio has implemented warranty specs, and this also is driving contractors to carefully construct long-lived, smooth pavements. "We are on our ninth warranty project right now, and we have to warrant these pavements for seven years," Brassell said. "With the new liquids and polymers, and mix designs and improved quality of aggregates, our roads should last seven years before anything need be done to them."

One of the ways to get a smooth pavement is to pave full-width whenever possible, Brassell said. "To my knowledge we are one of the few contractors who will do full-width paving, that is, paving from 31 to 38 feet wide," he said. "It eliminates longitudinal joints, the pavement profile is established right from the base, up, and with stepped construction you assure yourself a better chance of building a quality, smooth road."

Kokosing uses HD O120V Oscillation roller in intermediate lifts

And smoother roads mean fewer warranty costs down the road, he said. "There is a correlation between building a smooth project and lower historic future maintenance costs," Brassell said. "The smoother the road you build, the lower your warranty costs will be. From a warranty cost standpoint, smoothness is best."

Quality Equipment, Training Key

In addition to technique, quality equipment is essential to building quality roads, Brassell said. "It's good to have quality equipment," he said. "We own a very well maintained, modern equipment fleet. We also spend a lot of effort in training and education of our work force." Part of that training is provided by Wirtgen at its annual maintenance training program, Brassell said.

On a single-lift overlay, the quality of the cold milling is critical to the project's ultimate smoothness, he said. "The milling on a one-lift mill-and-fill plays an instrumental role in a finished, smooth pavement."

"Wirtgen's technology is ahead of everyone else," said Rich Torrence, manager, Milling Division of the Highway Asphalt Division. "On two-lane mill-and-fill projects we run Wirtgen's Multiplex averaging system. It's a wonderful, non-contact electronic averaging system that eliminates mechanical skis, and stringlines. It produces a very smooth, nice surface."

The large half-lane W 2000s aside, Kokosing uses its W 1200 F/T with a variety of drum widths. "It has the Flexible Cutter System, with 1-, 2-, 3- and 4-foot width drums," Torrence said. "We use it for linear grading, widening work, repair work, smaller milling jobs with the 4-foot head like bridge approaches and butt joints. We use it for smaller jobs that don't require a big mill."

"The 1200 allows us to mobilize very quickly," Brassell said, "with choices of milling head widths for joint repair work, and 2- and 3-foot widening atop stone base. Plus, the production you're getting with the 1200 is not tying up the full-sized mills."

New Oscillation Rollers

Among Kokosing's 17 main line compactors are two new Hamm HD O120V Oscillation rollers. Oscillation compaction works by "massaging" the hot mix asphalt (HMA) from side to side, rather than by forcing it downwards by an up-and-down motion. With oscillation compaction, the drum never leaves the mat.

Unlike traditional vibratory compactors that achieve compaction by "bouncing" the drum on the ground, Hamm's unique oscillation technology ensures that the roller drums maintain constant contact with the ground for faster, more effective compaction.

In the oscillation drum, two eccentric masses turning in the same direction cause a movement around the drum axle. The movement changes its direction of effect during one turn so it generates an oscillating or rocking movement of the drum. Horizontal forces are transmitted from the drum into the pavement. The result is better compaction in fewer passes, with less vibration-related wear and tear on operators and surroundings.

Kokosing started to investigate Oscillation technology in fall of 2004, when the firm tested a Hamm HD O90V Oscillation roller on U.S. 18 west of Medina, Ohio, to see how the roller would perform in low mat temperature finish rolling, and whether it could get density. The machine was able to get density down to a mat temperature of 145 degrees F utilizing the Oscillatory drum only.

"We're finding that our Hamm rollers have a place in intermediate surface and thin lift applications," Brassell said. "This includes the 19.5mm down to the 9.5mm lifts. In particular, the Ohio *SmoothSeal* polymer-modified asphalt thin lift can benefit from the Hamm rollers."

More information about Ohio's SmoothSeal thin lift HMA incorporating polymer modifer is available at http://flexiblepavements.org/smoothseal.cfm.

McLean Company Is Roadbuilding Resource For Ohio Contractors

McLean's new suburban headquarters was opened in 2001

"They put together a machine that's engineered from top to bottom, operator-friendly and with easy serviceability. They back it up with excellent parts availability, technical support from the factory, and training for our staff."

It's not often that an equipment distributor will know as much about milling, placing and compacting asphalt as its contractor customers.

But that's one of the secrets of The McLean Company's astonishing success in Ohio. Hudson, Ohio-based McLean specializes only in roadbuilding equipment sales and service, and as a result can concentrate on roadbuilding problem solving and equipment application, to the point where a roadbuilding contractor will be hard-pressed to find a more knowledgeable staff.

Since 1948, the company has provided customers throughout Ohio with informed application assistance and customer sales support. This "Three Amigo" distributor sells Wirtgen cold mills, Vögele America, Inc. pavers, and Hamm compaction equipment throughout Ohio, in addition to other road construction equipment.

The McLean Company's growth is symbolized by its new headquarters building in Cleveland's southern suburbs. By 1999 the company was outgrowing its cozy but cramped location in downtown Cleveland and built a magnificent new corporate headquarters and service facility in suburban Hudson, Ohio. The building was dedicated in 2001.

"We needed a better location, and got it right between Akron and Cleveland, with Youngstown and Toledo not too far," said Don McLean, president. "We needed more room from a service and parts standpoint, in addition to more outdoor storage area."

The building includes a 4,000-square foot office and 12,000 square foot shop and parts warehouse, and is located on five acres. "It has a 10-ton overhead crane that traverses the service bay area, and I think the guys are pretty happy with the way we set it up for them," Don said. "We want them to be efficient so they can turn the work around for our customers quickly."

Focused On Paving

The McLean Company concentrates on road construction. "Our product line — including the Wirtgen "Three Amigos" — is very much our bread-and-butter. It's our core capability in serving our roadbuilding customers," Don said. "Our expertise in a very focused market area builds a knowledge base among our parts guys, mechanics, and sales people. They don't have to have a huge, broad range of knowledge about unrelated markets. Instead they can concentrate on our roadbuilding marketplace, and our customers benefit."

That industry knowledge pays off in enhanced sales. "Our concentration on roadbuilding gives us credibility among our customers, that we are a dealer that

knows asphalt road construction and has been doing it for over 50 years," he said. "The Wirtgen Group's 'Three Amigos' are only the latest addition to our product line."

"We're not a large company, but we're very, very focused on paving," said Scott McLean, vice president and field sales manager of the Columbus branch. "The main part of that focus is service to our customers, either through application advice, our parts availability, or our service department."

To facilitate after-hours service, McLean provides locked parts drop boxes for its biggest contractors. "We have parts boxes for our major customers, who may be forced to work nights or over weekends," Scott said. "We're on 24-hour call for our customers, and every parts manager in our facilities, and all of the staff, carry cell phones, and their cell phone numbers are on their business cards. We are on stand-by 24/7. The only time we're really off is when we physically go on vacation."

And that's one reason McLean has been able to differentiate itself from the competition. "That's what separates us from the AYOs, the 'all you others'," Scott said. "We feel that if we are going to be the premier paving house in Ohio, we have to provide superior service and support. Also, our ownership is not far from the curb. The ownership is in the sales department, and in service and support. That allows us to understand and respond to our customer's needs immediately. And we have a good, core group of people, and that's what facilitates our success."

Don McLean is president, McLean Company

'Wedded' To Three Amigos

Don McLean said that his firm has been "wedded" to the Three Amigos since 2003, and McLean's success in selling the Hamm line — especially its exclusive Oscillation technology — is borne out in the four contractor profiles preceding this article. But the new line of Vögele America pavers is generating excitement and sales as well.

"The line has been excellent for us," Don McLean said. "They were able to design the line from scratch, while incorporating some of the best features seen in other makes of pavers. In building the market we have been demonstrating the machines to the customer, and letting him see for himself the quality, performance and versatility they have."

The McLean Company's first exposure to Wirtgen Group was with the cold mills. "We handled two brands of milling machines before we settled on Wirtgen, and it's been fantastic," Don said. "They put together a machine that's engineered from top to bottom, operator-friendly and with easy serviceability. They back it up with excellent parts availability, technical support from the factory, and training for our staff."

McLean does sell excavators and front end loaders, but principally to facilitate the work of their asphalt and concrete paving customers. "Eighty percent of our business is asphalt," Scott said. "When you sell a piece of paving, or compaction or milling equipment, it's not like sending out a tractor loader-backhoe, or an excavator, that digs a hole. Any Tom, Dick or Harry can do that. Instead we sell a 'process' piece of equipment, and that's a lot different."

Scott defines process equipment as a unit that is used within a process with other equipment. "A paver receives material, distributes it, channels it, redistributes it, prelevels it and compacts it, and makes a product," Scott said. "A compaction device does the same; it takes loose material and turns it into something rigid. And it's all part of a process; it takes three or four pieces to finish the process. And milling can be part of the process, too."

Cold milling is a relative newcomer to the process, but is integral to road construction today. "Milling is part of that process, too," Scott said. "Correct milling can help pavement smoothness and correct other deficiencies. If you have a profilometer job, and it's a mill-and-fill, you need to have the latest in equipment technology, and that's the Wirtgen Multiplex System. It will facilitate a smoother mill job, which helps get a smoother paving job."

Associations Are Valuable Tool

Both locally and nationally, The McLean Company has been active in associations that support the construction industry and equipment distributors. "We've been long time members of the AED (Associated Equipment Distributors) and the OEDA, the Ohio Equipment Distributors Association," said Don McLean. The firm also belongs to Flexible Pavements of Ohio, the state asphalt pavement association.

"The benefits are twofold," Don said. "You stay in good

touch with your customer base, but also with the latest technology. The associations bring the latest and greatest to their members. And when our customers see that we are part of the same team, they feel we are part of their team, too."

The McLean family spirit spills over to its customers as the distributorship sponsors, or participates in, a number of recreational events throughout the year.

For example, in late August, The McLean Company was looking forward to co-sponsoring a racing event as a marketing tool, but also just for the sheer fun of it. "We will be co-sponsoring a pro-modified drag race event in Ohio, and there will be a huge turnout from our customer base," Don McLean said. "They will bring their families and there will be a fireworks show at night; it's a good time for everybody."

"One of our other manufacturers owns a drag pro-modified [stock] racing car, and for the past five years we have co-sponsored their visit to Ohio at the International Hot Rod Association World Nationals at the end of August," Scott said. "It's held at the Norwalk Raceway Park and we invite our customers and their family members to this event. All of our factory reps are invited, because it gives them a chance to mingle with our customers. Over 600 guests have requested tickets this year."

The result is a great day for customers and their families. "They come into the track with a VIP ticket," Scott said. "They are allowed into the pit area, and there's a hospitality tent cordoned off just for McLean Company customers. They can have food and beverages, meet the race team, and watch the crew work on the car, not to mention the race."

McLean does more than the yearly race event, Scott said. "For more than 35 years we have held a company golf outing to which our manufacturers come, so we can thank them for being part of our team and for working with us," he said.

Scott McLean is vice president and field sales manager, Columbus branch

McLean Company A Family Affair

Long-time Associated Equipment Distributors-member The McLean Company is very much a family affair.

The family-owned firm was founded by the late Donald H. McLean, whose sons — the late Donald K. McLean, and current chairman, Fred H. McLean — were instrumental in building the business for decades. The founder was grandfather to the current president, Donald S. McLean; his sister, Carey; and Fred H. McLean's three sons, Scott, Doug, and Bill McLean, all of whom are involved with the enterprise.

"We're spread out, so we stay at arm's length from each other," Scott quipped. "We're a very close family, but we're also a team, with a goal: We want to win."

The McLean heritage is strongly founded on road-building equipment. Founder McLean started out in 1926 with Barber-Greene Co., when it was based in Aurora, Ill. After gaining experience in the Chicago and Detroit offices in 1930, he was assigned to its Cleveland branch as office manager. After World War II, Barber-Greene elected to sell through distributors instead of branch offices, and the McLean family joined forces and incorporated their own company — The McLean Company — in 1948, just in time for the postwar road-building boom.

In 1949 The McLean Company began selling asphalt, concrete and aggregate plants from their Cleveland office. During the 1950s and early 1960s, McLean Company sold products in all but 13 Ohio counties despite a small sales force.

That first generation of McLeans guided the company from its formation until 1976, when the second generation of McLeans assumed control of The McLean Company. Today, Donald S. McLean represents the third generation of family members, which began leading the company in 1994.

Don took over as president and sales manager following his father Don K. McLean's retirement. Fred's three sons are also in the family business. F. Scott McLean joined the company in 1981 and is now the vice president/field sales manager of the Columbus branch.

Bill McLean joined in 1983 and now is the company's corporate treasurer in Cleveland. Douglas H. McLean joined the company in 1980 working as southeast territory salesman, vice president, and West Chester branch manager. Carey M. Brockman, daughter of Don K. McLean, joined the company in 1986, responsible for sales in north central Ohio, and is corporate assistant secretary.

More information about the company is available at http://www.themcleancompany.com/.

Big Oscillation Roller Gets Midnight Call At JFK Airport

The large Hamm HD O120V — the largest asphalt roller incorporating exclusive Hamm Oscillation compaction technology — was put to work earlier this year in attaining critical compaction on an airfield job at John F. Kennedy International Airport in New York City.

With 37.5 million passengers in 2004, JFK is one of the busiest airports in the world, and with 17.4 million international passengers, the busiest international airport in the United States. And now it's planning for the future, with runway and taxiway improvements designed to accommodate the new Airbus A380 "megajet", which will hold from 550 to 800 passengers in a double-deck fuselage with length of 240 ft., height of 79 feet, and wingspan of 262 feet, making it the largest commercial aircraft ever built.

In summer 2005, on an all-night job, the Hamm roller was put into service compacting a 60 ft. by 580 ft. taxiway "patch" to accommodate the A380. The contractor, Intercounty Paving Associates LLC of New York, was placing Port Authority mix Type II in two 4-inch lifts in the 8-inch runway excavation, on its way to a total of 12 to 14 inches.

The Oscillation roller was compacting the lifts to 98 percent density, said Intercounty's asphalt superintendent Rick Loret. Loret had prior experience with the HD O120V when it was used by Intercounty earlier in 2005 along the Long Island Expressway. There, Intercounty placed 30,000 tons of Superpave.

"It worked very well there," Loret said. "The vibratory is good for taking bumps out, but the oscillation left no bumps whatsoever. I like the Oscillation feature quite a bit. It brings up densities quite fast and it's good along the barrier walls on the expressway."

Other machines with protruding bolts would gouge the Jersey barrier, but not the Hamm. "Other rollers have bolts that stick out the side plates, but this one doesn't," Loret said.

In his experience, Oscillation does what Hamm says it will. "We've tried it both ways," Loret said. "Oscillation brought the numbers up a lot quicker. It still depends on temperature and thickness, but the results are a lot better with oscillation."

HD O120V compacts taxiway 'patch' of JFK

Airfield congestion required night paving

In Rural Illinois, Champaign County Evaluates Foamed Asphalt

Dunn Co. places foamed asphalt on County Road 9

Champaign County, Ill., is home to both rustic rural roads, and the sprawling University of Illinois home campus. And both of those reasons contributed to its studying foamed asphalt for reconstructing farm roads in summer 2005.

On County Road 9, the county put in place alternative base stabilization methods prior to hot mix asphalt (HMA) overlay, and a Wirtgen WR 2500 S owned by Dunn Co. of Decatur, Ill., played a critical role.

"Both segments are experimental," said Gosia Adamczyk, P.E., a U of I engineering graduate, and senior resident engineer, Champaign County, Ill. "The project consists of two segments: the first, milling of the existing bituminous pavement and rubblization of two miles of PCC pavement, and hot mix asphalt overlay; and the second, the foamed asphalt section."

Surfacing Improved With RAP

The condition of the foamed section was a deteriorating oil-and-chip surfacing, with hot-weather rutting and spreading of material. The millings from the first segment of the project were transported to the second segment, where they were used as a base for the foamed asphalt treatment.

"We milled off the existing pavement from the PCC under the west section, brought it here, placed it, rolled it, and now the foamed asphalt process is mixing this 4-inch lift of material, as well as the surface, to a depth of 7 inches while injecting water, asphalt and 1 percent fly ash," Adamczyk said.

Foamed asphalt is a cost-effective way of stabilizing road bases that's gaining interest from coast-to-coast. Foamed or "expanded" asphalt is created by carefully injecting a predetermined amount of water into hot penetration-grade asphalt in the mixing chamber of a pavement remixing unit, and offers a cost-effective alternate for road base stabilization.

The expanded asphalt has a resulting high surface area available for bonding with the aggregate, leading to a stable road base using the existing in-place materials. The benefit is substantial cost savings over use of asphalt emulsions for base stabilization, and complete elimination of the cure or "break" period. The foamed base then is graded and compacted, and can permit traffic — including heavy trucks — almost immediately.

Fly ash was being spread on top of the RAP/chip seal layers in 1,000-ft. segments, in three passes, ahead of the WR 2500 S. Design of the foamed asphalt section was developed by Dunn Co. "They came up with the mix design and the right procedure," Adamczyk said.

"The capabilities that it gives with the one-pass mixing, and the way the mandrel [drum] mixes, is by far the best machine for mixing oil like this...It's a very reliable machine."

PG 64-22 asphalt was used in foam mix

"We have reviewed specs from previous foamed jobs that Dunn has executed, and used them as a guideline for us to write our special provisions."

Even though the RAP had been down just a week, already it had begun knitting together in the summer sun to create a continuous driving surface for local residents. "It looks very good," Adamczyk said. "The heat wave we've just gone through really helped 'work' that material as they were rolling it. Everyone was amazed how 'glued' together it stayed; it almost looked like a finished asphalt surface."

The project foam-stabilized 49,200 sq. yd of roadway, and the reclaimer was foam-stabilizing the 22-ft.-wide road in three passes. The foamed section was 3.75 miles, and the mix design called for 2.5 percent liquid asphalt in addition to the 1 percent fly ash. The asphalt was a PG 64-22 performance graded material. The foamed base was to be covered by a chip seal, and possibly with a 2-inch lift of HMA in a couple of years.

First Look At Foamed Asphalt

County Road 9 was Champaign County's first look at foamed asphalt. "This is brand new for us," Adamczyk said. "We are looking for alternatives that are less expensive than your straight hot mix design, but more stable than oil-and-chip. We have a lot of roads that don't have a very high traffic volume, but still are subject to heavy loads, and we need a less-expensive alternate pavement design."

Even though this was a new experience for the county, engineers there did not feel that they were going out on a limb with foamed asphalt. "We're looking to save money with new technology, and if this works out we will try on other roads," Adamczyk said. "We just want to see what kind of problems we may run into, and what to expect in the future. The contractor has the process down, they know what they are doing. I was surprised to see just how little oil you actually see after the pulverizer goes through, but it's there when you test it. It looks very stable, and feels very stable."

Dunn Co., the contractor, is attempting to interest Illinois counties in new technologies in reclamation, whether foamed asphalt, or asphalt emulsion. As Dunn's WR 2500 S can do either form of stabilization, the firm tries to determine which is more appropriate for the customer.

"We're trying to get the counties to think about either foam or emulsion reclamation," said Jim Schwarz, vice president, Dunn Co. "All roads are different; some are better candidates for the emulsion, some are better for foam. Some are neither; fly ash or cement stabilization may be better."

Cores taken of the in-situ County Road 9 were analyzed by Dunn Co., which determined that the road was a better foam candidate. "With this application, we knew we had the stability we needed with the materials here. We were looking for some minus 200 material that still had some pozzolanic action, so we went with Class C fly ash," Schwarz said. Using a Wirtgen W 2200, Dunn also undertook the cold milling of asphalt on the western section of the project, and distributed the 4-inches of millings on the foamed section.

Dunn is getting a strong interest from the counties as it undertakes foamed projects. "The response has been very good," Schwarz said. "With every job we do, we get a lot of people who want to come and watch what is going on, and see the results when it's done."

Supporting this outreach to the counties is the remarkable WR 2500 S. "The capabilities that it gives with the one-pass mixing, and the way the mandrel [drum] mixes, is by far the best machine for mixing oil like this," Schwarz said. "It's a very reliable machine."

Including the WR 2500 S, Dunn has seven Wirtgen machines: a W 2200, two W 2000s, two W 1900s, a W 1000, and a W 600.

Class C fly ash was added to boost fines content of reclaimed mix

In Upstate New York, Materials Producer/Contractor Creates Monument To Industry

From left are Benson Guenther, educational coordinator; Emil Galasso, Cobleskill Stone president and owner; and Bob Osborne, Cobleskill Community Activities Foundation

An asphalt paver customer of Vögele America Inc. is giving back to its community some of the good fortune it has received over the years by establishing an operating quarry in a historic, but abandoned cement plant, and creating a museum of mining and geology in the Leatherstocking Region of Upstate New York, just southwest of Albany.

Cobleskill Stone Products Inc., located in Cobleskill, N.Y., is giving new life to the old North American Cement Corporation's (later, Penn-Dixie plant) adjacent to the area's well known attraction, Howe Caverns. The former Penn-Dixie site will be host to the company's, new state-of-the-art aggregate processing plant constructed within the massive pre-existing cement kiln building.

Together, Cobleskill Stone and its allies in the New York State construction materials industry — assisted by the state — are restoring cave-founder Lester Howe's 1865 limestone hotel into a Museum of Mining and Geology.

Already, school groups visit the growing Cave House Museum of Mining and Geology, and tour the 150-year-old quarry, where a high-grade limestone good for cement manufacture has been mined from earliest days. Stone and cement from the quarry has gone into the Brooklyn Bridge, Empire State Building, Erie Canal, the New York State Capitol in Albany, and many other projects along the Eastern Seaboard.

The Cave House — which once hosted visitors to the cave — contains the old entrance to Lester Howe's Cave, which visitors can descend. However, long ago the quarry mined away the passage that connects to the existing commercial Howe Caverns, now accessible by elevator on the far side of the quarry. The entire project lies in an area rich in history and tourism, and has gained support from corporate donors in New York State and from across the nation.

"The old cement plant was a tourist attraction — along with Howe's Cave — back in the 1800s," said Emil J. Galasso, president and owner of Cobleskill Stone. "The Cave House is all that remains of a lodge where people would come to stay when they visited the cave. It's also one of the first buildings in the country to be air conditioned; the cave cooled the building in summer, and heated it in winter."

Reviving The Quarry

Reviving the quarry will provide Cobleskill Stone Products with a copious supply of superior quality limestone for asphalt and aggregate, but equally important, it will bestow its community with a tourist draw that will preserve a historical past and provide witness to the care that the aggregate industry takes in extracting construction materials. It's hoped that the lessons learned at the Cave House Museum of Mining & Geology will help counter myths against quarrying and construction perpetrated

School groups routinely visit Cave House Museum and Quarry, even as it's developed

Cobleskill Stone Products uses 2116W to place 12.5mm top size aggregate Superpave mix with PG 64-28 binder on Delaware County Highway 18 west of Kortwright, N.Y.

by the environmental lobby.

"People visit and see the original cave, and then they see what we're doing with the museum," Galasso said. "People paint us in the worst light, and say we don't know what we're doing. The kids are there for a reason; where else can kids come into a live quarry, be safe, hunt for fossils, climb a rock wall, learn how building materials are sourced, see a cave, and tour a geological museum? It's our way of fighting back, while giving back to the community at the same time."

Galasso wants the public and industry to know what good the building products industry does for society, and to go on the offensive against those who would throttle the industry. "No. 1, I want our citizens to realize how important our industry is to the viability and economy of our nation," Galasso said. "No. 2, I want to publicize all the good things that our companies do and the things we give back, despite our being painted as being bad for the environment or for the damage we supposedly do. We really just use the land, and we restore it to something as good or better. We need to tell that story, because in school today they teach how bad industry is, and how much pollution it creates."

Benson Guenther, museum educational coordinator, sees the need firsthand among the students who visit. "There are very few places where students can get a hands-on experience with geology," Guenther said. "Here we will have an active quarry, with great exposures of classic Devonian geology. They love the fossils, and we're going to bring more in from other quarries. More than that, it's important for them to see this as an active quarry with ongoing loading, crushing, sizing and stockpiling."

To support the project, the Cobleskill Community Activities Foundation has been established to receive contributions and manage the project. Separately, the museum also can receive contributions. And that's all separate from the revival of the quarry being undertaken as a business venture of Cobleskill Stone Products.

Cobleskill More Than Just A Museum

But there is more to Cobleskill Stone Products than just a museum and quarry project. Cobleskill completed an ultra-modern headquarters building in 1997 above town and in view of the historic project. Not counting the Howe's Cave Quarry, which is inactive during redevelopment, Cobleskill operates four quarries, one sand and gravel plant, and eight asphalt plants in the central New York State region.

Cobleskill owns a Vögele America 2219W paver with front-mounted electric screed, but when visited, was using a Vögele 2116W paver to place asphalt on Delaware County Highway 18 west of Kortwright, N.Y. Cobleskill's distributor is Robert H. Finke & Sons, Inc., Selkirk, N.Y.

"We took delivery of the paver this spring," said Michael M. Moore, vice president. "Our people are very happy with it. They like the basic machine, the ease of accessibility to components, and they love the screed. Compared to our older pavers — where you had to raise the hood and reach down deep to access — the Vögele is a snap."

Finke & Sons provided a strong product presentation when Cobleskill was in the market, and the lesson stuck. "We spent a half a day going over the machine at Finke's shop," Moore said. "We looked at its serviceability, and how they could maintain it on the job. There were lots of pluses that were maintenance-related."

Moore was sold on the front-mounted screed early on. "We can be paving a main line today, and be doing parking lots tomorrow," he said "We wanted to have the versatility to be able to produce quality mats on the highway and on the parking lot, without having to fight the screed. With a rear-mounted screed, there is a tendency to end up with a mass of material within the confines of the screed at the end of a pull, if somebody's not paying attention. With the front-mount, it's made it a lot easier."

Cobleskill's 2219W has a basic 10-foot screed, which can be hydraulically extended to 19 feet. "We also have a built-in, 2-foot hydraulic berm attachment," Moore said. "More municipalities — with their tighter budgets — can't afford curbs, so our berm attachment paves wing gutters that will direct water to catch basins." Moreover, the electric screed is popular at Cobleskill. "It's a big plus," Moore said. "Everybody likes it. The only thing is you have to keep the tractor running at full RPMs, and it can be a little hotter in the summertime, they say, but to get rid of the fumes and open flame is a real benefit."

Cobleskill makes its own HMA

Small Vögele America Paver Does Giant Job On Narrow County Roads

Forces of Newport Paving use Vögele America 2111W to place asphalt on Hartford Road in Cocke County, Tenn.

"I love this paver. It's given us no problems, and that's important when you're a small company like us, because break down time kills us...the service has been great...plus, it was very affordable for us."

The smallest paver from Vögele America Inc. — an 8-foot 2111W rubber tired paver with HR400D screed — is doing a giant job for contractor Newport Paving & Ready Mix Inc. on narrow county roads in the Tennessee foothills of the Great Smoky Mountains.

The manueverability of the small paver on tight, uneven mountain roads — combined with the roadability provided by its rubber tires and front-wheel assist drive — made it the right choice for Newport.

"We took delivery this spring and have worked it solid since then," said Joe Malone, Newport general manager in late summer 2005. "We use it for state-aid paving for counties, in which the state supplements the counties each year for paving certain roads, regular county paving, and city paving, state contracts and building sites."

Newport acquired the Vögele 2111W based on prior experience by its owner, Charles Blalock & Sons, Inc. Blalock employs over 500 in east Tennessee. Blalock specializes in heavy and highway construction, site work earthmoving, water and sewer installation, drainage construction, paving and base construction.

"They bought a Vögele America paver two years before and got great service out of it," Malone said. "I love this paver. It's given us no problems, and that's important when you're a small company like us, because break down time kills us. If the equipment fails, it becomes much more expensive for me because we do a lot of work up in the mountains, and the down time can be too much. The service has been great, and the reps work with you to troubleshoot any problems you may have. Plus, it was very affordable for us."

Newport paves hot mix asphalt and manufactures concrete as well. The firm has two asphalt plants, two ready mixed concrete plants, and an aggregate crushing plant. The firm began as a small paving contractor in Newport 31 years ago, with three trucks and a paver. Today Newport has three pavers — including a Champion, predecessor to Vögele America — and operates two crews.

Traction On Steep Grades

Especially important is the front-wheel assist drive that the Vögele America 2111W provides. "We pave so much on steep grades in the mountains," Malone said. "We have to have something with a lot of power with good grip that can push the truck up the steep grades. Often we work grades as steep as 14 to 15 percent, and there are some subdivisions back up in the mountains with driveways that are 16 to 17 percent grade. In those instances, on

Newport's Gube Huskey, in hat at right, inspects paving operation

gravel, we will come down the hill; we back the trucks up, fill the hopper, come down the hill as far as we can, then back the truck up again. On existing asphalt we can pave upward. But most of the time we're in the 11 to 12 percent range. At all times the paver's got to give us the service we need."

Other pavers offer front-wheel assist, but it's not the same, Malone said. "We haven't found anything that works as well," he said. "Tracked pavers won't work for us because we 'road' the paver so often on these county roads that sitting on rubber tires is more efficient for us than tracked machines. We may have a county road that's a half-mile apart from the next one we're doing. If it's a tracked machine you have to pick it up and haul it. But if it's on wheels, we just 'road' it. It's quicker and more versatile; I can have it on the next job by the time I load it." The same applies to driveways; when Newport paves driveways with the 2111W they're often in 'roading' distance of each other.

When visited in October, Newport was using the 8-foot 2111W to place C-mix on Hartford Road in Cocke County, Tenn. "It contains 1/8 to 1/4 inch stone, a mix the county uses on its rural roads," Malone said. "The aggregate is coarser than a straight topping and gives traffic a little more support over roads that are broken up but not patched. It's what some people used to call 'baby binder', in-between a binder mix and a topping. We give them a good mix that will serve their local traffic and school buses, but try to keep the pricing down."

The 'Goingest' Machine Ever

Newport's paving foreman — a veteran of 39 years of paving — is keen on the machine.

"I like its pulling power, it's the 'goingest' machine I've ever seen," said Doran "Gube" Huskey, paving foreman. "For its size — now pull, now push — to this day, as long as we've had it, there's never been a chain or cable hooked to it. I've never been stuck with it yet, and we've been in some soft places."

The small size of the paver works for Huskey. "It has a nice size, being more compact," he said. "It has the weight on the wheels so it has more pulling power. I like the way the extensions work, and the hydraulics. I've been to three different dealers, tried them all out, and I liked this machine better. Plus, I've seen how Blalock's machine operates."

About the Vögele America 2111W

The Model 2111W 8-foot rubber tired paver from Vögele America, Inc., Chambersburg, Pa., offers commercial class contractors the features and reliability enjoyed by Vögele America highway class paver customers. The standard Cummins QSB4.5T turbocharged diesel engine delivers 110 hp.

The unique Vögele portal axle drive is a proven performer and is the backbone of the 2111W's propulsion system. The portal axle provides true differential lock or modulated steer-assist pedals for better traction and handling. The 2111W boasts 190 cubic foot hopper capacity in a paver only 18 ft. long, with a 9 ft. inside turning radius and a top travel speed of 13 mph.

Operator visibility has been improved greatly over previous designs from either of the standard weight adjustable deluxe seats. Production and maneuverability are two key factors in commercial paving applications. The Vögele 2111W delivers both. The feeder system is fully proportional and comes standard with Ultrasonic material level sensors for precise material control. The augers are hydraulically adjustable from 4 to 9 in. above the ground.

The Vögele fumes extraction system continues to lead the industry by providing a more comfortable environment for the operators without inhibiting their view of the auger and head of material while paving.

The 2111W is available with two different screeds. The Vögele HR400D is an 8 to 14 ft. hydraulically extendable screed with rear-mounted extensions and unique telescoping pre-strike offs. This screed provides the rigidity and mat quality for which all Vögele screeds are known all over North America. The hydraulically extendable Carlson EZ-III LW screed with front-mounted extensions is also available for this model.

Newport's HR400D screed places mat on county road

Pavement Preservation Drives Costello Industries' Growth

Costello uses one of four W 2100s to mill Vermont highway in summer 2005

As America's pavements age, they need repair and restoration. New England's Costello Industries, Inc. has capitalized on the growth of pavement preservation and maintenance and has grown rapidly as a cold milling subcontractor and pavement maintenance contractor in the northeast and southeast. And Wirtgen products are playing a strong role in differentiating Costello from the also-rans.

Adoption of pavement preservation philosophy varies widely in Costello's home territory in the northeast. "We do a lot of asphalt crack sealing and pavement repair, but most of it is for the cities and towns," said John Costello, vice president and general manager, Costello Industries, Inc., Newington, Conn. "But for our southeast territory, Georgia has a massive pavement preservation program and our concrete repair work there is highly visible."

Instead, in the northeast, Costello concentrates on cold milling, and that's where Costello's fleet of four big Wirtgen W 2100 cold mills — and four W 500s — come into service.

"Most of our work in Connecticut, Massachusetts, and Rhode Island is mill and overlay," Costello said. "We do a tremendous amount of milling for those states and municipalities, and they are our primary markets. The majority of the towns and municipalities are in the reclamation-and-pave, or mill-and-pave modes. They mill off an inch-and-a-half, pave an inch-and-a-half, and don't raise or lower the structures. If the road is beyond that, they will reclaim the road. The state is in the mill-and-pave mode. That's why our business has focused on the cold planing industry."

Costello contracts directly with the state of Connecticut, so it does not always act as subcontractor to a general contractor. "We are one of several 'Vendors-in-Place'," Costello said. "They will line up four paving companies, four milling companies, and four striping companies, and the state will act as general contractor or project manager, choosing which contractor is 'low' in a district. The state will raise or lower basins with its own forces, and then bring in the subs."

"The state is divided into four regions and the work is subdivided into expressways versus two-lane roads, and further subdivided on the size of the road," said Erik W. Maher, president, Costello Northeast. "It keeps the state from having to put out a bid for every single road they want to rebuild."

The firm also will go as far as New York State, Vermont, New Hampshire and Maine, and works with many prime contractors on a more conventional basis. "We go where the work takes us," Costello said, "up and down the Eastern

"The last four machines we have bought have all been Wirtgen W 2100s. The reason is their uptime."

Seaboard. Our guys are used to being on the road."

Shift To Cold Milling In Seventies

The firm was founded in 1945 by Jack Costello, and in those postwar years and through the salad days of the Interstate construction period, the company was active in conventional road-building. But the firm saw the future shift from building all new highways to rebuilding and preserving pavements, and in the early Seventies Costello became one of the first New England firms to introduce new products and services designed to maintain asphalt and concrete pavements. In the U.S. Northeast it pioneered the use of cold milling machines.

Today, Frank Costello, 63, is president of Costello Industries.

Other special services spearheaded by Costello in the 1970s included repairing joints in roads and bridges, installing bridge deck waterproof membranes, sawing and sealing pavement overlays, and applying various types of geotextiles. Costello also has developed a special capability in airport pavement rehabilitation, and has been innovative in bringing special products and services to serve the highly technical and safety-conscious airport pavement sector.

A Southeastern Division office was established in the mid-80s in Jacksonville, and was relocated to the Atlanta area. The division specializes in concrete pavement restoration (CPR), including slab replacements, patching and joint sawing, sealing and repair. Work there has grown so significantly that volume equals that of the Northern Division office in Connecticut. Today Costello Industries employs over 130 people and is a pre-qualified contractor in 19 states.

"We're adaptable, but the core of what we do is cold planing," Costello said. "When somebody thinks of milling in Connecticut, Massachusetts or Rhode Island, they think of one or two names, and our name is always on the list. We quote and bid every cold planing project, whether it's one square yard, or a million square yards. We have gone direct from doing 800,000-square yard projects with multiple machines, to a small job that will take an hour. We pride ourselves on being able to get in to a customer's job site, get it done, and get out, and that's how we've built our business."

Uptime is one reason Costello has chosen Wirtgen platform

Shifting To Wirtgen Platform

Despite having cold-milled since the 1970s, Costello is a relatively new user of Wirtgen machines. But their success with Wirtgen is such that they are shifting from their previous machines and are building a fleet on the Wirtgen platform. The firm owns six half-lane mills, four of which are W 2100s, including one acquired in summer 2005, and four smaller W 500s.

"Each of our six larger mills gets a thousand hours a year," Maher said. "Scheduling, utilization and coordination are our biggest challenges in serving our customers. Our schedule is, in essence, their schedule. Our primary equipment maintenance takes place in winter, when we have four months to reconstruct, rebuild, do everything that needs to be done, so that when we get to April through Thanksgiving, the only repairs we are doing are routine maintenance and occasional breakdowns. We begin project scheduling in January and the earliest customers get the best positions. From there, we add on."

Life as a milling sub is totally different from that of a prime contractor, Costello said. "We coordinate multiple jobs," he said, "unlike a general, which takes nine months to build a bridge and concentrates all his resources there. Instead, we're in and out a day at a time. The ability to juggle all that and to fill in all the blocks separates the successful contractors from those who aren't. If you have six cold mills, and five days of the week, you have 30 blocks to fill. Filling those blocks in is our greatest task."

But once the blocks are filled and the equipment scheduled, the equipment has to perform. That's where Wirtgen reliability and technology come in.

"We still have a couple of other machines, but the last four machines we have bought have all been Wirtgen W 2100s," Costello said. "The reason is their uptime. If you break down working for a paving contractor, and they are supplying 10 trucks that are sitting on the side of the road because the cold planer is not working, we have a problem in serving our customers that we absolutely can not afford."

Costello differentiates itself from competitors on its uptime and ability to execute on time. "When we show up, and the job should take two days, it should not take two and a half days because of a breakdown," Costello said. "Wirtgen 2100s have helped us maximize uptime."

"The customer expects our employees and equipment to be 'best of class' or 'best in the league'," Maher said. "We

won't win the race if our equipment is not always up. You can do five days of work for a GC, and if you're down for one of those days — or even for a couple of hours — it's a bad mark."

Confidence In Design

Costello cautioned that three of the 2100s were in their first season, and only one was in its second, so they have yet to be put to the test of time. Still, Costello is confident they will perform. "The true test will be years three, four and five," he said. "We're not at that point in the curve yet where they are really put to the test. But all indications so far — and the fact that we've just bought another — are that we like what we see."

There was an early clue as to how Wirtgens would perform for his company, Costello said.

"Our operators are our voice when it comes to equipment operations," he said. "In the beginning there were some concerns during our conversion from our standard equipment — which was electric over hydraulic, three tracks with steering wheel, to the Wirtgen W 2100, which is all-electronic, with computer, four tracks, joystick, and most important of all, non-contact grade control sensors. But within two months, the operator who showed animosity was converted. Now 'It's the best thing since sliced bread', 'I can sit in the seat and do what I need to do', and sometimes, 'I don't even need a ground man'. The bottom line is, once you get through that curve, they excel with the equipment."

"Time will tell," Maher said. "The guys love the machines, the uptime is very good. But the true comparison will begin next year, with our third season. But at this time all indications are positive."

Wirtgen performance pays off when your potential customer knows you operate Wirtgen equipment, Costello said. "When you're proposing to a GC to do his cold planing work, our price might be X and our competitor's price could be a little less than that. But we want to be able to get that job at X, because they know that when we come in, they can count on our uptime being maximized. We will get in with the right people and right equipment, and get out. If our competitors are running equipment that does not maximize uptime, that is the best marketing and promotional tool we have.

"Our competitors may go in, have breakdowns, upset a customer, and the next thing you know that customer is back with us," Costello said. "We want to differentiate ourselves from our competitors based on the professionalism of our people, management team, and uptime of our equipment."

And Wirtgen equipment figures into Costello's promotional material. "It's hard to differentiate yourself on price in this industry because the bids are so competitive," Costello said. "We have to find ways to make the market look to us. One of those ways is through our equipment. We're proud of it, we take pictures of it, and we include it in our company newsletter. We let all of our customers know we bought another 2100 this year via the newsletter. We want them to want us because they want this equipment."

About the W 2100

The Model W 2100 surpasses its predecessor, the 2100 DC, in performance and profitability. The powerful 6-cylinder diesel engine — with its impressive output of 640 hp — allows the operator to steer easily. The W 2100 uses joysticks which are identical in design to the W 2000 and W 2200 machine models. The W 2100 has a cut width of 87 in and cut depth of 13 in. It has an operating speed of 275 fpm and operating weight of 78,945 lb. A 700 hp model will be available in 2006.

About the W 500, W 50 And W 50 DC

The W 500 which appears in this article was a four- or three-wheeled, compact, rear-loading cold milling machine, with cutting width of 20 in. and optional 24 in. cutter, and average productivity of 85 tph. In 2004 it was replaced by the new W 50 and W 50 DC cold mills.

The W 50 cold milling machine has a CE "in use" operating weight of 13,162 lbs., excluding optional conveyor. It can cut up to 6 in. deep and 20 in. wide with a 4-in. turning radius. Its Deutz power plant generates 80 hp. In addition to the loading conveyor, a fourth wheel is optional. It can mill at speeds up to 82 feet per minute.

The W 50 DC represents a more productive cutting machine housed in a larger platform than the W 50. For example, the W 50 DC has a cut depth of 8.3 in., compared to 6 in. with the W 50; a standard drum diameter of 29.5 in., compared to 23 in. with the W 50; and a Deutz engine of 123 hp, compared to 80 with the W 50.

The Deutz diesel engine, combined with a more robust 17,000-lb. design, 7-in. turning radius and standard rear loading conveyor, makes this a premier performer in the utility class. The W 50 DC has a mechanically driven milling drum and loading conveyor. It offers operators an unprecedented high standard of convenience and ergonomic design. One example is its spacious and comfortable operator's platform, with ample leg room. The seat is individually adjustable and can be moved sideways beyond the edge of the machine.

Costello has four utility-class W 500s

WIRTGEN GROUP

Wirtgen News

In Germany, Wirtgen Doubles Size Of Plant

Wirtgen Group is investing in the future as it undertakes the construction of a new, $60 million assembly plant that will double the size of the existing facility at Windhagen, north of Frankfurt in west-central Germany.

The new assembly plant will be constructed into 2007, including a modern powder spray coating facility and a new office building, as well as extensive infrastructural measures.

At present, Wirtgen GmbH has a useful assembly hall area of 268,021 sq. ft.; this will increase to 482,223 sq. ft. In addition, on completion, the total outdoor area of the Wirtgen plant will increase to 2.6 million sq. ft., or over 59 acres.

This $60 million project represents the largest single investment in the company's history, and will increase production capacity at the headquarters of Wirtgen GmbH in the long term and improve its competitiveness, safeguard jobs and the site, while at the same time permitting growth in international markets.

The building work is being undertaken on the newly developed site of Hambitze industrial estate, where the new assembly plant was started in spring 2005, but also on parts of the old site; an ultramodern powder spray coating facility with office building is to be built at the existing plant site in Hohner Strasse in 2006. The old site is also to be linked with the new site by two tunnels.

The new assembly plant will provide a 54 percent increase in assembly area compared to the existing plant. Logistics will also improve; the plant concept will combine the assembly departments of different machine groups which are closely related in terms of production. This will permit efficient production throughout the entire process chain.

Assembly in the new plant in Windhagen starts in 2006: The works enlargement will provide Wirtgen GmbH with over 240,000 sqm contiguous industrial grounds

Production staff will find state-of-the-art workplaces in the new assembly plant. All supporting areas and production itself will profit from the additional space, the new machines and the outstanding equipment of the workplaces provided as a result of the building work.

In fall 2005, Wirtgen group machines were helping speed the construction along. For example, the loading yard has now been completed; there, a Joseph Vögele AG paver laid down a 5-in.-thick asphalt layer on top of a base layer previously produced by Wirtgen soil stabilizers. Prior to that, a concrete pavement had been laid down on the testing area of the loading yard. The new asphalt layer was compacted by Hamm rollers of the DV series.

This fall, the outside areas surrounding the new assembly plant were nearing completion as well. A Wirtgen slipform paver type SP 500 was placing concrete on the strips directly adjoining the factory.

Wirtgen Welcomes New Faces To Nashville

Bill Brooks joined Wirtgen America Inc. as district sales manager, Southern Plains Region, effective Oct. 3, and will report to vice president of sales and marketing **Jeff Wiley**. Bill came to us from TEREX/CMI in Oklahoma City, where he held various positions in the manufacturing, service and marketing departments.

Wirtgen surface miners will benefit from the addition of **Paul Musket**, who joined staff as surface mining service engineer in August. He'll report to product support manager **Jan Schmidt**. Paul has extensive experience in surface mining and most recently was employed at Sandvik Mining Construction.

In August, **Frank Brown** joined the Wirtgen organization as truck driver. After a training period, he will be demonstrating our machines, and he will report to **Sandy Draper**, manager, sales administration. Frank was recently employed at Trans United, Inc. and is an experienced heavy equipment transporter.

Also in August, **Kevin Watts** joined Wirtgen America as information technology manager, reporting to manager, facilities and staffing/Wirtgen advertising **Connie Murray**. Most recently he was the owner of Watts Enterprises.

In July, **Steve Howard** joined our organization as safety engineer, reporting to Jan Schmidt. Steve was recently employed at Qwest, and is a 21-year veteran of the U.S. Marines.

In June, **Kay Hammock** went to work as administrative assistant to vice president of business development **Jim McEvoy**. Kay was recently employed at ADS Security.

In May **Christie Trost** joined Wirtgen America as graphic designer. In addition to the design and layout of *Wirtgen Technology* Magazine, which she developed in 2000, she will be responsible for other promotional and business communications projects.

Wirtgen

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Hamm

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Small Vögele America Paver Does Giant Job On Narrow County Roads

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