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## **Sustainable Use of Non-proprietary Additives for Full-Depth Reclaimed Base Aggregate Stabilization**

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### **Abstract**

Non-proprietary additives have been commonly used in the mid-west for improving the strength and stiffness of road foundations in weak and susceptible soils. This study focuses on finding the benefit of using a non-proprietary stabilizer with full depth reclaimed (FDR) material as the base layer of asphalt concrete pavement. The benefit will be quantified by determining the granular equivalency factor of the different geomaterial stabilizers that will help Minnesota Department of Transportation (MnDOT) engineers by establishing design parameter values and a means for comparing additive effectiveness and cost. The objectives of this study will be achieved by conducting both comprehensive laboratory and field investigations of the performance of geomaterial stabilizers. The freeze-thaw and leaching effect on the stabilized FDR material were determined in the laboratory to simulate the long-term performance of the stabilizers. Also, a full-scale study has been conducted in CSAH-14 in Minnesota where different test sections were constructed using different non-proprietary stabilizers. The automated plate load test (APLT) and falling weight deflectometer (FWD) have been conducted at field demonstrated sites in different sessions to measure the resilient and elastic modulus of stabilized base layers. These field tests will measure the long-term performance of the non-proprietary geomaterial stabilizers.