RC 4: USE RECYCLED ASPHALT

Summary

Issue:
Asphalt pavement diverted from the construction waste stream can be reused as aggregate in new asphalt, greatly reducing construction waste and the need for virgin materials.

Recommendation:
Require a minimum amount of recycled asphalt as the base material for new asphalt aggregate.

Proposed Legislation, Rule or Study

Amendments to the New York City Building Code:

1. Add a new Section 3403.1 as follows:

SECTION BC 3403
PAVED AREAS

3403 Recycled content in asphalt. Beginning July 1, 2010, a minimum of 20% of all asphalt mixtures shall be recycled asphalt pavement (RAP), measured by weight. That minimum shall increase to 25% beginning July 1, 2014, and to 30% beginning July 1, 2018.

Amendments to the Administrative Code of the City of New York:

1. Add a new Section 6-308.1 as follows:

§ 6-308.1 Minimum recycled content in asphalt. No asphalt mixtures purchased by any agency shall contain less than 20% of recycled asphalt pavement, measured by weight. After July 1, 2014, no such asphalt mixtures shall contain less than 25% of recycled asphalt pavement measured by weight. After July 1, 2018, no such asphalt mixtures shall contain less than 30% of recycled asphalt pavement measured by weight. Notwithstanding the foregoing, the provisions of this section shall not apply to any asphalt intended to be used in aeronautical uses, highway projects funded by the federal government, or where asphalt content is otherwise prescribed by federal or state laws, regulations or guidelines.

Supporting Information

Issue – Expanded
Each year roughly 5% of New York City’s streets are resurfaced. In the process, the top layers of asphalt are removed, and new layers are applied. About one million tons of asphalt is removed each year, and another one million tons is reapplied. If properly run, asphalt plants can reuse a considerable amount of recycled asphalt pavement (RAP) in creating new pavement material. The New York City Department of Transportation (DOT) has been an industry leader in using a high percentage of RAP; after having gradually increased its rates over many years, its current mix includes roughly 40% RAP. New York’s private sector asphalt plants, however, lag behind, achieving an average recycling rate of roughly 15%, according to DOT. These rates can be increased, and this proposal gives the industry 8 years to gradually improve its techniques and increase its recycling rate to a minimum of 30%.

Environmental & Health Benefits
The primary environmental advantage to using recycled asphalt pavement (RAP) is that it prevents asphalt from entering landfills. Secondary advantages from this also include decreasing carbons emitted from using and transporting virgin materials as well as removing and transporting existing asphalt.
The chart below shows the impact of this proposal under two scenarios. In the first scenario, DOT does not increase its plant capacity – it remains at 45% of the market. In the second scenario, DOT increases its capacity to 75% of the market.

<table>
<thead>
<tr>
<th>MVOC13 - Use Recycled Asphalt</th>
<th>milled asphalt (thousands of tons)</th>
<th>% currently recycled</th>
<th>current recycled asphalt (thousands of tons)</th>
<th>2010 recycled asphalt - 20% recycled (thousands of tons)</th>
<th>2018 recycled asphalt - 30% recycled (thousands of tons)</th>
<th>Impact: additional recycled asphalt 2018 (thousands of tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1 (One DOT plant, 45% of city capacity)</td>
<td>DOT</td>
<td>450</td>
<td>40%</td>
<td>180</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Private Plants</td>
<td>550</td>
<td>15%</td>
<td>82.5</td>
<td>110</td>
<td>165</td>
</tr>
<tr>
<td>Scenario 2 (Additional DOT plants, 75% of city capacity)</td>
<td>DOT</td>
<td>750</td>
<td>40%</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>Private Plants</td>
<td>250</td>
<td>15%</td>
<td>37.5</td>
<td>50</td>
<td>75</td>
</tr>
</tbody>
</table>

In the first scenario, this proposal would increase the use of recycled asphalt by 82,500 tons annually. To put this in perspective, the Dept. of Sanitation collects 13,000 tons of waste and recyclables daily, with another 13,000 tons collected from the commercial sector by private haulers. Therefore, the first scenario would result in the recycling of an amount of waste that is equivalent to over three day’s worth of residential and commercial collections from the entire city, on an annual basis.

This proposal was found to have a low, positive environmental impact per building and to impact a large number of buildings. It was thus given an environmental score of 2.

This proposal was found to have no significant positive health impact.

**Cost & Savings**
This proposal is not expected to have any significant impact on capital costs.

**Precedents**
The use of recycled asphalt pavement (RAP) has been widely utilized since the 1970s. Many municipalities across the country allow for the use of RAP and even dictate its use, including Utah, California and Colorado. The Colorado Department of Transportation (CDOT) developed a specification in 1999 allowing 25% RAP in asphalt mixes. In addition, Chattanooga, TN implemented a new process in 2007 incorporating up to 50% RAP.

**LEED**
LEED credits are available for the use of recycled asphalt aggregate feedstock.

These credits include:
- LEED NC- MR cr.4.1 & 4.2 Recycled Content;
- LEED CI-MR cr. 4.1 & 4.2 Recycled content;
- LEED EB-MR cr.2 Optimize use of Alternative Materials;
- LEED for Schools MR cr.4.1 & 4.2 Recycled Content;
- LEED for Homes MR cr. 2 Environmentally Preferable Products; and
- credits under the various pilot programs.

Additionally, for asphalt recycled on site, LEED MR credits relating to Construction Waste Management are available for diverting waste from disposal.

**Implementation & Market Availability**
There are no known implementation issues for this proposal. Recycled asphalt is readily available.

**Notes**
Some form of pavement recycling has been documented back to 1915. Nevada and Texas conducted the first sustained...
Between 1976 and 1982, over 40 states documented RAP projects, and currently nearly all 50 states routinely use RAP as an aggregate substitute and binder. “Substitution rates of 10 to 50 percent or more, depending on state specifications, are normally introduced in pavements, and recently developed technology has even made it possible to recycle 90 to 100 percent RAP in hot mix.”

“Recycling asphalt pavements is currently the largest single recycling practice in the United States. In 2002, 30,000,000 tons of RAP was used in hot mix asphalt (HMA) with a savings of over $300 million, accomplished by lowering material costs for the newly placed asphalt and eliminating the disposal cost of the RAP.”

ENDNOTES:

4 Ibid., 4.
7 Ibid.
8 Ibid.
9 Ibid.