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RESEARCH UPDATE **Update U96-17**

LDI THORMA JOINT BRIDGE JOINT SYSTEM

REFERENCE:

WP 90-R-2, U90-8, U91-9

HISTORY:

Due to the failure of many bituminous joints on bridges throughout the state, investigations of possibl alternative systems are being conducted. The Thorma Joint system, applied on bridge 16N on I91 in Putney, VT b Linear Dynamics Inc. (LDI), is one of the alternatives..

DESCRIPTION:

Bridge 16N is a reinforced concrete deck overlaid with bituminous concrete pavement. The two joints ar located at each abutment and are thirty five feet long at a ninety degree angle to the center of the deck. Joint 1 is th southerly fixed joint, with Joint 2 being the northerly expansion joint. Installation of both systems was completed o July 11, 1990 and is described in Report U90-8.

By December 1990, Joint 2 developed 15.5 feet of cracking between the joint material and the adjacen pavement and 17 feet of cracking in the joint material itself. This was documented in Report U91-9. The entire join was removed and replaced by LDI on July 10, 1991. By January, 1992, 25 feet of the joint material had again separate from the adjacent pavement, but no cracks were observed within the joint material itself. The failure was not sever enough to require the joint to be replaced.

OBSERVATIONS:

Both of these joints were inspected by personnel from the Materials and Research Division on July 16, 1996 During this survey it was observed that thirteen feet of material on Joint 1 had separated from the adjacent pavemen with twenty-two feet of the same type of distress evident on Joint 2. Excess material, most likely from the replacemen of the joint in 1991, was evident in the breakdown lane on Joint 2. This "extra" layer appears to have been scrape slightly by snowplows but no other damage is evident. No scraping is evident on Joint 1, but wheel path wear i noticeable. No joint material cracks, as were noted in U91-9, were evident in either of the joints. Comparing picture of the joint distress from 1992 to 1996 indicates that very little further damage had occurred. Overall this joint systen is performing well in this particular application.

FOLLOW UP

This joint system will continue to be surveyed and evaluated, and reports will be issued as significant data i collected.

U96-17

December 23, 1996

Thorma Joint
Bridge 16N I91

Northern end of Bridge

July 16,1996

Thorma Joint
Bridge 16N

Southern End of Bridge

July 16,1996