Kansas Department of Transportation

TECHNICAL SUMMARY

Development of Temporary Rumble Strip Specifications

Report Number: K-TRAN: KU-14-6 ▪ Publication Date: February 2016

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Introduction

The objective of this study was to develop specifications for portable reusable temporary rumble strips for their applications in different work zone settings in Kansas.

Project Description

A detailed literature review, a survey of practice, and a closed-course test were performed regarding temporary rumble strips. Additionally, data from permanent cut-in-place (CIP) rumble strips at six locations in Kansas were collected. All commercially available portable reusable temporary rumble strips were tested at once in a closed-course setting using a standard dump truck and a full-size car. The rumble strips' rotational movement, linear movement, and sound produced by a traversing vehicle were chosen as parameters in developing the decision matrix. Measurements of the strips' linear and angular movements and sound generated due to the test vehicles passing over the rumble strips were collected for a total of 40 passes each at speeds of 22.5, 37.5, 57.5, and 67.5 mph.

Threshold limits for movements, rotation, and sound generation of the temporary rumble strips at each of the speeds were calculated for developing the classification table. Annual Average Daily Traffic (AADT) and Average Daily Truck Traffic (ADTT) were used in calculating threshold limits for movement and rotation, and sound threshold limits were based on CIP strips' sound data. A matrix and a classification table were created with class intervals defining the classes based on the performance of temporary rumble strips at each of the speeds.

Project Results

The developed matrix and classification table provides any vendor or Department of Transportation staff with a guideline to test the performance of any temporary reusable rumble strips currently on the market or those that may enter the market in the future. The process described will provide necessary information regarding the class they belong to and the type of work zone where they can be installed, to ensure that the product can perform appropriately and not be used in conditions for which it is not suited. The matrix provides appropriate results for all situations ranging from low-speed, low-volume work zone conditions to high-speed, high-volume conditions encompassing various other extreme scenarios, such as low-speed, high-volume or high-speed, low-volume work zone conditions.

Project Information

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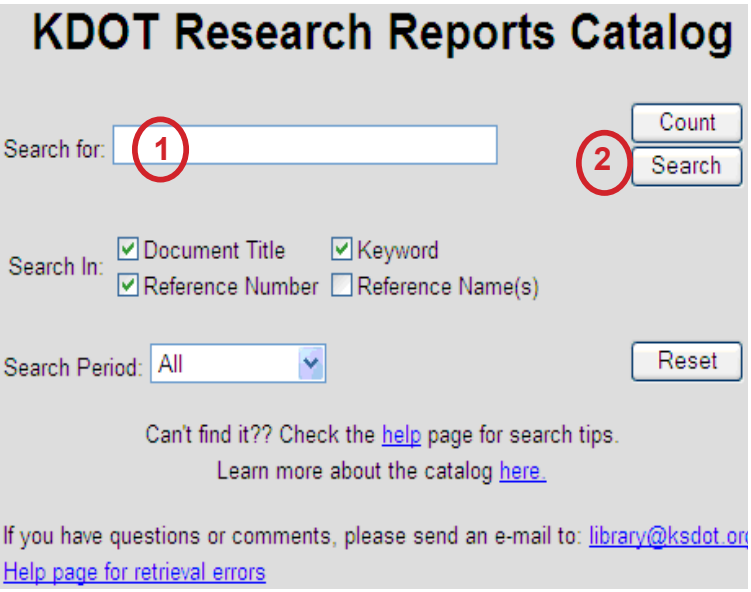

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