

## **I. RESEARCH PROJECT TITLE**

Kansas Pavement Preservation Initiative: Development of a Maintenance Technical Advisory Guide for Bituminous Pavements in Kansas

## **II. PROBLEM STATEMENT**

Like many other states, dwindling budgets for pavement preservation program are forcing the Kansas Department of Transportation (KDOT) to look closely at the pavement preservation techniques. Pavement preservation has been a hall mark of KDOT pavement management system – NOS. The KDOT pavement preservation program actions for asphalt-surfaced pavements include route and crack seal, chip seal, 1- to 4-inch overlay, 1- to 4-inch inlay, heater scarification, cold in-place recycle (4-inch), ultra-thin bonded bituminous surface (Nova chip), modified slurry seal, and cold milling. Some thin surface treatments have been used extensively by KDOT as shown in Figure 1. For most part, these methods are selected either based on historical experience or based on the manufacturer's recommendations for the proprietary ones. Thus there are large knowledge gaps in terms of effectiveness, durability, and other important factors and some of the newer generation of KDOT employees never had any exposure to these treatments. KSU has developed a 2-day training class on a number of these treatments to train the engineers, maintenance superintendants and technicians of KDOT. Currently the class has modules on seal coat, surface recycling, ultra-thin bonded bituminous surface, and modified slurry seals. Three classes have been scheduled for 2009 in Hutchinson, Topeka and Salina. The class relies on the materials (mostly slide printouts) from the instructors. Most participants want more information than the printed slides, preferably a handbook. Thus, some text book-type materials with particular reference to Kansas materials and KDOT specifications and practices will be very effective for training these pavement preservation techniques in Kansas. Also, there have been complaints about the inconsistencies between the terminologies used by KDOT and those by some instructors. This can be effectively addressed through the proposed guide.

## **III. RESEARCH PROPOSED**

The objective of this project is to develop course materials for the 2-day thin surface treatment training class that is being offered by KSU. The proposed guide will have multiple sections: (a) Crack sealing, (b) Patching, (c) Fog sealing, (d) Slurry surfacing, and (e) Thin overlays. The guide on seal coat is being developed now under a separate contract. Although the guide is primarily intended to be used heavily in the class room setting, it will be designed for several levels of use, ranging from general instruction to specific work practice descriptions. It should be of use to District Maintenance Engineers, Maintenance Superintendants, and Field Personnel. Construction personnel and designers may also find use for the information. This project (in Year 3) is the continuation of the effort for a planned and coordinated education, research, innovation, and implementation plan for pavement preservation in Kansas.

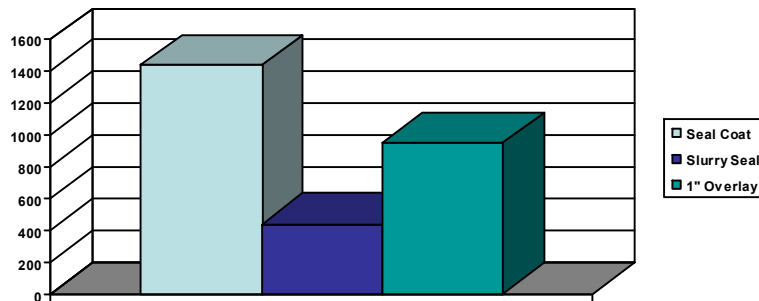


Figure 1 Thin Surface Treatment Mileage by KDOT (2001-2005)

#### IV. ESTIMATE OF FUNDING AND RESEARCH PERIOD

*Estimated project duration:* 24 months

*Budget:* \$15,000

#### V. URGENCY AND PAYOFF POTENTIAL

The research should have a high priority. All highway agencies are currently trying to stretch the maintenance dollars through cost-effective pavement preservation strategies. This initiative has the potential to make a pavement preservation strategy more successful and save millions of dollars in alternative maintenance treatments. This would result in a big return in exchange for the small investment in this project.

#### VI. IMPLEMENTATION STRATEGY

Implementation of this study is expected to be carried out by the Bureau of Materials & Research.

#### VII. PROJECT PERSONNEL

This project will be carried out under the direction of **Mustaque Hossain**, Principal Investigator, and **Dean Testa**, Co-Principal Investigator, DMT Enterprise, Inc., Topeka, in close cooperation with KDOT. One undergraduate student in civil engineering will also work on this project.

**Mustaque Hossain** is a professor of Civil Engineering at Kansas State University. His areas of expertise are pavement materials, pavement design, performance, management and non-destructive evaluation. **Dean Testa** is the retired Chief of Bureau of Construction and Maintenance of KDOT. He initiated the pavement preservation in KDOT. Mr. Testa is currently working on a Seal Coat Guide for Kansas.