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 August 1, 1988  
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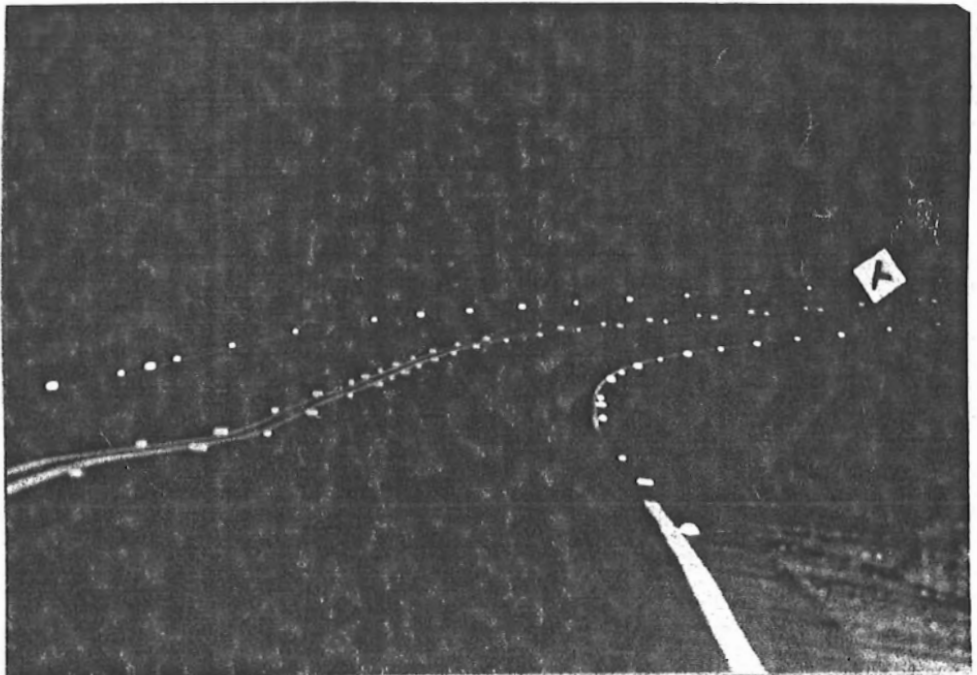
## RESEARCH UPDATE

NUMBER U-88-14

### RAISED CONSTRUCTION MARKERS

**HISTORY:** Raised construction markers (RCMs), while already in use in many states, have no "approved list" status in Vermont. RCMs are intended to visually guide traffic through construction work zones both day and night and through the audible "bump" which occurs if a vehicle runs over the marker. Early this year several markers were received by the Traffic Design Section and forwarded to the Materials and Research Division for evaluation. Markers from two companies, Flex-O-Lite and Stimsonite, were obtained. The Research and Development Section, with the consent of the Barre Town Public Works Department, established a test site in Barre Town on SA-6, a two lane highway from Barre City and Barre Town to the Airport, Central Vermont Hospital and the Berlin I-89 access road. The approximately 2000' test section centers on the intersection of SA-6 and SA-7 (Upper Prospect Street), and includes both new and old sections of pavement.

**STATUS:** On August 1, 1988 400 plus RCMs from two manufacturers were installed along the test section. Yellow 2-way markers were installed along the center line (immediately outside the lines) at 40 foot intervals in the approaches to the curves at either end and at 20 foot intervals through the curves and intersection. At each location a marker from one company was placed opposite a marker from the other company and were alternated left and right. White 2-way reflective markers were placed just outside the 11 foot edge line on the new pavement and at 11 feet on the old pavement where there is no painted edgeline.



COMPLETED RCM INSTALLATION  
 AT NIGHT

Two methods were used to adhere the markers to the pavement. The markers made by Flex-O-Lite were attached with butyl rubber adhesive pads. Initial adhesion was achieved by stepping on the markers. Approximately 1/2 the markers by STIMSONITE were placed using butyl adhesive pads which are very similar to those provided by FLEX-O-LITE.

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The other 1/2 were placed using a hot liquid bitumen which was heated in an application machine provided by STIMSONITE for the test. The machine heats and liquifies a bitumen and then applies a small amount to the pavement. The marker is then placed into the bitumen. In three to five minutes the bitumen is hard enough for traffic. All markers were set by running over them with a pickup truck tire.

**FOLLOW UP:** The markers are in place and initial nighttime observations indicate that they are very effective in providing a visual guide to the driver. Evaluation will continue until late Fall to determine whether they retain durability, nighttime reflectivity and daytime visibility. In late Fall they will be evaluated for ease of removal.

Agency personnel are encouraged to observe and comment upon this installation.

DIST: A,B,C,D(info),E,F,G,BTPWD

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