RESEARCH REPORT DOCUMENTATION PAGE

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Evaluation of Epoxy-Resin Pavement Marking

6. Report Type

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*see supplementary notes

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13. Sponsoring Agency Name and Address

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14. Supplementary Notes

15. Abstract

Purpose and Need

Water based paint pavement markings deteriorate quickly and are commonly remarked annually. The North Dakota Department of Transportation needs a cost effective long-term pavement marking system that lasts longer than the available water based paints.

Objective

To compare the performance and cost-effectiveness of epoxy resin pavement marking material.

Scope

In order to achieve the objective, one test section was constructed in conjunction with Project IM-1-094(053)161, using material as described in Special Provision SP 70(97) dated July 17,1998. The special provision utilizes several different types of pavement marking systems.

The types of marking materials applied in this test section are listed as follows:

1. Waterborne pavement marking paint- (median and outside edge lines, ramps, and gore areas).
2. Four inch white pavement marking tape (centerline).
3. Type II Long Term Pavement Marking, epoxy-resin - white and yellow (median and outside edge lines and 1 mile of centerline).

The pavement marking test section was constructed on a new asphalt overlay pavement surface. The test section is located on the westbound lane of I-94 between reference point 162.360 and 182.874. The markings were evaluated for appearance, resistance to wear, and retroreflectivity. The markings were also evaluated for relative cost of application.

Summary

As of this report, all of the paint systems are performing well, however a reduction in Retroreflectivity of the LS60 white test stripes has occurred in the time since construction. This may be attributed to the loss of glass beads as noted during the observation. There has been an improvement in the Retroreflectivity of the LS60 yellow test stripes, as predicted by the EPOPLEX representative.

Based on12m geometry Retroreflectivity tests, the UC-1511(white) waterborne system is outperforming the LS60 (white) epoxy system, however the LS60 (yellow) epoxy system is outperforming the UC-3585 (yellow) waterborne system.

12m Retroreflectivity tests on the centerline tape striping and LS60 epoxy striping indicate that the Retroreflectivity of the centerline tape is as much as two times greater than that of the LS60 system. Neither of these marking systems was constructed as ground-in sections; therefore both will be subjected to similar environmental and physical abuse.

Recommendations

Since the EPOPLEX LS60 material failed to meet the specifications outlined in SP 70(97), it is recommended that further observation of this project be discontinued. The detailed information included in this report may be utilized for comparative purposes when evaluating future projects.

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