



Concrete Overlays: Green Rehab for Black Asphalt Roads

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Concrete overlays, formerly known as white-topping, inlays and ultra-thin white-topping, are just what the name suggests – laying concrete over asphalt, composite or old concrete pavements for environmentally friendly, long-lasting and cost-effective rehabilitation. Concrete overlays can rejuvenate busy intersections and asphalt roads rutted by heavy truck and bus traffic with a new, rigid surface that won't rut or shove. Depending on the application, traffic requirements and condition of the asphalt structure, an overlay may be as thin as 50 mm or as thick as 200 mm or more.

Concrete overlays may be either *bonded* or *unbonded*. In general, *bonded* overlays are normally used for resurfacing and minor rehabilitation, while *unbonded* overlays are used to rehabilitate pavement that shows some structural deterioration.

Bonded overlays provide added structural capacity and eliminate surface distress, such as rutting and shoving. A bonded overlay becomes an integral part of the pavement structure, so the existing pavement must be in good condition, with no significant stresses. If rutting is 50 mm or more, the asphalt surface is milled to correct the profile and improve the bond between the concrete overlay and asphalt. A minimum of 75 to 100 mm of structurally sound asphalt must remain after milling to ensure proper performance of the bonded overlay. The bond between the two pavements is critical. It ensures the concrete overlay and existing asphalt pavements perform as one structure with the asphalt continuing to carry a significant portion of the load. Bonded overlays are generally thin – from 50 to 125 mm.

Unbonded overlays are new pavements constructed atop existing pavement that acts as a stable base of known performance. In this case, a bond between the pavements is not required to achieve the desired performance.

These pavements are normally thicker than bonded overlays, usually in the range of 100 to 275 mm. Pre-overlay repairs are generally not required, unless there are significant distress areas that are shifting and moving or the subgrade/subbase is not stable. Milling of the existing asphalt surface may be required if the surface distortions, such as rutting or shoving, are 50 mm or more. If required, a layer of asphalt can be placed between the existing and new pavement to prevent any stresses in the old pavement from affecting the performance of the new one.

For thick overlays, it may be necessary to mill down the original road surface 100 to 150 mm approaching and exiting an overpass to ensure proper clearance for truck traffic.