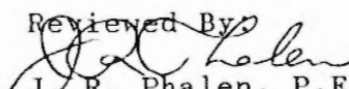
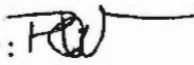


MATERIALS & RESEARCH DIVISION

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 January 29, 1988
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RESEARCH UPDATE

NUMBER 88-5

STIMSONITE 96 SNOWPLOWABLE RAISED PAVEMENT MARKERS

REFERENCE:

Work Plan 82-R-13, Research Report 85-11

HISTORY:

During August of 1983, 59 Stimsonite model 96 snowplowable raised pavement markers were installed along the centerline of the NB lane of I89 in the area of the Waterbury interchange #10 and in the gore area of the NB off ramp.

Problems were encountered in cutting the proper size and depth hole for installation of the markers. Installation, cost and performance through May of 1985 were reported in Research Report 85-11, published in Dec. of 1985. Reflector damage was assessed after one, two and three winters of exposure. Two winters were reported in the referenced report. Updated condition information is displayed in Table 1 below.

TABLE 1

CONDITION (% of lens nonfunctional)	PERCENTAGE OF UNITS		
	1 Winter	2 Winters	3 Winters
EXCELLENT 0	7	5	5
GOOD up to 25%	17	12	4
FAIR 26 to 75%	49	41	8
POOR above 75%*	27	42	76

*If Housing was damaged unit was rated as poor.

STATUS:

Close examination in May of 1986 revealed that four units (7%) were completely gone due to damage. Another five of the original 59 units were removed during an overlay project in 1985. It was concluded that the marker housings were generally able to resist significant damage while being exposed to approximately 600 snowplow passes per winter. The reflector inserts did not fare as well with 76% of the reflectors showing reduced effectiveness due to moderate to severe damage after one winter and only 5% being fully effective after three winters. The reflectors' short life is due to a

(over)

number of factors, and not to carbide tipped snowplow blades alone. Moisture and tire traffic are also important. Close examination has disclosed that many reflectors are virtually damage free and show no significant abrasion yet, do not reflect light due to darkening of the silver background. This darkening may be due to seepage of water and extremely fine soil into the unit where delamination has occurred between the back of the unit and the plastic lens. The dark area increases in size with time until the unit loses all effectiveness.

Replacement reflectors are available at a cost of \$3.05 per unit. Labor costs could be substantial due to the need for traffic control.

CONCLUSION:

Due to the need to replace lenses annually in order to maintain a minimum of 50% efficiency use of these markers can be recommended only in high accident locations or areas where geometric conditions require enhancement of standard traffic marking systems.

PROJECTION:

There will be no further formal observation of or reporting on this project.