

Use of High Friction Surface for Highway Noise Reduction

Report Number: KS-18-01 • Publication Date: May 2018

Ethan Linden
Mason Stewart
Sterling Embers
Sewan Cho
Kevin Wanklyn, Ph.D.

Kansas State University

Introduction

With noise issues arising frequently in urban areas due to heavy traffic, it might be possible to use High Friction Surfaces (HFS) to reduce the sound to an acceptable level without a barrier wall or in conjunction with one. This research project determines the influence of HFS on traffic noise levels. The purpose of this project is to extend on previous research by including more evaluation on HFS Polymer Overlays.

Project Description

Research of several standardized methods of testing led to the selection of Statistical Pass-By Method (SPB) as the best method of measuring highway noise levels. While SPB calls for testing of a specific amount of random car pass-bys in order to draw a sound level conclusion, the team utilized a modified SPB testing method using one specific car for all test passes, creating a more controlled testing environment due to the wide variety of vehicle types traveling on the highways.

The Kansas State Senior Design Team decided upon a test strip of 300 ft in order to accurately evaluate the HFS. The Kansas



Test Strip

Department of Transportation (KDOT) in Wamego, KS, placed an HFS test strip of 300 ft on US Highway 24. The Kansas State Senior Design Team purchased the resin for the test strip from Transpo Industries, and Flint Rock donated the aggregate. KDOT and Performance Contracting Inc. (PCI) completed the test strip on June 22, 2016.

To perform simple and accurate testing, the Senior Design Team created a detailed testing setup and procedure for the testing. Using the testing procedure and a SoundTrack LxT, the team performed four different tests (three modified SPB and a final normal SPB test).

Project Results

The data collected from these tests resulted in an average sound change less than the 5-dB amount considered noticeable to the human ear. As a result, this report concludes that HFS is not an effective stand-alone alternative to sound barrier walls but could be used in conjunction with other actions to reach an acceptable level of noise reduction in urban areas.

Project Information

For information on this report, please contact David A. Meggers, P.E., Assistant Bureau Chief, Bureau of Research, Kansas Department of Transportation; 2300 SW Van Buren, Topeka, KS 66611; (785) 291-3845 phone; Dave.Meggers@ks.gov.

KDOT Research Reports Catalog

Search for: 1

Count Search 2

Search In: Document Title Keyword
 Reference Number Reference Name(s)

Search Period: Reset

Can't find it?? Check the [help](#) page for search tips.
Learn more about the catalog [here](#).

If you have questions or comments, please send an e-mail to: library@ksdot.org
[Help page for retrieval errors](#)

Directions for Downloading the Full Report

To download the full report, visit <http://kdotapp.ksdot.org/kdotlib/kdotlib2.aspx> and do the following:

1. Enter KS-18-01 in the search box.
2. Click the Search button to the right of the search box.
3. You may have to scroll to find the specific report.
4. To download the report, click on the title of the report to open the PDF file and save it to your hard drive.

If you have any questions, please email us at KD0T#Research.Library@ks.gov.

KDOT RESEARCH