

Concrete over asphalt has promise

A new technique, called Ultra Thin Whitetopping (UTW), is helping solve some old pavement problems. UTW involves bonding a thin layer of concrete to an asphalt surface. The resulting rigid pavement can be especially useful at intersections with high levels of traffic-related surface damage.

The intersection of Janesville Avenue and Rockwell Avenue in an industrial area of Ft. Atkinson is a good example. The large number of semis stopping and turning caused considerable shoving and rutting.

"It was to the point where milling was only a short term fix," says Jeff Woods of the Ft. Atkinson DPW. "We were looking for something more permanent and it sounded like whitetopping could solve the problem." When cores showed that the asphalt pavement was suitable, the city went ahead with the new approach. It cost about \$25,000 to resurface a section 300 feet long and four lanes wide with a four inch layer of concrete. Two years later the intersection remains solid.

"It is still in good shape," says Woods. "We're starting to get some real fine cracks in some slabs but everything is good and tight and nothing's popped out. It is still well bonded to the asphalt base there."

Whitetopping can also eliminate reflective cracking and can increase load capacity on rural roads, especially those affected by spring thaw, according to Kevin McMullen, president of Wisconsin Concrete Pavement Association

(WCPA). In addition, some users appreciate night time visibility and the esthetics of the white surface.

New methods make UTW work

Whitetopping is more than 30 years old, but experimental projects in the last five years have shown that thin concrete layers, just two to six inches deep, are effective and relatively cost competitive. In addition, newer "high early strength" concrete mixes mean traffic can start using whitetopped roads within 24 hours.

Roads with 6-12 inches of existing asphalt are candidates for UTW. The surface can be milled or power washed to ensure a good bond when the paver lays the concrete. Unlike conventional concrete paving where expansion joints are at 15 foot intervals, however, UTW surfaces are divided into four-foot-square blocks.

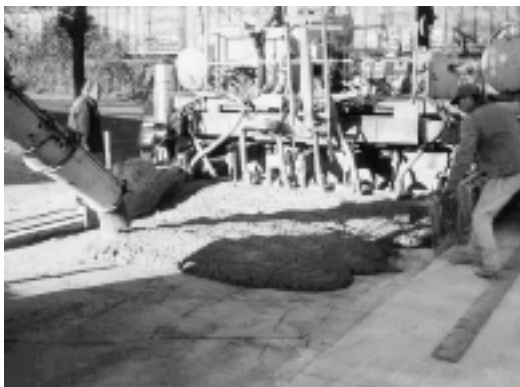
The checkerboard pattern looks different but does not produce ride noise, according to McMullen. In addition, water infiltration through the joints is not a concern because the joints are thin (1/8th inch) and the underlying asphalt layer provides a water stop.

Lower lifecycle cost

Using concrete to resurface roads is a new concept with its own design requirements and expectations. While people normally think of concrete as needing an eight inch depth and having a life span of 20 to 40 years, the thinner UTW layers can be spec'ed for the same 10 to 15 year life as an asphalt overlay. The total cost over that time, including required maintenance, should be equivalent or better McMullen says.

That was an important consideration for a project in the Village of Slinger, a residential community of 3,600 near West Bend. "I have high hopes for it adding quite a bit to the life cycle of our roads," says James Mann, village administrator. "UTW costs more in the short run, but if we don't have to go back in 10 or 15 years to do another resurfacing or additional crack sealing, the village will start to be money ahead."

For more information on whitetopping, contact Kevin McMullen, Wisconsin Concrete Pavement Association, 608/831-2977, McMullen@chorus.net



A thin layer of concrete can rehabilitate asphalt pavement. The resulting rigid pavement can be especially useful at intersections with high levels of traffic-related surface damage.