

Pavement Rehabilitation

CHOOSING THE RIGHT REHABILITATION METHOD IS ESSENTIAL TO ACHIEVE THE GREATEST RETURN ON INVESTMENT

A pavement's life-cycle starts when it is first constructed, with the aggregate base correctly graded to the design thickness and the asphalt pavement properly installed. Over time, distresses slowly deteriorate the pavement until it becomes unusable or so deteriorated that routine maintenance would be ineffective. Pavement rehabilitation plays an integral role in a pavement's life-cycle by extending the service life of the pavement. Bituminous Roadways, Inc. can help you restart the clock on your pavement investments.

Time and Money



Each of these rehabilitation methods will extend the service life of the pavement. Choosing the right method depends heavily on the current condition of the pavement. The dollar sign and clock symbols are included to give an indication of approximate costs and potential life extension for each rehabilitation method.

ASPHALT PAVEMENT OVERLAY



An asphalt overlay is a rehabilitation method in which 1.5 to 2.5 inches of new asphalt pavement is placed over the existing pavement. If the project has curbs, the pavement will be edge-milled to allow for the new asphalt surface to match the existing curb. Overlays refresh the pavement's surface and curb appeal, but are only recommended for pavements that are still performing well. Overlays are susceptible to reflection cracking, which are cracks that are caused by the existing cracks in the pavement (below the overlay). Areas with fatigue cracking or potholes should be corrected prior to performing an overlay.



MILL AND OVERLAY

This rehabilitation method uses a milling machine to remove two or more inches of the existing pavement surface, and then the milled surface is overlaid with new asphalt pavement. A mill and overlay refreshes the pavement's surface, much like a normal overlay, but also allows for the correction of drainage issues. A mill and overlay is susceptible to reflection cracking, and areas with fatigue cracking or potholes should be corrected prior to performing the mill and overlay.



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The following asphalt rehabilitation techniques offer great solutions. However, when considering them, a pavement assessment and pavement cores are recommended to determine which method is most appropriate for the project.

REMOVE AND REPLACE

This rehabilitation technique does exactly as the name indicates; it removes the existing asphalt down to the aggregate base and replaces the old asphalt with a new pavement layer. Because the existing asphalt is completely removed, the new pavement will not be susceptible to reflection cracking. Additional material may need to be added or removed from the aggregate base layer to replace any lost during the removal process or to adjust the grade for proper surface drainage. Pavements ideal for this technique have a high quality, strong aggregate base layer with a severely cracked or deteriorated asphalt surface.

FULL DEPTH RECLAMATION (FDR)

Full depth reclamation uses a special machine to pulverize and blend the existing asphalt pavement with the aggregate base and subgrade soils to create a new base material. The blending is performed on the top 6 to 12 inches of the pavement structure. In some cases, a portion of the new base material may need to be removed to make room for the new asphalt pavement surface to be installed on top. Full depth reclamation is a sustainable choice, as it recycles the pavement and reduces the amount of trucking required. Asphalt pavements with excessive fatigue cracking and potholes are good candidates for full depth reclamation.

STABILIZED FULL DEPTH RECLAMATION (SFDR)

Stabilized full depth reclamation is performed similarly to normal full depth reclamation, but cement or asphalt emulsion is introduced into the blend to stabilize and strengthen the new base materials. Once blended, grading of the stabilized base materials must be performed quickly before it is allowed to harden. This final stabilized product is a much stronger supporting base layer for the asphalt pavement. Stabilized reclamation is recommended for pavements with poor subgrade soils or drainage issues below the pavement.

FULL RECONSTRUCTION

Full reconstruction is the excavation of all asphalt pavement, aggregate base, and subgrade soils to a depth that is equal to, or greater than, the thickness of the new pavement structure being constructed. The new pavement structure is then rebuilt placing the new aggregate base and asphalt pavement layers. Full reconstruction is recommended for pavements that are under designed and at the end of their life-cycle.

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Rehabilitation Tactics

Various techniques are used when reconstructing an asphalt pavement, including:

Excavating



Grading



aving

