STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION

EXPERIMENTAL USE OF HOT RECYCLED ASPHALT PAVEMENT IN VERMONT

Follow-up to Initial Report 82-3

Reporting Period
February 1982 - October 1983

INTRODUCTION

This report discusses the condition and performance of an 11.7 mile portion of Vermont Rte 15 in Essex-Jericho-Underhill which was paved with recycled bituminous concrete pavement in July, 1981. Production of nearly 18,000 tons of mix containing up to 35 percent reclaimed pavement material was achieved in a standard batch plant using the heat transfer method.

For detailed information on the construction phase of the experimental field trial, refer to Initial Report 82-3.

PROJECT CONDITION AND PERFORMANCE

PAVEMENT DISTRESS

There has been no significant increase in the area of distress which occurred approximately 2 1/2 weeks after paving was completed in the Village of Jericho. The distress in the form of slippage or shoving of the recycled mix occurred in an area where at least a portion of the asphalt emulsion tack coat was washed away by a rain shower prior to the placement of the 11/16 to 13/16 inch thick overlay.

REFLECTIVE CRACKING

Type Mix	Test Section No. & Lane	*Original Crack Count	% Reflective Cracking 1/82	10/83
Recycled	7 WB	81	14	14
	8 EB	239	5	5
	9 WB	188	0	0
Standard	7 EB	92	12	17
	8 WB	219	8	17
	9 EB	83	0	43

* Linear feet of cracks per 100' of 12' roadway.

PAVEMENT RUTTING

Measurement in Inches

Type Mix	Test Section No. & Lane	Original Range	Average Original Value	10/81	10/83
Recycled	7 WB	1/16 - 6/16	4/16	1/16	2/16
	8 EB	2/16 - 20/16	8/16	1/16	2/16
	9 WB	3/16 - 10/16	7/16	1/16	3/16
Standard	7 EB	1/16 - 5/16	3/16	1/16	2/16
	8 WB	3/16 - 18/16	7/16	2/16	3/16
	9 EB	3/16 - 7/16	5/16	2/16	3/16

RIDING QUALITY

Riding quality as measured in inches of roughness per mile with a Mays Ride Meter.

Treatment	Date Tested	Project Average Inches per Mile (WB Lane)	(EB Lane)
No distinction made between areas with recycled and standard mix.	10/81	18	15
	10/82	26	25

FRICTION VALUES

Friction values obtained with a locked wheel friction trailer operating at 40 mph were as follows:

Treatment	Average Friction Value 9/81	9/82	9/83
Project Average	37.2	-	-
Recycled	-	38.0	35.3
Standard	-	36.1	33.6

RECOVERED ASPHALT PENETRATION VALUES

Asphalt penetration values determined using the Abson Recovery Method.

Type Mix	Initial Average	Avg. 12/82
Recycled	59.5	49
Standard	not tested	54

MAINTENANCE REQUIREMENTS

There have been no maintenance requirements on the experimental project during this reporting period.

PROJECTED MAINTENANCE REQUIREMENTS

With the possible exception of the distressed area on the westbound lane in the Village of Jericho at milemarker 0063+, no maintenance requirements are anticipated in the near future.

SUMMARY OF PROJECT CONDITION AND PERFORMANCE

Pavement Distress

Pavement distress has been limited to the area initially reported in the Village of Jericho.

Reflective Cracking

There has been no significant difference in the performance of the recycled and standard mix with relation to the development of new or reflective cracking.

Pavement Rutting

Rutting has been insignificant on both the recycled and standard mix.

Riding Quality

Through the last monitoring cycle, October 1982, the recycled pavement has provided a riding quality approximately equal to the initial values obtained on new paving projects under the quality assurance provision.

Friction Values

The recycled mix has maintained friction values approximately 2 points higher than the standard mix.

Recovered Asphalt Penetration Values

Through approximately 16 months of exposure, the asphalt from the standard mix has maintained a penetration value averaging 5 points above the recycled mix.

Maintenance Requirements

There were no maintenance requirements during this reporting period.

CONCLUSION AND RECOMMENDATION

Based upon the performance of the experimental project to date, the use of hot recycling should be encouraged whenever practical on future paving contracts.

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