Ch 1. Philosophy of preventive maintenance

If a pavement is constructed and no maintenance is done, the pavement may not last as long as it should. Preventive maintenance is a strategy to extend the serviceable life of a pavement by applying cost-effective treatments that will slow down pavement deterioration and prevent new distresses from forming. Preventive maintenance is also intended to improve the condition of the pavement by sealing cracks or covering existing distresses such as raveling or oxidation.

Some preventive maintenance techniques for asphalt pavements include crack sealing, seal coating, slurry sealing, micro-surfacing, fog sealing, and thin hot mix asphalt (HMA) overlays. These strategies are all considered thin maintenance surfaces (TMS)—the subject of this manual.

Although it is impossible to stop a pavement from eventually failing, it is possible to slow down the aging process or to “turn back the clock” to extend the life using preventive maintenance techniques such as TMS.

However, the timing of preventive maintenance can be a bit tricky. In order to “turn back the clock” the greatest amount, the thin maintenance surface must be placed at the right time. If a TMS were placed on a newly paved road with little or no distress, little to no value would be added, and the life of the pavement would not be extended. It is harder to “turn back the clock” when only a brief period of time has passed. Likewise, if a TMS were placed on a pavement in poor condition with severe distresses, the TMS would not effectively extend the life of the pavement, because the pavement would already be too close to failure.

Why preventive maintenance?

Many highway agencies have found that every dollar spent on preventive maintenance now saves $6–$10 in the future, because the pavement lasts longer and rebuilding is delayed. The extended pavement life lowers the long-term costs of keeping up a road. By maintaining a favorable condition on the pavement, users experience better ride quality, increasing taxpayer satisfaction.

Stopgap approach

Some pavements have almost failed and need to be rehabilitated or reconstructed; however, the current budget may not be large enough to fund the work immediately. Sometimes TMS can be used as a stopgap that will “glue” the road together for a few years until the necessary money is available to do more costly work that will fix the problem more permanently. In this situation, the TMS will not last long because it does not add structure to the pavement, and the money spent is only to delay construction.