



## Glamorous Las Vegas gets slurry seals to match

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In Las Vegas and surroundings, a pavement maintenance/slurry surfacing contractor is keeping image-conscious customers happy with peerless pavement surfacings, a consistent product, and a dedication to quality. And it's doing it aggregate from its own pit, and high-performance laydown machines that keep projects moving.

"Las Vegas is different from other places we've worked because this town maintains its prestige," said Eric Reimschiissel, general manager, American Asphalt & Grading Company, Las Vegas, Nev. "Nearly all the pavements are crisp and clean. Not only do we have to look good, but we have to adhere to stringent quality control programs instituted by the local governments, including material, hand work and seams."

That's why some of the slurry surfacing work AA&G does is strictly cosmetic, Reimschiissel said. "We'll put a single slurry seal over a parking lot, and all it's intended to do is make it look better," he said. "Our customers will pay for that prestige, because looks are a big thing out here."

All slurry seals in the Las Vegas area -- for both public and private sectors -- are latex-modified, Reimschiissel said. "A lot of that is because we have customers who know the latex modifier helps the product withstand the scorching heat, provide longevity and enhance aggregate retention," he said. The latex is not derived from crumb rubber or tyres, but is co-milled with the asphalt emulsion, dubbed LMCQS, for latex-modified cationic quick-set, with modifier incorporation a hefty 3% by weight, compared to 2 to 2.5% conventionally.

AA&G's fleet is made up entirely of Macropaver Model 12B slurry machines from VSS Macropaver, a division of Reed International, Hickman, Calif.



*Dedicated slurry surfacing truck applies slurry to residential street in suburban Las Vegas, Nev.*

## What are slurry seals?

Water-resistant slurry surfacings (or seals) are thin overlays which seal minor pavement cracks and oxidized pavements, restore surface texture and skid resistance, correct raveling, reduce noise, and allow overlays where weight restrictions and curb heights apply.

The Washington State Department of Transportation's Interactive Pavement Guide defines a slurry seal as a homogenous mixture of emulsified asphalt, water, well-graded fine aggregate, and mineral filler, with a creamy, fluid-like appearance as applied. Setting occurs very quickly - allowing traffic and access -- and the seal cures over a period of time.

*There are three configurations of slurry seals.*

- Type I (fine). This type has the finest aggregate gradation (most are smaller than the 2.36mm/No. 8 sieve) and is used to fill small surface cracks and provide a thin covering on the existing pavement. The [International Slurry Surfacing Association](#) recommends Type I aggregate slurries for low density/low wear traffic areas. The cities of Las Vegas and Henderson, Nev., use Type I surfacings on new streets.
- Type II (general). This type is coarser than a Type I aggregate slurry, with a maximum aggregate size of 6.4mm, and is used to treat existing pavement that exhibits moderate to severe raveling due to ageing, or to improve skid resistance. Type II aggregate slurry is the most common type used. AA&G's market area uses Type II surfacings on older residential streets and collectors.
- Type III (coarse). This type has the coarsest gradation and is used to treat severe surface defects. Because of its aggregate size, it can be used to fill slight depressions to prevent water ponding and reduce the probability of vehicle hydroplaning. In AA&G's market, they're typically used in major thoroughfares and highway applications.

Slurry seals are applied to an existing pavement surface by means of a spreader box linked to a slurry mixing unit or pug mill. Slurry is introduced into the spreader box, which then places the slurry surfacing material over the width of a single traffic lane in a single pass as the mixer/spreader unit moves forward, sometimes at considerable speed.



*Slurry machine operator plays critical role in ensuring slurry mix is being applied correctly*

## Keeping quality paramount

AA&G differentiates itself from the competition on the basis of the quality of its product,

Reimschiessel said, but quality has to be achieved while also making money on a project. "High production rates are essential, while maintaining quality," he said.

"If you're laying 25 to 30 lb (11.3kg to 13.6kg) of Type III slurry per square yard, a quarter to a half-inch thick, you lay a lot of material, but you don't get a lot of area covered. So the faster the material can come out, the more area you can cover, and after all, that's how we get paid. If you

can have a machine that's half or one-third faster than what someone else's will place, it makes a big difference in what you can get done in a day."

"Every contractor should put down a quality product," said Okeda Goodloe, slurry crew supervisor for AA&G. "That's our bottom line. The market is tight no matter where you are, but when you cut corners, it hurts all contractors. And we don't cut corners."

"A quality mix is a uniform mix that's not runny, with a beautiful texture," Goodloe said. "When your box and drag mop goes over it, a beautiful texture will result. You can go too fast, and depending on the aggregate and the oil, you will not have a good placement. The machine is only as good as the operator."

Goodloe said a number of clues to a failing placement are evident when the operator looks into the box, where slurry is mixed before deposition on the pavement. "Looking in the box, the operator will see a number of clues," Goodloe said. "If the mix is separating, the aggregate and oil will not be bonding, instead, they will be running away from each other. If there is too much water, some will be floating at the top. If there are inconsistencies, the operator will see it in the box before it gets to the pavement."

Once in place, indications to problem placements may be evident. "The operator won't see it, because he's looking in the box, but the squeegee men or supervisor will see it," Goodloe said.

Streaks or scratches can be caused by a number of issues. "You can have oversized aggregate caught in the box," Goodloe said. "Or if you work eight hours and the product is curing really fast, pieces can adhere to the burlap drag and that will cause streaks. If it's a scratch the squeegee men can take it out by hand. Most good operators will sense that something is going wrong and they will stop to correct whatever is causing the scratch."

### Slurry sealers start early

Typically, Goodloe said, his day will start at 4 am, as he gets loads of oil placed in AA&G's tankers for that day's work. In the meantime residents come out and move cars per the flyers they received earlier.

The crew is normally at work by 6 a.m., warming the machines up. "On the storage trucks a water jacket runs from the truck motor," Goodloe said. "We start things up and within 20 minutes the water is running from the radiator to the jacket, heating up the oil. The hydraulics also need to be warmed up after sitting for 10 to 12 hours."

There's more to productivity than the machine; a trained crew is a critical component. "The machine has a lot to do with the productivity, but crew chemistry also has a lot to do with it," Goodloe said.

"The productive crew will know each other as though they're married to each other," he said. "Everybody has got to know what the other has to do. If John falls, if I know what he is supposed to do, I can cover for him. If the operator takes a vacation day, we don't miss a beat; I can call someone to fill in for me and I can hop on the back of the machine. Without the chemistry, we could have a machine that runs by itself, but we're not going to get production."



*Squeegee men are an essential part of the slurry crew*

### Keeping crew busy

Slurry seal is a relatively small part of AAG, but it's an important one, Goodloe said. The firm operates five Model 12B Macropaver slurry machines out of its Las Vegas region, with three under Goodloe's supervision. "I have three of the five, including our two newest machines," he said. "On a Type III schedule we can put out up to 500 tons in an eight-hour shift, using three machines. That type of tonnage can be done on an arterial street; when you get into residential neighbourhoods, it backs down to 200, 250 tons per day, because there's a lot more 'traveling', and you have to be more adept at dealing with curbs, gutters and cul-de-sacs. But on an arterial, it's a straight shot and you can just 'go'."

Typically Goodloe will rotate three machines to keep the lone spreader box busy. Anywhere from 10 to 15 workers will comprise the crew, depending on job size. Shuttlemen drive the empty spreader trucks back to the stockpile for recharging, and return to the production crew.

"We will have two or three squeegee or finish men, who clean up the edge line," Goodloe said. "We will have two to six people on traffic control. The line driver pulls the box while the operator on the back of the machine puts the quality product down. They're the two key guys, and they have to work in concert with each other. They're like husband and wife."

When he can, Goodloe cross-trains his crewmen so they are familiar with all aspects of a job and can pinch-hit for the others. "But cross-training is not easy, because we are here to make money, and speed is money," Goodloe said. "We can do cross-training on the smaller jobs, but never on the arterials."

One key to slurry surfacing productivity is keeping the Macropaver true and steady. "The line driver puts a straight line on the edge of the slurry seal, and is one of the most important persons on the crew," Okeda said. "If he is crooked, it makes more work for everyone behind him, especially the squeegee men. If he is straight, it will look good to the eye, and cleanup and repair are minimised."

Optimum speed is variable, and depends on the size of the project, he said. "Most inspectors like the machine to move between 91 and 152m per minute," Okeda said. "If you go faster than that they begin to squawk. Speed is dictated by the line driver and the box operator. If you have one location, 16km long, tonnage can be considerable. But if you're in a residential subdivision, with 20 streets to do, your production tonnage won't be so much and your day will be long."



*Slurry surfacings are popular pavement preservation treatment in American West and Southwest*

Eliminating variables is a key measure to success, Goodloe said. "You need trained personnel," Goodloe said. "But you also need consistent product. One thing helping us maintain consistent product is that we have our own aggregate plant and our own pit, so we know our rock. And the Macropaver is a piece of equipment that's consistent, too. When we go to work, we know that we will be able to work." Advanced electronic controls on the pavers also help maintain consistency and productivity, AA&G's Reimschiissel said. "The new controls on our trucks are all electronic, so you know exactly what you're laying," he said.

AA&G's Macropaver Model 12B has an application rate of up to 4 metric tonnes) per minute. "I'm familiar with all the manufacturers, and we looked around at different machines before settling on the 12Bs," Reimschiissel said. "We've had very good luck with them."

The Macropaver difference is internal, he said. "In these difficult work environments we like a completely hydraulic machine -- without the chains -- like the [VSS](#) Macropaver," Reimschiissel said. "They're easier to maintain. And they're overbuilt, with improved electrical systems. The bottom is double-seamed; the steel is butted together and welded, then another lap is provided at the bottom. Emulsion tanks can be problematic; they can crack, or rust or wear out, and the double-seam takes care of that."

Macropaver self-loading of emulsion is another advantage, Reimschiissel added. "The way the machine self-loads is very good," he said. "When we are pumping emulsion, and our stockpile pump goes down, the machine can load itself. The pump on the machine will pull material out of the tanker and fill itself. There are times that that pump will go down, and the backup capability will keep us going."

Despite their having to get used to it, Reimschiissel's operators now like the Macropaver's joy stick box control panel, Reimschiissel said, adding "With the joy stick, the operator can keep an eye on the slurry while being able to move the stick and control the whole machine."

One way a machine can boost productivity is through a high degree of uptime, Goodloe said. "The machine contributes through minimal downtime," he said. "Preventive maintenance here is essential. We do our share of preventive maintenance, but the machine has to be good to begin with. And our Macropavers are good machines."

And in the rare times the machine will need field service, the machine's modular construction helps keep a project going. "It's nice to be able to slide our conveyor belts and pug mill out," Reimschiissel said. "We keep spare conveyor belts and pug mills in our facility, so if there is a failure in the field, rather than bringing the Macropaver in and have the machine down for a day, we can just pull the old pug mill or conveyor out, and put another one in. We just pull up, take the top out, replace the part, and keep going.

"Basically, as a contractor, we need to place the most consistent and quality slurry we can," he added. "And Macropaver consistently makes good slurry".

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