



# MULTISTATE ANALYSIS OF THE SOUNDNESS TEST OF AGGREGATES BY FREEZING AND THAWING

Report Number: FHWA-KS-06-2

By: Rodney A. Montney, P.E., Kansas Department of Transportation

# R E S E A R C H

## Introduction

Soundness is one of the basis for acceptance for aggregates used by most state departments of transportation. AASHTO provides two test procedures for determining the soundness of aggregates. T-103 determines the freeze-thaw soundness and T-104 determines the sodium or magnesium sulfate soundness of aggregates. Fewer than 10 states utilize the freeze-thaw soundness test, and most of the states that use it have made some modifications to T-103.

## Project Objective

Four Midwestern states (Iowa, Missouri, Nebraska, and Ohio) were requested to attempt to conduct the freeze-thaw soundness test using Kansas' modifications.

## Project Description

Each state received limestone aggregate from the same source in Kansas. These states were also requested to test the aggregate using their own variations of T-103. Ohio tested the material using T-104.

## Project Results

Each state found it difficult to exactly duplicate the Kansas test method due to equipment and scheduling constraints. The necessary deviations are taken into account during the evaluation of the data obtained in this round robin.

## Report Information

For technical information on this report, please contact: Rodney A. Montney, P.E., Kansas Department of Transportation, Bureau of Materials and Research, 2300 Van Buren, Topeka, Kansas 66611-1195; Phone: 785-291-3844; fax: 785-296-2526; e-mail: [rodney.montney@ksdot.org](mailto:rodney.montney@ksdot.org).

For a copy of the full report, please contact: KDOT Library; 700 SW Harrison Street, Topeka, Kansas 66603-3754; Phone: 785-291-3854; Fax: 785-291-3717; e-mail: [library@ksdot.org](mailto:library@ksdot.org).