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RESEARCH UPDATE

Number U91-8

REFLEXITE HI-IMPACT DELINEATORS FINAL REPORT

REFERENCE Research Update No. U91-2

HISTORY: Vermont currently specifies aluminum backed delineators covered with high intensity reflective sheeting for installation on steel beam guardrail. These units cost \$2.05 each when purchased from Vermont Correctional Industries. They may be damaged by snow plowing as well as vehicular impact.

To identify less costly delineators of equal or better performance, an evaluation of REFLEXITE HI-IMPACT guardrail delineators was performed. They are made of the same plastic used in "bullet proof" windshields and are covered with reflective sheeting. At \$2.13 each, the REFLEXITE delineators cost only slightly more than standard units. An overall savings could be achieved if the plastic units were less susceptible to damage, thus requiring fewer replacements.

During the week of October 1, 1990 twenty eight REFLEXITE delineators were alternated with standard units on two sections of W beam guardrail on I-89 SB, between MM 52.50 and MM 51.65. Several night observations were made with no apparent difference in reflectivity observed.

An inspection on 12/27/90 revealed that eighteen standard delineators were damaged and one REFLEXITE unit was knocked off the guardrail, but recovered undamaged.

District maintenance forces replaced four aluminum units and repaired the other damaged units at a cost of \$68.73 for labor, equipment and material. This is a unit cost of \$17.18.

Material cost to replace the four standard units was \$8.20 (\$2.05 each). The REFLEXITE unit was rehung at no material cost. If it had not been recovered a replacement would have cost \$2.13.

The horizontal mounting slot in the REFLEXITE units makes them more susceptible to demounting than the vertically slotted aluminum reflectors. REFLEXITE units are also made with vertical slots.

STATUS: The delineators were observed through the Winter of 1990-91 and a final inspection was made on March 28, 1991. Twenty seven REFLEXITE units were found undamaged. Thirty eight standard units were inspected with four (10%) damaged beyond repair. An additional nine units (24%) were damaged but serviceable. Most of these will eventually require replacement from the damage they have received as the reflective sheeting will debond and darken where presently scratched. At a unit cost of \$17.18 it will cost

an additional \$68.73 for replacing the four aluminum units and \$17.26 for replacing the plastic unit. The total maintenance cost for this six month trial will be \$137.46 for (28) aluminum units and \$17.26 for (28) plastic units.

CONCLUSIONS During this six month long field trial, REFLEXITE HI-IMPACT Delineators were shown to be damage resistant. When exposed to the same field conditions as the standard aluminum units one REFLEXITE unit was replaced. Eight aluminum units were or will be replaced and an additional nine units are presently damaged but serviceable.

RECOMMENDATIONS The present specifications should be changed to permit the use of REFLEXITE HI-IMPACT Delineators as an alternative to the standard aluminum units. The specification should also be changed to require the vertically slotted units in either material. The time savings through use of the vertically slotted units can be significant (contractors are already using slotted units). The superior design should be available to maintenance forces as well.

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