

Asphalt Maintenance Glossary of Terms

Adhesion – Bond between a sealant material and the crack or joint sidewall or the bond between asphalt cement and aggregate..

Aggregate Interlock – The projection of aggregate particles or portions of aggregate particles from one side of a joint or crack in concrete into recesses in the other side of the joint or crack so as to affect load transfer in compression and shear and maintain mutual alignment.

Alligator Cracking – A series of interconnecting cracks in an asphalt pavement surface forming a pattern that resembles an alligator’s hide or chicken wire. In its early stages, alligator cracking may be characterized by a single longitudinal crack in the wheel path. The cracks indicate fatigue failure of the surface layer generally caused by repeated traffic loadings. Hence, the term fatigue cracking is also used.

Asphalt Overlay – A HMA overlay with one lift of surface course generally with a thickness of 38 mm (1.5 in) or less.

Asphalt Tack Coat – A light application of asphalt, usually asphalt emulsion diluted with water. It is used to ensure a bond between two bituminous pavement layers.

Block Cracking – A rectangular pattern of cracking in asphalt pavements that is caused by hardening and shrinkage of the asphalt. Block cracking typically occurs at a uniformly spaced interval.

Break – The process in the curing of an asphalt emulsion by which the globules of asphalt become separated from the water. The color of the emulsion will change from brown to black during the break process.

Cold Applied Sealant – A crack-sealing compound that is applied in an unheated state (generally at ambient temperature) and then reaches final properties through a curing process.

Cold Milling – A process of removing pavement material from the surface of the pavement either to prepare the surface to receive overlays (by removing rutting, and surface irregularities) or to restore pavement cross slopes and profile. Also used to remove oxidized asphalt concrete. [Also see carbide milling.]

Continuously Reinforced Concrete Pavement (CRCP) – Concrete pavement constructed with sufficient longitudinal steel reinforcement to control transverse crack spacings and openings in lieu of transverse contraction joints for accommodating concrete volume changes and load transfer.

Corrective Maintenance – Maintenance performed once a deficiency occurs in the pavement; e.g., pothole filling, or small repair.

Crack – Fissure or discontinuity of the pavement surface not necessarily extending through the entire thickness of the pavement. Cracks generally develop after initial construction of the pavement and may be caused by thermal effects, excess loadings, or excess deflections.

Crack Sealing – A maintenance procedure that involves placement of specialized materials into cracks using unique configurations to reduce the intrusion of incompressibles into the crack and to prevent infiltration of water into the underlying pavement layers.

Cure – A period of time following placement and finishing of a material such as concrete during which desirable engineering properties (such as strength) develop. Improved properties may be achieved by controlling temperature or humidity during curing.

Curing Compound – A liquid that can be applied as a coating to the surface of newly placed concrete to retard the loss of water, or in the case of pigmented compounds, also to reflect heat so as to provide an opportunity for the concrete to develop its properties in a favorable temperature and moisture environment. See also Curing.

Dense-Graded Asphalt Pavement – An overlay or surface course consisting of a mixture of asphalt binder and a well-graded (also called dense-graded) aggregate. A well-graded aggregate is uniformly distributed throughout a full range of sieve sizes. (Also see Hot Mix Asphalt)

Depression – Localized pavement surface areas at a lower elevation than the adjacent paved areas.

Emulsified Asphalt – A liquid mixture of asphalt binder, water, and an emulsifying agent. Minute globules of asphalt are suspended in water by using an emulsifying agent. These asphalt globules are either anionic (negatively charged) or cationic (positively charged).

Fatigue Cracking – See Alligator Cracking.

Faulting – Differential vertical displacement of a slab or other member adjacent to a joint or crack. Faulting commonly occurs at transverse joints of PCC pavements that do not have adequate load transfer.

Full-Depth Patching – Removal and replacement of a segment of pavement to the level of the subgrade in order to restore areas of deterioration. May be either flexible or rigid pavement.

Functional Performance – A pavement's ability to provide a safe, smooth riding surface. These attributes are typically measured in terms of ride quality or skid resistance.

Hot Applied Sealant – A crack or joint sealing compound that is applied in a molten state and cures primarily by cooling to ambient temperature.

Hot Mix Asphalt Concrete (HMAC or HMA) – A thoroughly controlled mixture of asphalt binder and well-graded, high quality aggregate thoroughly compacted into a uniform dense mass. HMAC pavements may also contain additives such as anti-stripping agents and polymers.

Joint Depth – The measurement of a saw cut from the top of the pavement surface to the bottom of the cut.

Life Extension – The extension of the performance period of the pavement through the application of pavement treatments.

Longitudinal Crack – A crack or discontinuity in a pavement that runs generally parallel to the pavement centerline. Longitudinal cracks may occur as a result of poorly constructed paving lane joints, thermal shrinkage, inadequate support, reflection from underlying layers, or as a precursor to fatigue cracking. Longitudinal cracking that occurs in the wheel path is generally indicative of alligator cracking.

Longitudinal Joint – A constructed joint in a pavement layer that is oriented parallel to the pavement centerline.

Patch – Placement of a repair material to replace a localized defect in the pavement surface.

Pavement Distress – External (visible) indications of pavement defects or deterioration.

Pavement Preservation – The sum of all activities undertaken to provide and maintain serviceable roadways. This includes corrective maintenance and preventive maintenance, as well as minor rehabilitation projects.

Pavement Preventive Maintenance – Planned strategy of cost-effective treatments to an existing roadway system and its appurtenances that preserves the system, retards future deterioration, and maintains or improves the functional condition of the system (without increasing the structural capacity).

Pavement Reconstruction – Replacement of an existing pavement structure by the placement of the equivalent of a new pavement structure. Reconstruction usually involves complete removal and replacement of the existing pavement structure and may include new and/or recycled materials.

Pavement Rehabilitation – Structural enhancements that extend the service life of an existing pavement and/or improve its load carrying capability. Rehabilitation techniques include restoration treatments and structural overlays.

Performance Period – The period of time that an initially constructed or rehabilitated pavement structure will perform before reaching its terminal serviceability.

Plant Mix – See Hot Mix Asphalt.

Polishing – Wearing away of the surface binder, causing exposure of the coarse aggregate particles. A polished pavement surface is smooth and has reduced skid resistance.

Portland Cement Concrete Pavement (PCC) – A pavement constructed of portland cement concrete with or without reinforcement.

Potholes – Loss of surface material in an HMA pavement to the extent that a patch is needed to restore pavement rideability.

Pumping – Ejection of fine-grained material and water from beneath the pavement through joints, cracks, or the pavement edge, caused by the deflection of the pavement under traffic loadings.

Raveling – Wearing away of the pavement surface caused by the dislodging of aggregate particles and loss of asphalt binder. Also see Segregation.

Reflection Cracking – Cracking that appears on the surface of a pavement above joints and cracks in the underlying pavement layer due to horizontal and vertical movement of these joints and cracks.

Router – A mechanical device, with a rotary cutting system, that is used to widen, cut, and clean cracks in pavements prior to sealing.

Routine Maintenance – Maintenance work that is planned and performed on a routine basis to maintain and preserve the condition of the highway system or to respond to specific conditions and events that restore the highway system to an adequate level of service. Examples include crack sealing and repair of localized failed areas of pavement.

Sealant – A material that has adhesive and cohesive properties to seal joints, cracks, or other various openings against the entrance or passage of water or other debris in pavements.

Sealing – The process of placing sealant material in prepared joints or cracks to minimize intrusion of water and incompressible materials. This term is also used to describe the application of pavement surface treatments.

Serviceability – Ability of a pavement to provide a safe and comfortable ride to its users. As such, it is primarily a measure of the functional capacity of the pavement.

Settlement – A depression at the pavement surface that is caused by the settling or erosion of one or more underlying layers.

Shoving – Localized displacement of an HMA pavement surface. Shoving is often caused by braking or accelerating vehicles.

Skid Resistance – A measure of the frictional characteristics of a surface.

Slippage cracking - Cracking associated with the horizontal displacement of a localized area of an HMA pavement surface.

Slurry – Mixture of a liquid and fine solid particles that together are denser than water.

Slurry Seal – A mixture of slow setting emulsified asphalt, well graded fine aggregate, mineral filler, and water. It is used to fill cracks and seal areas of old pavements, to restore a uniform surface texture, to seal the surface to prevent moisture and air intrusion into the pavement, and to improve skid resistance.

Spalling, Surface – Cracking, breaking, chipping, or fraying of slab surface, usually within a confined area less than 0.5 square meters (0.6 sq. ft.).

Structural Condition – The condition of a pavement as it pertains to its ability to support repeated traffic loadings.

Structural Overlay – An increase in the pavement load carrying capacity by adding additional pavement layers.

Surface Treatment – Any application applied to an asphalt pavement surface to restore or protect the surface characteristics. Surface treatments include a spray application of asphalt (cement, cutback, or emulsion) and may or may not include the application of aggregate cover. Surface treatments are typically less than 25 mm (1 in) thick. They may also be referred to as surface seals.

Swell - A hump in the pavement surface that may occur over a small area or as a longer, gradual wave; either type of swell can be accompanied by surface cracking.

Transverse Crack – A discontinuity in a pavement surface that runs generally perpendicular to the pavement centerline. In HMA pavements, transverse cracks often form as a result of thermal movements of the pavement or reflection from underlying layers.

Treatment Life – The period of time during which a treatment application remains effective. Treatment life is contrasted with Life Extension.