

PAVEMENT PRESERVATION GLOSSARY OF TREATMENT TERMS

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.

Bituminous Pavement – A pavement comprising an upper layer or layers of aggregate mixed with a bituminous binder, such as asphalt, coal tars, and natural tars for purposes of this terminology; surface treatments such as chip seals, slurry seals, sand seals, and cape seals are also included.

Cape Seal – A surface treatment that involves the application of slurry seal to a newly constructed surface treatment or chip seal. Cape seals are used to provide a dense, waterproof surface with improved skid resistance and ride quality.

Chip Seal – A surface treatment in which the pavement is sprayed with asphalt (generally emulsified) and then immediately covered with aggregate and rolled. Chip seals are used primarily to seal the surface of a pavement with non load-associated cracks and to improve surface friction, although they also are commonly used as a wearing course on low volume roads.

Cold In-Place Recycling (CIR) – A process in which a portion of an existing bituminous pavement is pulverized or milled, and then the reclaimed material is mixed with new binder and, when needed, virgin aggregates. The binder used most often is emulsified asphalt with or without a softening agent. The resultant blend is placed as a base for a subsequent overlay or surface treatment.

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.

Concrete – See Portland Cement Concrete

Concrete Joint Resealing – This includes the removal of the existing joint seals and resealing the joint with either preformed neoprene, silicones, or low-modulus hot-poured rubber. Resealing prevents water and incompressibles from entering the pavement structure, thus slowing the rate of deterioration of a concrete pavement.

CPR (Concrete Pavement Restoration) – A series of repair techniques used to preserve or improve the structural capacity or functional characteristics of a PCC pavement. CPR techniques each have a unique purpose to repair or replace a particular distress (kind of deterioration) found in PCC pavement and to manage the rate of deterioration. CPR techniques include:

- Full-depth repair
- Partial-depth repair
- Diamond grinding

- Joint and crack resealing
- Slab stabilization
- Dowel Bar Retrofit
- Cross-stitching cracks or longitudinal joints
- Retrofitting concrete shoulders
- Retrofitting edge drains

Crack Filling – The placement of materials into non-working cracks to substantially reduce the intrusion of incompressibles and infiltration of water, while also reinforcing the adjacent pavement. Crack filling should be distinguished from crack sealing (see below).

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

Cross Stitching – A repair method that involves the drilling of holes diagonally across a crack in PCC pavement into which steel reinforcement bars are inserted and secured in place with epoxy. The holes are alternated from side to side of the crack on a pre-determined spacing. This technique is generally used for longitudinal cracks that are still in no worse than fair condition. Cross-stitching increases slab integrity by adding steel reinforcement to hold the crack together.

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.

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)

Design Life – The expected life of a pavement from its opening to traffic until structural rehabilitation is needed. The typical reporting of pavement design life does not include the life of the pavement with the application of preventive maintenance.

Diamond Grinding – A process that uses a series of diamond-tipped saw blades mounted on a shaft or arbor to shave the upper surface of a pavement to remove bumps, restore pavement rideability, and improve surface friction. (See also CPR)

Dowel Bar Retrofit – A rehabilitation technique that is used to increase the load transfer capability of existing jointed PCC pavements by placement of dowel bars across joints and/or cracks that exhibit poor load transfer. (See also CPR)

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).

Fog Seal – A light application of slow setting asphalt emulsion diluted with water and without the addition of any aggregate applied to the surface of a bituminous pavement. Fog seals are used to renew aged asphalt surfaces, seal small cracks and surface voids, or adjust the quality of binder in newly applied chip seals.

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 (asphalt) or rigid (concrete) pavement.

Grooving – The process used to cut slots into a pavement surface (usually, although not always, PCC) to provide channels for water to escape beneath tires, improving skid resistance and reducing the potential for hydroplaning.

Heater Scarification – The initial phase of a hot in-place recycling (HIR) process in which the surface of the old pavement is heated and mechanically raked before being removed and recycled.

Hot In-Place Recycling (HIR) – A process which consists of softening the existing asphalt surface with heat, mechanically removing the surface material, mixing the material with a recycling agent, adding virgin asphalt and aggregate to the material (if required), and then replacing the material on the pavement.

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.

Microsurfacing – A mixture of polymer modified asphalt emulsion, mineral aggregate, mineral filler, water, and other additives, properly proportioned, mixed, and spread on a paved surface. Microsurfacing differs from slurry seal in that it can be used on high volume roadways to correct wheel path rutting and provide a skid resistant pavement surface.

Modified Asphalt Chip Seal – A variation on conventional chip seals in which the asphalt binder is modified with a blend of ground tire or latex rubber, or polymer modifiers to enhance the elasticity and adhesion characteristics of the binder.

Open-Graded Friction Course (OGFC) – A thin HMA surface course consisting of a mix of an asphalt binder and open-graded (also called uniformly graded) aggregate. An OGFC helps to eliminate standing water on a pavement surface, which reduces tire spray and hydroplaning potential.

Over-banding – Over-filling of a joint or crack reservoir so that a thin layer of crack or joint sealant is spread onto the pavement surface center over the joint or crack

Partial-Depth Patching – Repairs of localized areas of surface deterioration of PCC pavements, usually for compression spalling problems, severe scaling, or other surface problems that are within the upper one-third of the slab depth.

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

Paver Placed Surface Seal – Also known as Nova Chip® and bonded wearing course. An ultra-thin, open graded, hot mixed asphalt friction course placed over a heavy application of polymer-modified asphalt emulsion. The material is laid using specially built equipment which spreads both the asphalt emulsion and hot mix asphalt in a single pass. The material is placed at an average thickness of $\frac{3}{8}$ " (10 mm) to $\frac{3}{4}$ " (20mm).

Plant Mix – See Hot Mix Asphalt

Portland Cement Concrete Pavement (PCC) – A pavement constructed of Portland cement concrete with or without reinforcement. Conventional PCC pavements include JPCP, JRCP, and CRCP.

Rejuvenator - A type of fog seal products meant to soften or “rejuvenate” the aged asphalt. These generally are emulsions of oils meant to replace the oxidized "maltene" fractions in the asphalt, and may include polymers, asphalt and other additives.

Rejuvenating Agent – Similar to recycling agents in material composition, these products are added to existing aged or oxidized HMA pavements in order to restore pavement surface flexibility and to retard block cracking.

Rubberized Asphalt Concrete (RAC) – Similar to HMA but having a minimum 20% crumb rubber additive. RAC offers greater resistance to reflective cracking than conventional HMA.

Rubberized Asphalt Sealant – A sealant, generally hot applied, that is composed of asphalt cement, various types of rubber or polymer modifiers, and other compounding ingredients used for pavement crack and joint sealing. Many grades and ranges of properties are available.

Sand Seal – An application of asphalt binder, normally an emulsion, covered with a fine aggregate. It may be used to improve the skid resistance of slippery pavements and to seal against air and water intrusion.

Sandwich Seal – A surface treatment that consists of application of asphalt emulsion and a large aggregate, followed by a second application of asphalt emulsion that is in turn covered with smaller aggregate and compacted. Sandwich seals are used to seal the surface and improve skid resistance, especially on asphalt pavement surfaces that are bleeding or flushing.

Scrub Seal – Application of a polymer modified asphalt to the pavement surface followed by the broom scrubbing of the asphalt into cracks and voids, then the application of an even coat

of sand or small aggregate, and a second brooming of the aggregate and asphalt mixture. This seal is then rolled with a pneumatic tire roller.

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.

Slab Stabilization – Process of injecting grout or bituminous materials beneath PCC pavements in order to fill voids without raising the pavement.

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.

Stone Matrix Asphalt (SMA) – A mixture of asphalt binder, stabilizer material, mineral filler, and gap-graded aggregate. SMAs are used as a rut resistant wearing course.

Stress-Absorbing Membrane Interlayer (SAMI) – A thin layer that is placed between an underlying pavement and an HMA overlay for the purpose of dissipating movements and stresses at a joint or crack in the underlying pavement before they create stresses in the overlay. SAMIs consist of a spray application of rubber or polymer-modified asphalt as the stress-relieving material, followed by placing and seating aggregate chips.

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, or seal coats or chip seals.

Thin Overlay – A HMA overlay with one lift of surface course generally with a thickness of 1 ½ inch (38 mm) or less.

Ultra-thin Overlay – An HMA overlay over an existing HMA or PCC pavement, generally less than 25 mm (1 in) in thickness.

Ultra-thin White-topping (UTW) – A thin 2 to 4 inch (50 to 100 mm) PCC overlay over an existing HMA pavement. UTW is a functional overlay that provides a stable surface that is resistant to deformation from static, slow moving, and turning loads.