

PAVEMENT PRESERVATION GLOSSARY OF TERMS

November 2, 2001

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

Agency Costs – See Annual Costs

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.

Analysis Period – The period of time used in making economic comparisons between rehabilitation alternatives. The analysis period should not be confused with the pavement's design life (performance period).

Annual Costs – Any costs associated with the annual maintenance and repair of the facility.

Application Temperature – The manufacturer's recommended temperature to be used when installing sealant. For hot-applied sealants, the application temperature is any temperature between the minimum application temperature and safe heating temperature.

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.

Asset Management – A systematic process of maintaining, upgrading, and operating physical assets cost-effectively. It combines engineering principles with sound business practices and economic theory, and it provides tools to facilitate a more organized, logical approach to decision-making. Thus, asset management provides a frame work for handling both short and long-range planning.

Backer Material – A compressible material that is placed in joints or cracks before applying sealant to prevent bonding of the sealant on the bottom of the joint, control sealant depth, and prevent sagging of the sealant.

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.

Bleeding – Excess asphalt binder occurring on the pavement surface. The bleeding may create a shiny, glass-like surface that may be tacky to the touch. Bleeding is usually found in the wheel paths.

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.

Blow-up – Buckling and shattering of PCC pavement resulting from thermal expansion and the resultant compressive forces exceeding the strength of the material.

Bond Breaker – Any material used to prevent bonding or to separate adjacent pavement layers. Thin bituminous layers are often used as bond breaker layers between a concrete pavement and an unbonded concrete overlay.

Bonded Concrete Overlay – Increase in the pavement structure of a concrete pavement by addition of concrete thickness in direct contact with and adhering to the existing concrete surface. May be used to correct either functional or structural deficiencies.

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.

California Profilograph – Rolling straight edge tool used for evaluating pavement profile (smoothness) consisting of a 7.5m (25-ft) frame with a sensing wheel located at the center of the frame that senses and records bumps and dips on graph paper or in a computer.

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.

Carbide Milling – Surface removal or sawing done with a carbide milling machine. Machine uses a blade or arbor equipped with carbide-tipped teeth that impact and chip concrete or asphalt.

Chemically Curing Sealant – A material that reaches its final properties through the reaction of the component materials when mixed.

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.

Cohesion – The internal bond within a joint sealant material. Cohesion loss is seen as a noticeable tear along the surface and through the depth of the sealant.

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 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. [Also see carbide milling.]

Compressible Insert – Material used to separate freshly placed concrete (such as from a partial-depth or full-depth repair) from existing hardened concrete. This usually consists of a 12-mm (0.5 in) thick Styrofoam or compressed fiber material that is impregnated with asphalt.

Concrete – See Portland Cement Concrete

Construction Joint – A joint constructed in a transverse direction in PCC pavements to control cracking of the slab as it cures. Highway construction joints are created by sawing the concrete.

Continuously Reinforced Concrete Pavement (CRCP) – PCC 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.

Contract Maintenance – The range of contracting methods and vehicles used by public transportation agencies to accomplish maintenance programs and supplement activities which may be performed in-house. Contracts may be activity based where the agency provides specifications and compensation is either on a lump sum or unit price basis; or performance based, long term total asset management contracting which requires the contractor to provide turn-key maintenance to an established level of service.

Corner Break – A portion of a concrete slab separated by a crack that intersects the adjacent transverse or longitudinal joints at about a 45° angle with the direction of traffic. The length of the sides is usually from 0.3 meters (1 ft) to one-half of the slab width on each side of the crack.

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

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 – 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 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. (See Working Crack.)

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 epoxied in place. 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.

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 – The maintenance of a satisfactory moisture content and temperature in concrete during its early stages so that desired properties may develop.

Curing Blanket – A built-up covering of burlap sacks, matting, straw, waterproof paper, or other suitable material placed over freshly finished concrete.

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.

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. (See also Analysis Period and Performance Period.)

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)

Discount Rate – The rate of interest reflecting the investor's time value of money used to determine discount factors for converting benefits and costs occurring at different times to a baseline date. Discount rates can incorporate an inflation rate depending on whether real discount rates or nominal discount rates are used. The discount rate is often approximated as the difference between the interest rate and the inflation rate.

Dowel – Most commonly a plain round steel bar (usually coated, such as with paint or epoxy), which extends into two adjoining slabs of a PCC pavement at a transverse joint placed parallel to the center line so as to transfer shear loads.

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).

Equivalent Uniform Annual Cost (EUAC) – The net present value of all discounted cost and benefits of an alternative as if they were to occur uniformly throughout the analysis

period. Net Present Value (NPV) is the discounted monetary value of expected benefits (i.e., benefits minus costs).

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.

Fiber Modified Sealant – Generally a hot-applied sealant that is composed of unmodified or modified asphalt cement and heat resistant polymeric fibers and is used for sealing cracks in asphalt concrete pavements.

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.

Free Edge – An unrestrained pavement boundary.

Fuel Resistant Sealant – A joint or crack sealant compound that is resistant to and maintains serviceability after being exposed to fuel or other petroleum products.

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 (see International Roughness Index) or skid resistance (see International Friction Index).

Grinding Head – Arbor or shaft containing numerous diamond blades or carbide teeth on diamond grinding or cold milling equipment.

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 Air Lance – A device that uses heated compressed air to clean, dry, and warm cracks prior to sealing.

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 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.

Hydroplaning – Loss of contact between vehicle tires and roadway surface that occurs when vehicles travel at high speeds on pavement surfaces with standing water.

Initial Costs – All costs associated with the initial design and construction of a facility, placement of a treatment, or any other activity with a cost component.

International Friction Index (IFI) – A measure of pavement macrotexture and wet pavement friction at 60 miles per hour determined using measured friction at some test speed and macrotexture determined using ASTM E-965 or ASTM E-1845.

International Roughness Index (IRI) – A measure of a pavement's longitudinal surface profile as measured in the wheelpath by a vehicle traveling at typical operating speeds. It is calculated as the ratio of the accumulated suspension motion to the distance traveled obtained from a mathematical model of a standard quarter car traversing a measured profile at a speed of 80 km/h (50 mph). The IRI is expressed in units of meters per kilometer (inches per mile) and is a representation of pavement roughness.

Joint – A pavement discontinuity made necessary by design or by interruption of a paving operation.

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

Joint Deterioration – See Spalling.

Joint Filler – Compressible material used to fill a joint to prevent the infiltration of debris.

Joint Sealant – Compressible material used to minimize water and solid debris infiltration into the sealant reservoir and joint.

Joint Seal Deterioration - Break down of a joint or crack sealant, such as by adhesion or cohesion loss, which contributes to the failure of the sealant system. Joint seal

deterioration permits incompressible materials or water to infiltrate into the pavement system.

Joint Shape Factor – Ratio of the vertical to horizontal dimension of the joint sealant. Factor can vary depending on type of sealant specified.

Jointed Plain Concrete Pavement (JPCP) – PCC pavement constructed with regularly spaced transverse joints to control all natural cracks expected in the concrete. Dowel bars may be used to enhance load transfer at transverse contraction joints (depending upon the expected traffic); however, there is no mid-slab temperature reinforcement.

Jointed Reinforced Concrete Pavement (JRCP) – Portland cement concrete pavement containing regularly spaced transverse joints and embedded steel mesh reinforcement (sometimes called distributed steel) to control expected cracks. Steel mesh is discontinued at transverse joint locations. Dowel bars are normally used to enhance load transfer at transverse joints. The transverse joint spacing of JRCP is typically longer than the joint spacing of JPCP.

Lane-to-Shoulder Dropoff – (highways, roads and streets only) Difference in elevation between the traveled surface and the shoulder surface.

Life Cycle Costing – An economic assessment of an item, system, or facility and competing design alternatives considering all significant costs of ownership over the economic life, expressed in terms of equivalent dollars.

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

Load-Transfer Assembly – Most commonly, the basket or carriage designed to support or link dowel bars in the desired alignment during jointed PCC pavement construction.

Load Transfer Efficiency – A measure of the ability of a joint or crack to transfer a portion of a load applied on one side of a joint or crack to the other side of the joint or crack.

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.

Low Modulus Sealant – A joint or crack sealing material, which is less stiff at low temperatures than standard grade sealants.

Maximum Heating Temperature – The maximum temperature, as recommended by the manufacturer, to which a hot-applied joint or crack sealant can be heated while conforming to all specification requirements and result in appropriate application characteristics.

Melter – A piece of equipment designed specifically to heat hot applied joint or crack sealant accurately and controllably to a temperature where it will flow.

Melter Applicator – A piece of equipment designed specifically to melt, heat accurately and controllably, and apply hot-applied sealants to pavement cracks or joints.

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.

Mineral Filler – A finely divided mineral product with at least 70% passing the No. 200 sieve. Commonly used mineral fillers include, limestone dust, hydrated lime, portland cement, and fly ash.

Minimum Application Temperature – The minimum temperature, as recommended by the manufacturer, to which a hot-applied sealant for pavement cracks or joints must be heated while conforming to all specification requirements and result in appropriate application characteristics.

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.

Net Present Value – The value of future expenditures or costs discounted to today's dollars using an appropriate discount rate.

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.

Overbanding – Overfilling 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.

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.

Point Bearing – Concentration of compressive stress between small areas. May occur when a partial-depth patch in portland cement concrete pavement is made without the compressible insert. Also, slab expansion in hot weather forces an adjacent slab to bear directly against a small partial-depth patch and causes the patch to fail by delaminating and popping out of place.

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. Conventional PCC pavements include JPCP, JRCP, and CRCP.

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

Preformed Compression Sealant – An extruded joint sealing material for PCC pavement that is manufactured ready for installation and is supplied in rolls. Preformed sealants incorporate an internal web design so that the material, when compressed and inserted into the sealant reservoir, remains in compression against the sides of the joint.

Present Serviceability Index (PSI) – A subjective rating of the pavement condition made by a group of individuals riding over the pavement. May also be determined based on condition survey information.

Present Worth – See Net Present Value.

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.

Reactive Maintenance – Maintenance applied to restore a pavement to an acceptable level of service due to unforeseen conditions. Activities, such as pothole repairs, performed to correct random or isolated localized pavement distresses or failures, are considered reactive. Similar to Corrective Maintenance.

Recycling Agents – Organic materials with specific chemical and physical characteristics that are used in pavement recycling to address binder deficiencies and to restore aged asphalt material to desired specifications.

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.

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.

Reservoir – The part of a portland cement concrete pavement joint that normally holds a sealant material, usually formed by a widening saw cut above the initial saw cut. Reservoirs may also be found in HMA pavements where joints are sawed and sealed above existing PCC pavements.

Retrofit Dowel Bars – Dowels that are installed into slots cut into the surface of an existing concrete pavement to restore load transfer.

Rideability – A measure of the ride quality of a pavement as perceived by its users or roughness measuring equipment.

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, fog sealing, and repair of localized failed areas of pavement.

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.

Rutting – Longitudinal surface depressions in the wheel path of an HMA pavement, caused by plastic movement of the HMA mix, inadequate compaction, or abrasion from studded tires (such abrasion can also be observed on PCC pavements).

Sandblasting – A procedure in which sand particles are blown with compressed air at a pavement surface to abrade and clean the surface. Sandblasting is a construction step in partial-depth patching and joint resealing.

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.

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 (generally less than 76 mm (3 in) in width).

Sealant Reservoir – See Reservoir.

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.

Sealing Compound – See Joint Sealant.

Segregation – Separation of aggregate component of asphaltic or portland cement by particle size during placement.

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.

Silicone Sealant – A type of joint or crack sealant compound either self leveling or non-sag in application characteristics, that is based on polymers of polysiloxane structures and cures through a chemical reaction when exposed to air.

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

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

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, Compression – Cracking, breaking, chipping, or fraying of slab edges within 0.6 meters (2-ft) of a transverse crack.

Spalling, Sliver – Chipping of concrete edge along a joint sealant usually within 12 mm (0.5in) of the joint edge.

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

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.

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 Texture – The microscopic and macroscopic characteristics of the pavement surface that contribute to surface friction and noise.

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.

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.

Terminal Serviceability – The lowest acceptable serviceability rating before resurfacing or reconstruction becomes necessary for the particular class of highway.

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

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. In PCC pavements, transverse cracks may be caused by fatigue, loss of support, or thermal movements.

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

Two Component Sealant – A sealant supplied in two components which must be mixed at a specified ratio prior to application in order to cure to final properties.

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

Unbonded Overlay – Increase in the pavement structure of an existing concrete or composite pavement by addition of jointed plain, jointed reinforced or continuously reinforced concrete pavement placed on a separator layer (usually an asphalt layer) designed to prevent bonding to the existing pavement.

User Costs – Costs incurred by highway users traveling on the facility, and the excess costs incurred by those who cannot use the facility because of either agency or self-imposed detour requirements. User costs typically are comprised of vehicle operating costs (VOC), crash costs, and user delay costs. To be differentiated from agency costs.

Warranty – Contractual agreement between an approved contractor/vendor and the agency soliciting bids, that uses specific performance measures to protect the agency from responsibility of repair due to premature defects in material and/or workmanship.

Waterblasting – The use of a high-pressure water stream (8500 to 10,000 psi) to clean PCC. It may be used in PCC joint resealing to remove sawing laitance or in patching to produce a clean surface prior to placement of the sealer or patch material. Also referred to as hydroblasting.

Ultra-thin Whitetopping (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.

Working Crack – A crack in a pavement that undergoes significant deflection and thermal opening and closing movements greater than 2 mm (1/16 in), typically oriented transverse to the pavement centerline.