ARRA™
Asphalt Recycling & Reclaiming Association

August 30, 2024

Dear Public Procurement Working Group:

The Asphalt Recycling & Reclaiming Association (ARRA) is submitting this letter to the Public Procurement Working Group in support of Virginia HB 1524, The Asphalt Recycling Tax Credit, which sought to provide tax credits for mobile asphalt recycling machinery and equipment. The bill was introduced and supported by Delegate Lopez.

As background ARRA, established in 1976, is the association for asphalt recycling and reclaiming. Members include contractors, material and equipment suppliers, engineers and agencies involved in all aspects of asphalt recycling and reclaiming. ARRA works closely with public transportation agencies providing research and training and developing widely used specifications on asphalt recycling and reclaiming.

Flexible in-place asphalt recycling and reclamation treatments grind up and utilize a roadway's existing materials by processing them on-site and adding in asphalt, emulsified asphalt, rejuvenators or other additives. Treatments include the recycling techniques of hot in-place recycling (HIR), cold in-place recycling (CIR), cold central plant recycling (CCPR) and full depth reclamation (FDR). Documented performance of these innovative treatments show recycling processes are as good or better than conventional construction techniques and used at a lower financial and environmental cost. Not only is Virginia taking advantage of these cost effective and sustainable treatments but VDOT is leading the way in teaching other agencies how these treatments can work on interstate routes.

In-place recycling and reclaiming processes offer rapid roadway construction, safety, durability and resiliency; lower greenhouse gas (GHG) emissions; save natural resources; reduce energy consumption; increase landfill diversion and reduce construction times. Importantly they also result in a safer roadway surface for the driver while enhancing a roadway's lifecycle cost and performance. Because these technologies reuse existing materials, the need for new virgin aggregate sources is minimized, significantly slowing the depletion of these resources. Reusing this existing aggregate material also minimizes the need to dispose of the existing roadway material. With much of the highway system built in the 1960's and 1970's and currently in need of major rehabilitation or reconstruction, the value of reusing material and having minimal waste to absorb into our communities cannot be underestimated.

The conditions for utilizing in-place recycling are not present on every road, however, every Virginia transportation agency and their engineers should have the option of utilizing this valuable tool IF they determine it can be an effective solution for the project in question. HB 1524 will substantially increase the likelihood that contractors invest in this capital intensive equipment increasing the likelihood of access to this beneficial approach to road rehabilitation and preservation.

Using in-place recycling and reclaiming techniques, has the advantage of greatly decreasing the number of trucks hauling material to and from job sites. Typically, shipping just two 25-ton truckloads of recycling additives to and from a project reduces the need for 240 18-ton truckloads of material hauled in and out. Fewer trucks on the road reduces Vehicle Miles Travel (VMT), emissions, roadway damage, congestion and the risk of construction-related accidents.

Recycling and reclaiming techniques can also enhance Emergency Response preparedness in Virginia, as damaged highways in disaster areas can be fixed/repaired in a relatively quick time with little to no imported materials.

Below are a few specific examples of Agency savings using in-place recycling:

-Here in Virginia, a 3.7- mile portion of I-81 that carries more than 7,000 trucks per day was rehabilitated using a combination of CIR, CCPR, and FDR. After 10 years, the project still has IRI values less than 50 inches per mile and rut depths less than 0.1 inches.

VDOT contracted to rebuild a portion of I-64 using CCPR and FDR. In addition to reconstructing the existing lanes, new lanes were added using these pavement recycling techniques. Several benefits were outlined in the online document, FHWA-HIF-19-078. These include:

- Cost savings of approximately $15 million
- 25-45% energy reductions
- 15-40% global warming potential reductions
- Use of one million tons of recycled materials (including 360,000 tons of stockpiled RAP)

- Since 2009, Los Angeles County has performed 18 CIR projects, 12 CCPR projects and 19 subgrade reclamation projects. They estimate that when combined with their pavement preservation treatments, the benefits from these projects included:

- $39.9 million in cost savings when compared to traditional methods
- 345,000 CY of material was diverted from local landfills
- Reduction of energy consumption by 151,995,000 kWh
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- Reduction of GHG emissions by 43,700 metric tons (the equivalent of removing 9,256 passenger vehicles from the roads annually)

According to a report by TRP.NET published in May, a total of 46% of Virginia's major roads are in poor or mediocre condition. Driving on deteriorated roads costs Virginia motorists $4.3 billion a year – $736 per driver – in the form of additional repairs, accelerated vehicle depreciation, and increased fuel consumption and tire wear. Mobile pavement recycling projects can provide notable financial savings as well as environmental and safety benefits to communities in Virginia. Virginia transportation agency professionals deserve to have the tools in their toolbox which will enable them to improve Virginia's roads cost effectively and environmentally sustainably for state tax payers and drivers. Virginia HB 1524, which provides tax benefits for mobile asphalt recycling machinery and equipment will incentivize companies around the state to invest in this capital intensive equipment and expand mobile asphalt recycling in Virginia thereby making a valuable tool available which will improve Virginia roads at a lower cost and less impact to the environment, to transportation agency professionals around the state.

Sincerely,

Rick Church
Executive Director
ARRA
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S CROSS & ASSOCIATES, LLC

Bella Vista, Arkansas
August 29, 2024

Dear Public Procurement Working Group

As the recently retired Technical Director of the Asphalt Recycling & Reclaiming Association (ARRA), I am submitting this letter to the Public Procurement Working Group in support of Virginia HB 1524, the Asphalt Recycling Tax Credit, which seeks to provide tax credits for mobile asphalt recycling machinery and equipment.

ARRA's mobile asphalt recycling techniques include hot in-place recycling (HIR), cold in-place recycling (CIR), cold central plant recycling (CCPR) and full depth reclamation (FDR). Information on each of the techniques, including the equipment, processes, cost effectiveness, sustainability and performance can be found on the Pavement Preservation & Recycling Alliance's web page www.roadresource.org.

All of ARRA's techniques utilize in-place or existing materials, typically recycling 90 to 100% of the materials in-place, greatly reducing trucking and the need for new materials. Using existing materials that an agency has bought and paid for reduces costs and can greatly reduce the environmental impact. There is much work currently ongoing on sustainability of highway construction materials. One of the seminal papers is *The Environmental Road of the Future* by COLAS which shows the impact of in-place recycling on energy consumption and greenhouse gas production.

Some of the best work on performance of these treatments comes from the Virginia DOT and the Virginia Transportation Research Council (VTRC). Well documented cost and performance data is available from existing VTRC reports on I-81 and I-65 and well as performance studies from their test sections on the NCAT Test Track.

With all of the performance, cost and environmental benefits, the in-place recycling techniques are still underutilized in parts of the USA. FHWA has performed several studies in the past to determine why. Survey responses listed lack of available contractors as a major factor. The lack of contractors is the result of limited projects and the initial cost of the required equipment. Virginia HB 1524, which provides tax benefits for mobile asphalt recycling machinery and equipment, will incentivize companies to invest in this capital intensive equipment and expand mobile asphalt recycling in Virginia allowing agencies to do more with less funds while reducing the environmental impact of highway maintenance and reconstruction.

Sincerely,

Stephen A Cross

Stephen A, Cross, PhD, PE

August 30, 2024

Virginia's Public Procurement Working Group

Subject: HB1524 and Associated Legislative Study

Dear Members of the Public Procurement Working Group,

The asphalt pavement industry has a long history of innovating to reduce the environmental impact of its products, such as creating asphalt mix at reduced temperatures, increasing the recycled content of mixtures to reduce reliance on virgin materials, and partnering with ENERGY STAR® to find ways to reduce energy consumption at asphalt plants. We are always striving for efficiency, which results in lower emissions, lower cost, and lower environmental impact. Additionally, and importantly, asphalt pavement – vis-à-vis reclaimed asphalt pavement (RAP) – is the most recycled material in the country and is, in fact, 100% recyclable.

As the only organization representing asphalt mix producers, contractors, suppliers, and affiliated companies at the federal level, the National Asphalt Pavement Association (NAPA) counts more than 1,100 companies among its membership, including nearly three dozen headquartered in the Commonwealth of Virginia. NAPA works closely with state organizations like the Virginia Asphalt Association (VAA) to identify, innovate, and implement best practices in paving and pavement design, while advocating for sound policy, reliable funding, and financial and environmental stewardship in road building and maintenance. Since 2014, when NAPA began developing the first environmental product declaration (EPD) program for asphalt mixtures, NAPA, VAA, and our members continued to advance our efforts toward sustainability. For example, in 2022 alone, we updated the EPD program, became an ENERGY STAR Partner, and launched an industry-wide initiative called The Road Forward with the goal of creating net zero carbon asphalt pavements by 2050. We are actively partnering with FHWA, EPA, GSA, and academia to work toward this goal.

NAPA supports the tax credits proposed in HB 1524 for mobile asphalt plants used to increase the use of RAP at the job site. Recycling asphalt pavements using mobile plants at the job site has several economical benefits like reducing the amount of virgin materials needed for reconstruction, saving the taxpayers money by reusing high-quality materials the Commonwealth has already paid for. Environmentally, recycling through the use of mobile plants at the job site greatly reduces truck

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traffic and associated emissions. FHWA documented the economic and environmental savings in the report, “In-Place and Central Plant Recycling of Asphalt Pavements in Virginia” (FHWA-HIF-19-078).

NAPA supports the legislative study associated with HB 1524 to investigate a methodology to increase the amount of RAP and use of ground tire rubber (GTR) in new asphalt mixes. VDOT and others are already researching GTR as another tool for producing high-performing asphalt mixes.

The responsible use of RAP to produce quality asphalt mixes while providing economic and environmental savings is well researched and documented. For every 1 percent increase in RAP incorporated into a new mix, fewer virgin asphalt binder and aggregates are needed, eliminating the equivalent of annual emissions from 30,000 passenger vehicles. With today’s commodity prices, a ton of RAP is worth approximately $50-$60. Put simply, the allowance of higher percentages of RAP in asphalt mixes has numerous economic and environmental benefits to the citizens of Virginia.

Further demonstrating this impact, NAPA’s annual RAP use survey for FHWA shows that Virginia contractors report an average RAP use in VDOT mixes of approximately 27 percent, making Virginia one of the top 10 states in terms of RAP use. However, the specifications in Virginia limit RAP use, which could be higher. Other states and countries have RAP allowances up to 100 percent. By employing proper production techniques, use of softer asphalt binders and other mix modifiers, and an unwavering requirement for quality proved through sound engineering, testing, and performance data, Virginia could be the leader in responsible, effective RAP use for the nation while driving down the carbon footprint of the surface transportation system.

Thank you for the opportunity to comment and provide support for this legislation and legislative study.

Sincerely,

J. Richard Willis, Ph.D.
Vice President, Engineering, Research, & Technology
National Asphalt Pavement Association