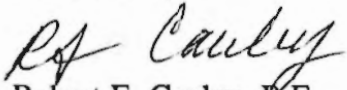
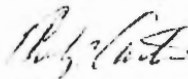


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**RESEARCH UPDATE U97- 4**

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**METROMARK COPOLYMER TRAFFIC PAINT  
VERMONT ROUTE 14****Reference:** WP 96-R-7**Background:**

This report is a follow up evaluation of the MetroMark copolymer traffic paint which was placed on Vermont Route 14 between the towns of East Montpelier and Woodbury in October of 1996. The Vermont Agency of Transportation (VAOT) initiated this performance investigation based on the manufacturer's claims that copolymer traffic paint is a more durable product than waterborne paint, but can be applied with the same hot paint vehicles currently used by VAOT striping crews. Since waterborne traffic paint characteristically fades away after one winter and requires reapplication, copolymer traffic paint could prove to be a useful addition to the state's line striping inventory.

A previous attempt to examine MetroMark on Interstate 91 was inconclusive due to equipment problems and unfamiliarity with the material by Agency personnel, resulting in a substandard application. In an effort to give the product a fair assessment, the Agency accepted the manufacturer's offer to perform the VT Route 14 application with their own personnel and equipment.

Immediately after application, the material was tested for retroreflectivity, skid resistance, and drying time. Test results concluded that the MetroMark material was initially similar in performance to waterborne traffic paint (see Initial Report for details), even though the Metromark crew had equipment problems similar to those experienced on I-91. When the striping was complete, the product was considered sufficiently well applied for reassessment after exposure to winter weather and maintenance.

**One Year Performance Evaluation:**

The critical factor in the evaluation of this product is durability. Since MetroMark copolymer costs approximately three times as much as waterborne paint, the material would have to demonstrate superior durability to be cost effective.

The material was inspected by VAOT Research & Development Unit personnel on May 19, 1997. After seven months service, (one winter of exposure), the MetroMark copolymer is showing good durability over most of the project.

The yellow double centerline is in good condition for most of the project, showing crisp edges and bright color. Over the last two miles of the project, in the Town of Woodbury, the centerline is fading. The centerline appears to have escaped any significant plow damage.

The white edge lines were subjected to more plow contact and have lost roughly 15 to 30% of their material to chipping. The existing pavement had considerable fatigue cracking along the edge of the driving lanes when the striping was performed; consequently, these edge lines have faded. Areas with a stable pavement surface are comparable in condition to the yellow centerline.

By comparison, the waterborne traffic paint applied adjacent to MetroMark material has faded badly and could use restriping this year, while most of the MetroMark material is intact. (See photo addendum)

#### **Retroreflectivity:**

Tests for retroreflectivity were conducted at MM 1.3 in the Town of Woodbury at the Woodbury Lake Access Area using a MiroLux 12 retroreflectometer. AASHTO Type I beads had been applied to the white edge line and Metropolymer beads were used on the yellow centerline.

	<b>Retroreflectivity Reading (mcdl)</b>	<b>Average</b>
<b>AASHTO Type I White Edge Line</b>	173, 156, 158, 173, 143, 132	156
<b>Metropolymer Yellow Centerline</b>	160, 210, 186, 184, 184, 207	189

Current retroreflectivity readings are consistent with those taken immediately after striping (see Initial Report), indicating no significant change in retroreflectivity after a year of exposure.

**Conclusions:**

In comparison with the adjacent waterborne traffic paint, the MetroMark copolymer material placed on the East Montpelier - Woodbury demonstration project exhibits greater durability. As was noted in the initial report, the MetroMark crew experienced equipment problems which caused some sections of the striping to be of questionable quality, especially in terms of application thickness. The areas observed this year, which appear to be fading worse than others, could have been placed at less than the target 15 mils (380 $\mu$ ). Overall, most of the project's markings are adequately visible.

**Follow Up:**

The MetroMark copolymer traffic paint will be examined again after additional exposure in order to further evaluate its durability.



**Photo Addendum**

MetroMark  
yellow centerline



MetroMark white (intact)  
contrast to abutting waterborne



Typical plow damage

