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## RESEARCH UPDATE

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Update U96-4

# PERFORMANCE GRADE ASPHALT CEMENT

### REFERENCE:

Work Plan 95-R-16

### HISTORY:

In the past, some pavements have suffered extensive rutting due to the use of low viscosity asphalts (AC-5), overcompaction of the newly placed pavement and increased traffic loads. In some urban settings pavement rutting has been quite pronounced. Three such areas, Five Corners in Essex Junction, Williston Road in South Burlington, and Middlebury's Court Street are examples where rutting developed within the first year following project completion. Rehabilitation of these areas was completed in 1995 using a high stability SHRP Performance Grade 70-28 asphalt cement.

### PROJECTS:

The following projects were completed under this study:

Essex Junction, NH 9542(1)S, beginning at MM 1.60 on VT 15 in Essex Junction and extending easterly 0.649 miles to MM 2.249. Approach Work on VT 2A and VT 117 was also accomplished under this contract. Work completed on this project included cold planing to a depth of 50 mm, followed by placement of 50 mm of Type II hot mix and 40 mm of Type III bituminous concrete wearing course.

South Burlington, NH 9552(1)S, beginning at MM 0.517 on US 2 in South Burlington and extending easterly to 1.772 miles to MM 2.289. Work completed on this project included cold planing to a depth of 50 mm, leveling, and placement of 40 mm of Type III bituminous concrete wearing course.

Middlebury, NH 9545(1)S, beginning at MM 4.264 on US 7 in Middlebury and extending northerly 1.448 miles to MM 5.712. Work completed on this project included cold planing to a depth of 75 mm, followed by placement of 50 mm of Type II hot mix and 38 mm of Type III bituminous concrete wearing course.

### PRODUCT:

SHRP PG 70-28 asphalt cement, manufactured by Bitumar, Inc. of Montreal PQ, was used in the production of the bituminous concrete pavement.

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All units in metric. Exceptions: mile markers/mileage references for project location; suppliers' costs (presented in dual English/Metric units)

**SURVEY INFORMATION:**

During the preconstruction survey in 1995, a number of test sites were laid out for future performance monitoring. In Essex Junction one site was measured with an average of 16 mm of rutting. In Middlebury three sites were measured, which yielded an average of 30 mm of rutting. South Burlington had four sites which averaged 22 mm of rutting.

It should be noted that two lane widths (double lanes) were surveyed in Essex Junction and South Burlington, while only one lane was surveyed in Middlebury. Test Site 3 (MM 1.05) on the South Burlington project was quite misshapen, having approximately 32 mm of rutting in the travel lane, and only 10 mm in the passing lane. Test sites 1, 2, and 4 on this project had rut depths which varied by no more than 25 mm when the rutting in the travel lane was compared with that in the passing lane.

**FOLLOW-UP:**

All three projects will be inspected annually to determine if the high stability binder and mix can better resist rutting.