

# M I D W E S T C O N T R A C T O R

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## Kansas Turnpike Authority uses recycling

WICHITA - The Kansas Turnpike Authority (KTA) has recently taken a unique approach to recondition its tollway between Lawrence and Kansas City.

Enlisting a team concept with several contractors, the project consists of milling asphalt for reuse as RAP in new asphalt, removal and recycling of Portland concrete pavement into reconditioned subgrade and the laying of 18 inches of full-depth asphalt over the recycled sub grade.

Henningsen Construction Co., Atlantic, Iowa, served as general contractor on the project, and was responsible for overall project management and the placement of the 18"-deep asphalt.

Recycled Materials Co., Denver, was the primary subcontractor re-

sponsible for removal and processing the Portland concrete pavement and preparation of the subgrade.

Another subcontractor, Koss Construction Co., Des Moines, was responsible for milling the existing asphalt road surface for reuse in the new asphalt.

The project site was located just east of Lawrence and was broken into two phases. Phase I began May 2, 1994, and involved recycling approximately five miles of the westbound lanes. This phase was completed Aug. 1, and preparations begun to start Phase II, five miles of the eastbound lanes on Sept. 3. Overall project completion was slated for Nov. 1, 1994.

"This is the first project KTA has employed the use of recycled materials," stated Tom Wurdeman, divi-

sion engineer with KTA. The project has offered some surprises. When removal of the concrete road surface began, the sub grade was found to contain clay, be of poor quality, had high moisture content and was very unstable.

Recycled Materials Co., responsible for removing and processing the existing concrete and sub grade preparation, was faced with the challenge of providing a quality recycled sub grade from the poor conditions which were found.

"Originally, the sub grade was to be an aggregate drain layer, but due to the instability of the subgrade, the project was changed to incorporate six inches of processed concrete into six inches of sub grade to make 12 inches of stabilized sub grade," reported Mark Wachal, general

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manager for Recycled Materials Co. "The lime, cement and absorptive recycled concrete served to dry out the wet subgrade and stabilize it.

"An added benefit realized from the recycled stable sub grade was the ability for it to hold truck traffic while hauling and paving," Wachal continued. "The subgrade maintained its integrity."

The company utilized a very unique approach to recycle the broken, removed concrete all on the grade. A self-contained, track-mounted, Impact Crusher complete with feeder, magnet to separate the steel from the broken concrete, and on-board conveyors were used to process the demolished road surface into recyclable aggregate for the new subgrade.

As the demolished surface is removed, it is fed directly into this mobile recycling plant. This unit tracks behind the hydraulic excava-

tor removing the old broken concrete - the rubble is not trucked to a remote location to recycled and processed.

"We process the rubble, separate the steel rebar and windrow the finished product all on the grade," said Wachal.

Access to the project was very restrictive due to the logistics of the project - routing traffic to the eastbound lanes while recycling the westbound lanes during Phase I and reversing this order for Phase II. Being able to eliminate truck haulage to and from a remote processing site greatly enhanced traffic flow on the project site.

Roughly 100,000 yards of material will be excavated and 80,000 tons of demolished concrete recycled when the project is completed. A significant amount of steel reinforcing wire was also generated from the recycling effort - 200 tons. The

asphalt millings, concrete and steel removed from the old road surface were all recycled.

When the subgrade was complete, 18 inches of full-depth asphalt were overlaid. The asphalt consists of multiple lifts: four inches of Kansas Department of Transportation (KDOT) specification BM-2 containing 50 percent RAP directly on the subgrade, four inches of asphalt-coated open drainage, eight inches of KDOT BM-2C containing 20 percent RAP and the top two inches of BM-IB surface coarse made from virgin materials.

The project was a goal-oriented, cooperative team effort between KTA, Henningsen Construction, Recycled Materials Co. and Koss Construction. Summarized Tom Wurdeman of KTA, "Recycling on this project has been a great process." MC

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