

5 BENEFITS OF ASPHALT PAVEMENT MILLING

Milling is a fundamental practice in the maintenance and rehabilitation of asphalt pavements. This paper explores the multifaceted benefits of milling, highlighting its role in restoring pavement geometry, facilitating material recycling, removing deteriorated materials, aiding in surface preparation, and preserving existing infrastructure. By exploring each benefit, this paper illustrates the significance of milling as an essential component of modern pavement management strategies.

RESTORATION OF PAVEMENT GEOMETRY

Milling provides an efficient and effective method for the restoration of pavement geometry. Automation on the milling machine allows for the removal of the upper layers of existing pavement, facilitating the restoration of the original surface grade. This process eliminates drainage issues, revitalizes pavement cross-slopes, and reinstates profiles, ultimately enhancing driving comfort and ensuring consistent road quality and safety.

MATERIAL RECYCLING

A paramount advantage of milling lies in its capacity for material recycling. The extraction of reclaimed asphalt pavement (RAP) during milling provides a valuable resource that can be reused and incorporated into the production of new asphalt mixtures. By utilizing RAP, the demand for new raw materials is reduced, lowering costs and promoting environmental sustainability. Prioritizing the integration and use of RAP into new asphalt mixes is essential for maximizing economic value and minimizing environmental impact.

REMOVAL OF DETERIORATED MATERIAL

Milling is an efficient method for the removal of deteriorated asphalt pavement material unsuitable for integration into new pavement sections—including materials exhibiting severe cracking, rutting, stripping, or other forms of pavement failure that may compromise the longevity of the rehabilitated pavement. The selective removal of deteriorated material is critical to ensuring the overall service life of the pavement.

SURFACE PREPARATION

A crucial aspect of milling is its impact on surface preparation. The process leaves behind a surface macrotexture, facilitating robust interlayer bonding with overlays. This texture augments the longevity and performance of the newly applied pavement layer, ensuring its resilience against the rigors of traffic and environmental conditions.

MAINTAINING GRADE WITH EXISTING INFRASTRUCTURE

Milling plays a vital role in maintaining or reestablishing curb and gutter lines. In urban settings where proper drainage is imperative, this function is of paramount importance. Additionally, milling under bridges ensures that the essential clearances required for vehicles traveling on the road or highway are preserved, even after the application of new asphalt layers.

SUMMARY

The benefits of milling in asphalt pavement maintenance and rehabilitation are diverse and far-reaching. From geometric restoration to material recycling, surface preparation, and infrastructure preservation, milling is an indispensable technique in modern pavement management. Its role in enhancing the longevity, sustainability, and overall performance of asphalt pavements cannot be overstated. By recognizing and capitalizing on the benefits of milling, transportation agencies and industry professionals can optimize their pavement management strategies and contribute to a more sustainable and resilient road network.

For more insights and in-depth analysis, please refer to the following NAPA resources:

PUBLICATIONS:

- › RAP Benefits for Pavement Owners
- › Best Practices for RAP and RAS Management (QIP-129)
- › Recycling Hot-Mix Asphalt Pavements (IS-123)
- › Use of RAP & RAS in High Binder Replacement Asphalt Mixtures: A Synthesis (SR-213)
- › Designing HMA Mixtures With High RAP Content: A Practical Guide (QIP-124)
- › How to Increase RAP Usage and Ensure Pavement Performance

WEBINARS:

- › Beyond the Basics: Milling for Quality
- › Best Practices for Milling and Profiling

