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

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VHTRC 84-R43
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>
<thead>
<tr>
<th></th>
<th>1981</th>
<th>1982</th>
<th>1983</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt, pene. 77°F. (25°C.)</td>
<td>46</td>
<td>47</td>
<td>49</td>
</tr>
<tr>
<td>Asphalt, viscosity 140°F. (60°C.), poises</td>
<td>5,550</td>
<td>5,214</td>
<td>5,216</td>
</tr>
<tr>
<td>Voids total mix, percent, $\bar{x}$</td>
<td>4.9</td>
<td>3.1</td>
<td>2.6</td>
</tr>
<tr>
<td>$\sigma$</td>
<td>1.5</td>
<td>1.0</td>
<td>0.7</td>
</tr>
</tbody>
</table>

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 service-ability 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

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

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

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., 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