Research in Progress

Field Study to Determine Salt Usage Efficiency and Transport to the Surrounding Environment on Two Pavement Types

Research Need

MassDOT has concerns that certain pavement surface types are being over treated during winter maintenance. This is because one specific type of pavement surface Open Graded Friction Course (OGFC) will appear visually "white" even after treatment. This could lead to a situation where the road is treated again when it is not necessary. OGFC pavement sections typically adjoin dense-graded (DG) pavement sections. Thus, when the OGFC section is treated, the adjoining DG section is also typically treated leading to excessive treatment application.

This purpose of this study is to compile data in the field to justify winter maintenance treatment efficiency on OGFC and DG pavement surfaces to ensure that the application is not deficient or excessive. Salt deficiency would result in safety concerns.

Goals/Objectives

The project objectives are:

- Compare OGFC and DG pavement response to identical winter maintenance (salt) applications in terms of reflected physical parameters.
- Investigate the safety implications related to winter maintenance activities for both OGFC and DG pavement types.
- Evaluate whether either pavement type requires a greater or lower application rate to achieve desired results.

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Project Information

This project is being conducted as part of the Massachusetts Department of Transportation (MassDOT) Research Program with funding from Federal Highway Administration (FHWA) State Planning and Research (SPR) funds.

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Co -Principal Investigator & Organization:
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Project Start Date:
August 30th, 2022

Expected Project Completion Date:
September 30th, 2025

Methodology

The proposed project is a field study that will occur during winter weather events. Both pavement types are located successively on I-95 (Rt 128) Southbound in Needham, MA. Data will be collected with respect to each pavement type from: 1.) existing weather stations, 2.) invasive sensors (to be installed), 3.) winter maintenance activities, 4.) friction and surface condition testing, 5.) crash data, and 6.) photographs.

With these data, and the known treatment application rate and frequency, the research team will attempt to develop a methodology that MassDOT can use to determine if the treatment applications and frequency are correct, deficient, or excessive.

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