

September 16, 2024
Public Procurement Working Group
Richmond, Virginia

Dear Public Procurement Working Group,

My name is Benjamin Bowers and I am the McCartney-Chase Distinguished Highway Engineering Associate Professor at Auburn University (AU) in the Department of Civil and Environmental Engineering. I am also closely affiliated with the National Center for Asphalt Technology (NCAT) at Auburn University. Prior to joining AU I worked as a Research Scientist at the Virginia Transportation Research Council for 4.5 years. My research and education efforts are in sustainable and resilient pavement materials and systems.

Pavement recycling is a method of constructing new roadways and reconstructing existing roadways in a cost effective, long-life, and low-carbon manner. Specifically, Full Depth Reclamation (FDR), Cold In-place Recycling (CIR), and Cold Central Plant Recycling (CCPR) of asphalt mixtures provide a proven way to recycle 100 percent of existing pavement materials and provide excellent performance when accompanied by thoughtfully implemented specifications and best practices, such as those put forth by VDOT.

VDOT sponsored research at the NCAT Pavement Test Track in 2012 that used Full Depth Reclamation (FDR) and Cold Central Plant Recycled (CCPR) asphalt mixtures, like the sections built on Virginia's Interstate 81 project outside of Staunton, VA. The test section containing both techniques was described in NCAT Report 21-03 as being a perpetual, long-life pavement. Economic comparisons showed that the test sections containing CCPR or CCPR and FDR saved between 11% and 31% compared to the full-depth asphalt sections used in the comparison. The information gathered from these test sections was then implemented on Interstate 64 near Williamsburg, VA. The recycling option was the competitive low bid compared to full-depth asphalt and concrete alternatives. Further, a study conducted by the Federal Highway Administration (FHWA-HIF-19-078) performed an environmental assessment of the FDR, CIR, and CCPR project on Interstate 81 in Staunton, VA as well as the FDR and CCPR project on Interstate 64 project in Williamsburg, VA. The I-81 project reduced energy consumption by roughly 50 to 70 percent and carbon dioxide equivalents (CO₂e) reductions of between 40 to 70 percent compared to a fictitious equivalent conventional pavement structure. The Interstate 64 project showed 25 to 45 percent energy reductions and 15 to 40 percent CO₂e reductions compared to a fictitious equivalent conventional pavement structure. The data provided on Virginia pavements and materials supports the economic and environmental savings associated with these tools to

achieve long-life pavements, strengthening Virginia's pavement network and providing opportunities for future growth.

VDOT has active research efforts in higher reclaimed asphalt pavement (RAP) and use of other recycled materials such as recycled tire rubber in asphalt surface mixtures. Pairing the findings of these efforts with the development and implementation of approaches that further lead to ensuring performance, such as Balanced Mix Design of asphalt mixes, is important to the implementation of these materials. These approaches can lead to lower economic and environmental costs for asphalt surface mixes.

Thank you for the opportunity to provide comment.

A handwritten signature in black ink, appearing to read 'B. Bowers', with a stylized flourish at the end.

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