

# top10 list



## WAYS TO GET MORE DURABLE HMA PAVEMENTS #5 INCLUDE ADEQUATE SURFACE PREPARATIONS IN THE PLANS

Pavement surface preparation is an important part of any asphalt roadway rehabilitation or new construction plan. In general, surface preparation could include one or more of a number of operations such as cleaning, removal of loose material, physical and/or chemical treatment of a surface, and application of a coating. These preparations are intended to ensure that the pavement surface is adherable and that the full strength of the entire structure is utilized under traffic loads.

The following checklist outlines steps to ensure adequate surface preparation measures are included in any roadway contract plan.



## QUALITY PAVEMENT REQUIRES QUALITY PREPARATION

- Pavement surface preparation generally consists of activities or treatments applied to the subgrade, granular base, and requirements for overlaying existing structures. These activities include stabilization, over-excavation of poor subgrade, applying a prime coat or compacting the subgrade, applying a leveling course, milling, applying a tack coat, and replacing localized areas of extreme damage.
- A key objective of contract planning should be to ensure the pavement surface is effectively prepared. This requires selecting proper treatment types, choosing appropriate materials for the chosen treatment, ensuring good pavement and mix design practices, and careful construction to produce the desired result.

### - Surface Preparation for New Pavement Construction:

- + Ensure proper and consistent compaction is achieved on the base and subgrade according to OPSS.501.
- + If soft and wet subgrade is encountered, over-excavation of subgrade or stabilization solutions should be considered, including use of geosynthetics (geotextiles).
- + Paving on soft and wet surface would result in blistering, delamination, and improper smoothness. Allowing for sufficient time to dry after a rainfall event is critical.
- + Improper bonding can result in rutting in the sublayers which translates into fatigue cracking on the surface HMA. To prevent this, consideration could be given to use of a prime coat application on the compacted base layer to protect against effects from moisture.

### - Surface Preparation for Overlaying Existing Structures:

- + Extreme surface damage usually reflects structural or drainage problems in the sublayers. Identify and address/repair localized areas of severe distress.
- + Determine whether a leveling course is warranted or if part of the existing surface should be milled to ensure consistent thickness and smoothness of the overlay.
- + Improperly cleaned surfaces result in lack of bond and shoving of the newly-placed surface. Proper cleaning techniques (mechanical brush or air blow) of the existing surface should be clearly described in the contract documents.
- + Include the application of tack coat under the first lift and between subsequent lifts to ensure to ensure layers are adequately bonded. This increases resistance to rutting deformations. The type of emulsion and rate of application should be in accordance with OPSS.308.

Whether it is a new pavement construction, or overlay on an existing structure, making sure that adequate surface preparation is included in the planning and tendering is key to successful paving results. Achieving the best layer interaction by taking all the above measures is one of many factors that guarantees longer service life and more return on the infrastructure investment.



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