

OHIO ASPHALT

THE JOURNAL OF OHIO'S ASPHALT PROFESSIONALS

WINTER 2015

ISSUE 4 • VOLUME 12



MODIFIED RUBBLIZATION

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MODIFIED RUBBLIZATION **STREAMLINING** CONCRETE ROADWAY REHABILITATION



IN THE SUMMER OF 2014, THE CITY OF GREENFIELD, WIS., CONTRACTED WITH PAYNE & DOLAN INC. OF WAUKESHA, WIS., TO RECONSTRUCT THREE OF ITS AGING CONCRETE PAVEMENTS ON 51ST, 116TH AND 60TH STREETS.

The plan called for concrete rubblization with a 5-inch Superpave asphalt overlay. Payne & Dolan hired Antigo Construction Inc. of Antigo, Wis., to rubblize the 8-inch-thick, mesh-reinforced concrete pavement. These streets were all 44 feet wide. The concrete pavement was first milled down starting 4 inches deep at the gutter flange and was zeroed out over 16 feet towards the centerline. This was done to provide a vertical face for the asphalt overlay to tie back in to the curb and gutter. Antigo used the process it developed with its MHB Badger Breaker® known as modified rubblization, a concrete fracturing technique that produces particle sizes between full rubblization and a cracking pattern. On this particular project the sizing was in the 12-inch-to-18-inch range with minimal surface spalling.





RUBBLIZE

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BREAK FOR REMOVAL



A milling machine is used to provide a vertical face at the gutter flange for the HMA overlay to tie into.

“The idea is to break the concrete as small as possible to eliminate the reflective cracking in the future, yet still leave a stable platform to pave on,” said Antigo Project Manager Jason Jansen. “Most of the urban projects in Wisconsin have marginal subgrade strength. If we fully rubblized the concrete the asphalt overlay would most likely fail. The larger particle sizing of modified rubblization provides a stronger base for the new asphalt pavement. The smaller hammers of our MHB do a nice job in these urban environments in not disturbing any utilities or buildings.” The pavement is then rolled to seat it prior to paving.

“The modified rubblization process has streamlined concrete roadway rehabilitation by providing a flexible pavement base that is still passable by passenger vehicles accessing adjacent properties” said

Payne & Dolan Project Manager Trevor Wallner. “Construction durations have been decreased due to less project phasing and less removals/undercutting. The asphalt installed was a 3-inch-thick, 19mm E-1 lower course and a 2-inch-thick, 9.5mm E-1 upper course. The rubblized base and lower course were sprayed with tack coat prior to asphalt paving.”

This was Greenfield’s third rubblization project since 2008, and two more are planned for the 2016 construction season. “The City of Greenfield has had great success using this technique to rehabilitate old concrete pavements,” said Greenfield City Engineer Jeff Katz, P.E. “The rubblization process preserves much of the strength of the concrete, and prevents reflective cracking of the asphalt overlay. The project included high-traffic streets in front of busy high schools. Our contractor was able to complete the project quickly during the summer months, while keeping the road open to traffic.”

The rubblization and asphalt overlay process provides significant cost and time savings in comparison to traditional pavement removal and replacement. Antigo has rubblized 46 million square yards of concrete pavement, including 3.2 million s.y. on urban streets. Antigo rubblizes, cracks & seats and breaks for removal roadway and airfield concrete pavements throughout the world.

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