



Final Report

Materials Management Section Project

Project 0092-22-51

10/2023-09/2024

Field Friction Testing

Research Objectives

- Evaluate the performance of surface treatments used for enhancing the road friction properties.

Research Benefits

- Identify the best practice for enhanced surface friction
- Define service life of friction surface treatments.

WisDOT Project Contact

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This research and its results help support safety measures that reduce number of fatalities in Wisconsin. The installation of high friction surface treatments aid in the reduction of runoff the road accidents.
– Peter Kemp

Background

Friction is a critical characteristic of a pavement that affects how vehicles interact with the roadway. In the areas of high runoff of the road crashes increased friction has been employed as a crash reduction strategy. Friction testing was first conducted on various friction treatments in 2014 for the Wisconsin Department of Transportation.

Methodology

A locked-wheel skid friction tester was used to conduct ASTM E-274, Standard Test Method for Skid Resistance of Paved Surfaces Using a Full-Scale Tire. Tests were conducted using an ASTM E-501 ribbed testing tire in the left wheel path. The testing interval for the project was set at 0.05 miles when site length was sufficient to collect at regular, automated intervals. In locations where the site length was not long enough to collect adequate data, testing was manually activated by the field personnel as often as possible to maximize data collection. Data collected at each test point include SN40R, test speed, linear distance, GPS coordinates, ambient air temperature, and surface temperature. The target test speed for all locations was 40 mph. However, due to geometric limitations, some data was collected at speeds below 40 mph and corrected in post-processing.

Results

Report of test results on high friction surface treatment (HFST) encompassing site average friction number (SN40R) for 2024 testing was completed by the consult.

The reported SN40R data, the frictional measure of locked wheel applied at 40 mph on pavement, supports HFST as a superior nonskid surface. Consistent friction values are documented from year to year in a range associated with high skid resistance for the anticipated service.

Recommendations for implementation

Adoption of high friction surface treatment as a safety improvement in high occurrence areas of wet-weather runoff of the road crashes.

This brief summarizes Project 0092-22-51,
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Materials Management Section Projects