

Texas Construction



Asphalt

Overlay on the Highway

Innovative Milling Technique Used on Bush Highway

by Mary Lou Ivy



LEFT: One other unique feature is the trap rock aggregate used for the mix. Conventional overlays start out black, but five or 10 years later they look white. This aggregate will maintain its dark color. RIGHT: The new overlay shows significant improvement in water spray.

When a 4.5-mi section of the President George Bush Highway (SH 161) required an overlay last year, the North Texas Tollway Authority chose NovaChip, an ultrathin, bonded, hot-mix wearing course, for the \$5.2 million project.

"We went with NovaChip because of its water-sealing capabilities, its potential for reducing traffic noise and its ability to reduce water spray during a rainy day," says J.C. Wood, NNTA's director of maintenance.

The road, which runs east west through the north Dallas suburbs, is built in a highly expansive clay soil subgrade area. It moves with moisture changes, causing undulations in the surface.

Because the overlay itself is so thin – just 1 in. – NNTA requested a grinding process to restore the profile and ride. But general contractor APAC-Texas Inc. suggested an alternative to NNTA's original plans.

"They had a bid item set up for diamond grinding, which is a fine planing-type operation," says Kirk Morris, APAC vice president. "It works well on asphalt pavement, but the machine used is only 24 to 35 in. wide." Morris says that APAC had seen results similar to diamond

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grinding achieved by milling contractor TexOP Construction with a special milling head.

"The biggest difference is that the cutting area and the technology that these milling machines possess allow you to move faster and cut bigger areas," Morris

adds. "The cutting drum has three to four times the number of cutting teeth than a regular milling head. It is made for shaving more than for cutting, and gives you a smooth surface.

"Running it slower than a normal milling machine, you get something that looks pretty close to diamond grinding." The 6-ft width of the milling machine allowed the operator to cover more area at a time, Morris says.

"The alternative milling machine saved \$440,000 and provided a nice end product," Wood says. "The expected time savings did not materialize in this case, however, due to equipment breakdowns that we attributed to it being a new machine with new operators."

One other unique feature in the project is the trap rock aggregate used for the mix. "Conventional overlays start out black, but five or 10 years later they look white," Wood says. "This aggregate will maintain its dark color, so we will keep a good contrast between pavement markings and pavement."

The durable aggregate, which will also improve skid resistance, is found in central Texas and limited locations throughout the world.

The new overlay on the Bush Highway was completed last fall. "There is a significant difference in water spray, and the subjective feeling of everyone who drives on it is that it's much quieter than other pavements in our system," Wood says.

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