

EVERYTHING ASPHALT

Thin Hot Mix Asphalt Overlays



"The typical rehabilitation treatment for an aging low volume flexible (hot mix asphalt) pavement has been a thin hot-mix asphalt overlay. This treatment usually extends the [low volume] pavement serviceability about 10 years."
MnRoad



Effective Pavement Preservation

Thin hot mix asphalt (HMA) overlays are plant-mixed combinations of asphalt cement and aggregate placed in depths of $\frac{3}{4}$ to $1\frac{1}{2}$ inches over aging pavements as a pavement preservation treatment. The liquid asphalt binds the rocks together in a strong but flexible pavement structure. The HMA is designed to seal and protect the existing pavement, to correct surface deficiencies, and to improve rideability and surface friction. They are one of the most effective maintenance treatments for re-profiling and improving rideability.

For more distressed surfaces, the top $\frac{3}{4}$ to $1\frac{1}{2}$ inches of the existing pavement may be removed by cold-milling with carbide-tipped cutting bits to a specified depth followed by the application of the thin HMA overlay.

The mixes used for thin HMA overlays can be dense-graded, open-graded or stone matrix asphalt (SMA). Open-graded overlays allow surface water to drain away quickly, preventing hydroplaning and improving visibility in wet weather.

Thin HMA Overlay Benefits

- Improve rideability and surface friction.
- Improve profile, crown, and cross-slope.
- Open-graded mixes reduce hydroplaning and tire splash.
- The overlays correct raveling, oxidation, minor cracking, minor surface irregularities and skid problems.

Polymer Modified Asphalts

The durability and resistance to rutting at high temperature and cracking at low temperature can be improved with the use of polymer modified asphalt. The structure of an elastomeric polymer within the asphalt means the overlay will be more elastic under traffic and less sensitive to temperature fluctuations. The modified materials are slightly more expensive than unmodified, but life cycle cost studies have shown that they quickly pay for themselves in longevity, especially on high traffic volume roads. Polymer asphalts also reduce raveling, which can be a problem on thin lifts, especially with open-graded mixes.

Surface Preparation and Construction

Any large cracks or other deficiencies should be addressed before construction. Manholes, catch basins, and utility appurtenances should be raised to the level of the new overlay. A scratch or leveling course may be placed prior to the overlay, if warranted. A tack coat should be applied to assure bonding of the thin overlay to the existing pavement. The hot mix asphalt materials are mixed at a hot mix plant, transported to the job site, placed using a paver and compacted with rollers. Temperature recommendations by the asphalt manufacturer should be followed closely to achieve optimal results.

Martin Asphalt Products for Thin HMA Overlays

- PG 64-22** | Hot mix asphalt overlays are made with Superpave performance graded asphalt binders. PG 64-22 is used for typical paving. For high volume traffic roads, roads with standing and stopping traffic, or open-graded mixes, the
- PG 70-22** | higher grades are recommended. The higher grades are modified with polymers and other additives to improve
- PG 76-22** | durability and resistance to rutting, cracking and raveling.

Martin Asphalt Makes It Easy

There are a variety of treatments available for effectively keeping "good pavements good". Choosing the right treatment can make the best use of funds and give taxpayers smooth and safe roads while avoiding costly reconstruction and extended road closures. Through Martin Asphalt, you get **Everything Asphalt**—a full range of products for your pavements. In addition, you receive technical assistance in selecting the right materials and application. The company's AASHTO Certified Laboratory makes sure the products meet your specifications. And your products are delivered both on spec and on time via Martin's Gulf Coast network of production plants, storage facilities and transportation fleet including ocean-going and inland barges, rail cars and tanker trucks. Contact us for help in selecting the right materials for your projects.

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