Arkansas State Highway and Transportation Department
Transportation Research Committee

RESEARCH PROBLEM STATEMENT

DATE: 08/17/2016  PROJECT AREA: Design

TITLE: Inverted Pavements: Innovative construction practice utilizing granular base over a cement-treated subbase

PROBLEM STATEMENT:
The road system in Arkansas is large and suffers from insufficient funding. Innovative designs and optimal use of materials can help the Department "do more, with less". For similar reasons, states such as Mississippi, Illinois, Ohio, and others have found that chemically "stabilizing the subgrade results in significant cost savings, enhancement to productivity by providing a stable work platform for compaction equipment, reduction of arguments, issues, and claims related to the subgrade."

"Inverted pavement" typically consists of (from the bottom up) a compacted subgrade (CTB), cement-treated base, unbound aggregate base (UAB), and a relatively thin asphalt concrete. The layer stiffness profile does NOT decrease with depth. The stiff CTB layer allows for higher densities to be achieve in the UAB later during installation. This UAB layer also eliminates reflective cracking from the CTB into the asphalt layer.

OBJECTIVES:
1) To shift the Departments approach towards the benefits and cost savings from stabilizing base materials as a general rule, like Mississippi does, and away from only using it for problem areas.
2) To incorporate test sections into jobs around the state so data can be collected for MEPDG and local results can be analyzed.
3) To learn what our neighbor to the east is doing with the field testing methods they have developed.

FORM OF RESEARCH IMPLEMENTATION:
1) Design guide, 2) Construct test sections and monitor

REVIEWER: Estimated Project Duration:
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