

Pavement Distresses



IDENTIFYING PAVEMENT DISTRESSES ASSISTS IN SELECTING THE CORRECT MAINTENANCE OPTIONS

Throughout the service life of asphalt pavement, new distresses will continually form by traffic overloading and the natural enemies of asphalt (sun, air, temperature and water). Therefore, all pavements require periodic maintenance to extend their useful life and maximize the investment. This guideline provides general information about why and how pavements deteriorate. Understanding the basics of pavement distresses is beneficial for creating a proper pavement maintenance plan, which can save money and protect your investment.



GENERAL CRACKING

- General cracking can occur as a single crack or as a series of cracks in seemingly random locations.
- Cracks can occur because of cold temperatures, settlement of the aggregate base or subgrade material, frost heave or reflection of previously overlaid cracks.
- Cracks in the pavement allow water to flow through the asphalt down to the aggregate base and subgrade which deteriorates the asphalt and weakens the subgrade.

MAINTENANCE OPTION:
Routing and cracksealing will prevent water from reaching the aggregate base.

BLOCK CRACKING

- Block cracking is the interconnection of several cracks that develop as the pavement ages.
- Block cracking is identified by the signature square-like pattern formed on the pavement from the cracks. It is normal and expected.

MAINTENANCE OPTION:
Cracksealing and sealcoating can help protect the pavement, but a mill and overlay is a good rehabilitation option before the pavement deteriorates further.

FATIGUE CRACKING

- Fatigue cracking is a series of interconnected cracks typically resembling alligator skin.
- It is a structural distress, caused by overloading thin pavements or a weak aggregate base or subgrade.
- This distress can occur in small localized areas or can be widespread.

MAINTENANCE OPTION:
Full-depth patching is recommended in areas with localized fatigue cracking, however, reconstruction is required if the fatigue cracking is a widespread problem.

BITUMINOUS ROADWAYS, INC.

1520 Commerce Drive | Mendota Heights, MN 55120
Phone: 651-686-7001 | Fax: 651-687-9857 | E-mail: info@bitroads.com

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DEFORMATIONS AND DEPRESSIONS

- Deformations and depressions are vertical movements of the asphalt pavement caused by overloading or settlement of a weak subgrade.
- Depressions provide areas for water to pool, which causes the pavement to deteriorate more quickly.
- Pavement deterioration leads to the development of potholes.

MAINTENANCE OPTION:
Mill patching can be used to repair these deformations and depressions in parking lots.



RAVELING

- Raveling is the progressive loss of asphalt material from the pavements surface.
- This typically occurs slowly over a large area, or it can occur quickly in smaller areas forming potholes.
- Raveling can be identified when exposed rocks can be seen on the pavement surface.

MAINTENANCE OPTION:
Emulsion sealcoats or chipseals can be applied to the pavement surface to protect it from further oxidation and raveling.



POTHOLES

- Potholes are the localized loss of pavement material typically caused by structural failures, poor drainage, or severe raveling.
- Potholes are a safety hazard and should be filled quickly.

MAINTENANCE OPTION:
Full-depth patching is recommended for all potholes, but *fill-in patching* can be used for a quick, temporary fix.



DRAINAGE STRUCTURE DAMAGE

Catch basins are a critical part of diverting water off of asphalt surfaces. If those drainage structures are damaged in any way, it should be a priority to repair them.

MAINTENANCE OPTION: *When repairing catch basins, it will most likely be a deep structural fix. First, the existing curb and gutter are removed, as well as the iron catch basin. Next, the concrete rings are repaired and/or replaced, and all holes and leaks are sealed. Finally, once grading to slope is completed, new asphalt and concrete curbing can be installed.*

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