

INTERIM REPORT —
TWO-YEAR EVALUATION OF RECYCLED, HOT MIX ASPHALTIC CONCRETE
ON ROUTE 220

by

C. S. Hughes
Senior Research Scientist

(The opinions, findings, and conclusions expressed in this report are those of the author and not necessarily those of the sponsoring agencies.)

Virginia Highway and Transportation Research Council
(A Cooperative Organization Sponsored Jointly by the Virginia
Department of Highways & Transportation and
the University of Virginia)

In Cooperation with the U. S. Department of Transportation
Federal Highway Administration

Charlottesville, Virginia

May 1984

VHTRC 84-R43

INTERIM REPORT --
TWO-YEAR EVALUATION OF RECYCLED, HOT MIX ASPHALTIC CONCRETE
ON ROUTE 220

by

C. S. Hughes
Senior Research Scientist

An installation report describing the 7.85-mi. section of U. S. Route 220 in Franklin County that was recycled and relaid in the fall of 1981 was issued in February 1982. A first interim report was written on February 9, 1983. This second interim report compares the data on various properties of the pavement obtained during or right after construction and the data obtained one year later and two years later.

A comparison of the data on the properties of the asphalt and on the voids total mix is shown in Table 1.

Table 1

Asphalt Properties and Voids

	<u>1981</u>	<u>1982</u>	<u>1983</u>
Asphalt, pene. 77°F. (25°C.)	46	47	49
Asphalt, viscosity 140°F. (60°C.), poises	5,550	5,214	5,216
Voids total mix, percent, \bar{x}	4.9	3.1	2.6
σ	1.5	1.0	0.7

It is obvious that the properties of the asphalt have not changed appreciably; however, the voids total mix appeared to have decreased, probably because traffic increased the density of the mix and/or sealed the surface.

The pavement properties are compared in Table 2, where it can be seen that the pavement properties have not changed very much. The roughness values, obtained with the Mays meter, have increased slightly. The equivalent serviceability rating, being based on roughness only, accordingly has decreased slightly. The skid number has increased slightly, probably as a result of the asphalt film being worn off the surface. The deflections, which were obtained with the Dynaflect and converted to equivalent Benkelman beam values, have varied, probably because of changes in subgrade moisture. There is probably no significant difference in the estimated thickness index values.

Table 2

Pavement Properties

		<u>1981</u>	<u>1982</u>	<u>1983</u>
Roughness, in./mi.	Traf. lane	84.7	89.2	90.3
	Pass. lane	82.7	85.8	86.6
Equiv. ser. rating	Traf. lane	3.75	3.69	3.68
	Pass. lane	3.78	3.74	3.72
Skid resistance, SN		42.0	45.0	53.0
Deflection, in.		0.017	0.021	0.018
Bending factor		66.0	65.0	67.0
Estimated thickness index		11.0	10.0	11.0

A final report will be issued after the project has been in service three years.

KING, COMMISSIONER
BANE, GRUNDY, BRISTOL DISTRICT
VAUGHAN, JR., GALAX, SALEM DISTRICT
WATKINS, SOUTH BOSTON, LYNCHBURG DISTRICT
MOHR, RICHMOND, RICHMOND DISTRICT
BRYDGES, VIRGINIA BEACH, SUFFOLK DISTRICT
FREYS, JR., WEEMS, FREDERICKSBURG DISTRICT
GUFFRE, ALEXANDRIA, CULPEPER DISTRICT
SMALLEY, BERRYVILLE, STAUNTON DISTRICT
SMITH, MCLEAN, AT LARGE-URBAN
QUICKE, BLACKSTONE, AT LARGE-RURAL



COMMONWEALTH of VIRGINIA

DEPARTMENT OF HIGHWAYS & TRANSPORTATION

1221 EAST BROAD STREET
RICHMOND, 23219

OSCAR K. MABRY
DEPUTY COMMISSIONER
J. M. WRAY, JR.
CHIEF ENGINEER
J. T. WARREN
DIRECTOR OF ADMINISTRATION
H. W. WORRALL
DIRECTOR OF FINANCE
JACK HODGE
ASSISTANT CHIEF ENGINEER
SALLY H. COOPER
DIRECTOR OF PUBLIC TRANSPORTATION
IN REPLY PLEASE REFER TO

May 15, 1984

File No. 2-4-45

Mr. Douglas A. Bernard
Chief, Demonstration Projects Division
Federal Highway Administration
1000 North Glebe Road
Arlington, Virginia 22201

Dear Mr. Bernard:

Project Title: Evaluation of Recycled, Hot Mix Asphaltic Concrete on
Route 220

Subsummation : Working Plan - February 1981
Work Order No. DTFH-71-8139VA02, approved March 3, 1981
Installation Report - February 1982, approved February
26, 1982
First Interim Report - February 1983

Please find attached a copy of the second interim report on the above mentioned project that is being submitted as called for in the Work Order.

The properties of the asphalt, voids total mix, and condition of the pavement were examined approximately 24 months after the recycled surface mix was put in service, and the data developed are compared here with the initial values and ones obtained after 12 months' service. The project is performing satisfactorily.

By copies of this letter and report, I am informing the FHWA Divisional and Regional Offices of the status of this project.

Yours truly,

Howard Newlon Jr.

Howard Newlon, Jr., Director
Virginia Highway and Transportation
Research Council

CSH/mam

attachment

cc: Mr. James M. Tumlin
Mr. James Dunne
Mr. H. C. King
Mr. M. C. Anday
Mr. C. S. Hughes
Miss E. L. Knight

TRANSPORTATION - AMERICA'S LIFELINES