PAVECON

3 Most Common Causes of Pavement Failure And How to Avoid Them

Used for 94% of roads and 85% of parking lots and driveways, asphalt is the number one pavement material in the United States—and for good reason. Asphalt can last as long as 30 years, but not without proper maintenance and prompt attention to any signs of pavement failure.

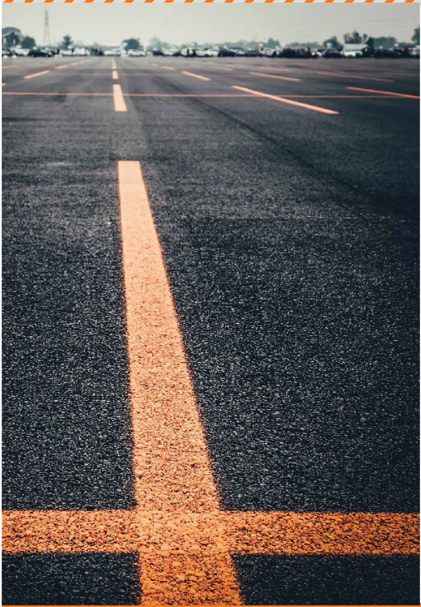
What is Pavement Failure?

Pavement failure occurs any time the asphalt surface is unable to hold its original shape. Causes include water intrusion, stress from heavy vehicles, sun exposure, and expansion and contraction due to seasonal temperature changes.

HAMM
ROAD WORK AHEAD

What Causes Pavement Failure?

There are three main reasons why asphalt pavement fails prematurely.

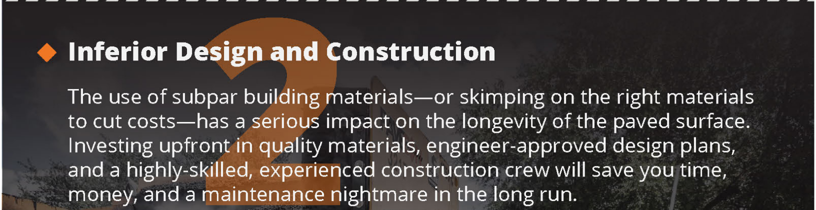


1

◆ Soil Structure

Asphalt pavement doesn't stand a chance if it's installed on top of soil with structural issues. It's an expensive problem to fix because the only option is to remove the pavement, mitigate the soil defects, and start over.

One of the most significant issues with soil is subgrade moisture. Soils that are particularly wet will not withstand heavy wheel loads and will cause the pavement surface to deteriorate quickly. The installation of ample drainage, proper grading and compaction, and the use of additives to strengthen and stabilize the soil can help avoid future problems.



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◆ Inferior Design and Construction

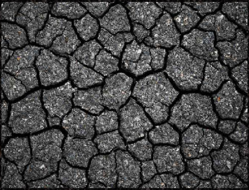
The use of subpar building materials—or skimping on the right materials to cut costs—has a serious impact on the longevity of the paved surface. Investing upfront in quality materials, engineer-approved design plans, and a highly-skilled, experienced construction crew will save you time, money, and a maintenance nightmare in the long run.

◆ 3 Lack of Maintenance

When it comes to preventing pavement failure, maintenance is everything. Regularly seal coating asphalt on schedule (first application within two to three years; every three to five years after that) will allow the pavement to stay flexible for as long as possible by protecting the binder (liquid asphalt) that holds the pavement together. Regular inspection of the pavement for any signs of pavement failure—and the prompt repair of any problems—will significantly extend the life of your asphalt. The time of year that you perform the maintenance is important, as well. In general, fall is the best season for crack filling, summer is best for seal coating, and late spring or early summer is ideal for paving.

What Does Pavement Failure Look Like?

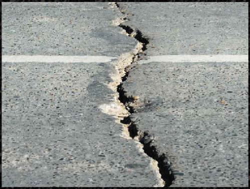
Any sign of material stress on the asphalt is evidence of pavement failure and can take the following forms:



01

Alligator Cracking

Commonly found at intersections, this type of cracking forms when the subgrade and asphalt base compress from the repeated weight of heavy vehicles. Alligator cracking worsens with continued compression from traffic and as water gets into the initial cracks.



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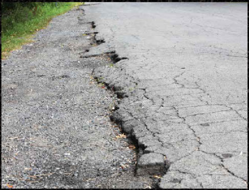
Transverse Cracking

Running across an asphalt roadway, transverse cracking is caused by improper paver operation, extreme temperature shifts, and the settling of base material over time.



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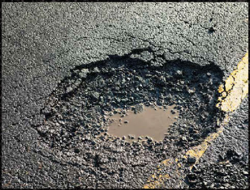
Edge Cracking

Typically caused by heavy road usage, water intrusion, and inadequate base material, this type of cracking forms along the edge of a road.



04

Potholes

Over time, water that enters into untreated asphalt stress cracks will erode the pavement all the way down to the sub-base material, causing a large hole to form.

05

Block Cracking

Caused by seasonal temperature shifts, block cracking results from the use of an overly rigid asphalt mix that doesn't allow for expansion and contraction.

06

Depression

Formed by uneven base materials or compression over time, a depression has a lower elevation than the surface of the asphalt and allows water to collect.

07

Rutting

Caused by heavy vehicle traffic, exceeded weight limits, or improper base construction, channeled depressions, or tire ruts, will form on the surface of the asphalt.

08

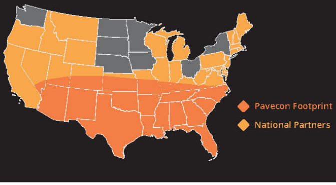
Ravelling

Caused by continued water intrusion and the deterioration of the asphalt topcoat, ravelling is the gradual erosion of the pavement and appears as loose rocks and sand on the pavement surface.

Pavecon can help you get ahead of pavement failures and protect your investment.

Contact us for a free assessment today.

https://www.pavecon.com/get-estimate-1/



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