RAP Benefits for Pavement Owners

WHAT IS RAP?
Reclaimed asphalt pavement (RAP) is the terminology used for materials generated when asphalt pavements are removed for reconstruction, resurfacing, or other construction activities. RAP consists of high-quality, graded aggregates that are coated with durable asphalt binder.

HOW AND WHERE IS RAP RECYCLED?
89.2 million tons of RAP are used annually in new asphalt pavement construction in the United States. As a fully recyclable product, RAP has many applications, and can be used over and over again, reducing the need for costly virgin materials. More than 94% of RAP is used in new asphalt mixtures, while a small percentage is incorporated into other civil engineering applications like unbound aggregate bases. Nationally, RAP is utilized at an average rate of 21.1% in new asphalt mixtures.
Benefits of recycling asphalt pavements

SUSTAINABILITY
The net reduction of greenhouse gas emissions from the use of RAP in new asphalt mixtures from 2009 to 2019 was estimated at 21.2 million tonne CO₂e, equivalent to the annual emissions from approximately 460,000 passenger vehicles. In 2019, more than 97 million tons of RAP were recycled in new asphalt pavements and other civil engineering applications, saving 58.9 million cubic yards of landfill space.

COST SAVINGS
$3.3 billion are saved every year by using RAP – making asphalt pavement both environmentally and economically sustainable. Nationally, the average 21.1% RAP used in new asphalt mixtures saved $7.80 per ton, compared to mixtures using all virgin materials.

PERFORMANCE
Asphalt mixtures containing high levels of RAP have been in place and performing for many decades. Researchers have conducted laboratory and field evaluations on mixtures containing high levels of RAP and have indicated that the structural performance of recycled mixes is equal and, in some instances, better than that of the conventional mixes¹. Additionally, several studies have found that RAP stockpiles had less variability than virgin aggregate stockpiles and that using higher percentages of RAP did not lead to increased variability of the asphalt mixtures produced²,³,⁴. The completed research has also generated several best management practices to assist producers in supplying high-quality asphalt mixtures containing RAP.

⁵ West, R., et al. Use of Data from Specific Pavement Studies Experiment 5 in the Long-Term Pavement Performance Program to Compare Virgin and Recycled Asphalt Pavements. Transportation Research Record: Journal of the Transportation Research Board, January 2011.

Do your part to recycle and reap the benefits at the same time! Click or scan to learn more about the benefits of recycling asphalt pavements.