

Glossary of Terms and Acronyms

Below is a list of terms and acronyms that you'll likely come across when working with hot mix asphalt (HMA) paving.

Note that some specifications described in the following content may not be the same as the specifications followed by your agency. Always check with your State agency's standards and specifications when using these guidelines.

Glossary

- Aggregate**—A hard, inert mineral material such as gravel, crushed rock, slag, or crushed stone, used in pavement applications either by itself or for mixing with asphalt.
- Aggregate Storage Bins**—Bins that store the necessary aggregate sizes and feed them to the dryer in substantially the same proportions as are required in the finished mix.
- Air Voids**—Internal spaces in a compacted mix surrounded by asphalt-coated particles, expressed as a percentage by volume of the total compacted mix.
- Alligator Cracks**—Interconnected cracks forming a series of small blocks resembling an alligator's skin or chicken wire, caused by excessive deflection of the surface over unstable subgrade or lower courses of the pavement.
- Asphalt (Asphalt Binder/Cement)**—A dark brown to black cementitious material in which the predominating constituents are bitumens, which occur in nature or are obtained in petroleum processing. Asphalt is a constituent in varying proportions of most crude petroleum and is used for paving, roofing, industrial, and other special purposes.

- ❑ **Asphalt Binder**—Asphalt cement that is classified according to the Standard Specification for Performance Graded Asphalt Binder (AASHTO Designation MP1). It can be either unmodified or modified asphalt cement, as long as it complies with the specifications.
- ❑ **Asphalt Binder Content**—A measurement (by weight) of the asphalt binder in the mix, usually expressed as a percentage.
- ❑ **Asphalt Distributor**—A truck or a trailer having an insulated tank, heating system, and distribution system. The distributor applies asphalt to a surface at a uniform rate.
- ❑ **Asphalt Emulsion**—An emulsion of asphalt binder and water that contains a small amount of an emulsifying agent. Emulsified asphalt droplets may be of either the anionic (negative charge), cationic (positive charge), or nonionic (neutral).
- ❑ **Asphalt Pavements**—Pavements consisting of a surface course of asphalt concrete over supporting courses such as asphalt concrete bases, crushed stone, slag, gravel, portland cement concrete (PCC), brick, or block pavement.
- ❑ **Asphalt Prime Coat**—An application of asphalt primer to an absorbent surface. It is used to prepare an untreated base for an asphalt surface. The prime penetrates or is mixed into the surface of the base and plugs the voids, hardens the top, and helps bind it to the overlying asphalt course.
- ❑ **Asphalt Primer**—Low viscosity asphalt (highly liquid) that penetrates into a non-bituminous surface upon application.
- ❑ **Base Course**—The layer in the pavement system immediately below the intermediate and surface courses. It usually consists of crushed stone, although it may consist of crushed slag or other stabilized or unstabilized material.
- ❑ **Batch Plant**—A manufacturing facility for producing asphalt paving mixtures that proportions blending. They manufacture asphalt in batches rather than continuously and are more suited for small manufacturing runs and (frequent) changes in mixture types.

- ❑ **Bitumen**—A class of black or dark-colored (solid, semisolid, or viscous) cementitious substances, natural or manufactured, composed principally of high molecular weight hydrocarbons, of which asphalts, tars, pitches, and asphaltites are typical.
- ❑ **Blast-Furnace Slag**—The nonmetallic product, consisting essentially of silicates and aluminosilicates of lime and of other bases, that develops simultaneously with iron in a blast furnace.
- ❑ **Bleeding or Flushing Asphalt**—The upward migration of asphalt binder in an asphalt pavement that results in the formation of asphalt film on the surface.
- ❑ **Blowup**—The localized buckling or upward movement of a portland cement concrete (PCC) pavement caused primarily by excessive expansion.
- ❑ **Break and Seat**—A fractured slab technique used in the rehabilitation of reinforced concrete pavement (RCP) that minimizes slab action by fracturing the portland cement concrete (PCC) layer into smaller segments. This reduction in slab length (and debonding from the reinforcement steel) minimizes reflective cracking in new HMA overlays.
- ❑ **Breaking**—The phenomenon when asphalt and water separates in an asphalt emulsion beginning the curing process. The rate of breaking is controlled primarily by the emulsifying agent, and somewhat dependent on environmental conditions.
- ❑ **Coarse Aggregate**—Aggregate retained on the 2.36 mm (No. 8) sieve.
- ❑ **Coarse-Graded Aggregate**—One having a continuous grading in sizes of particles from coarse through fine with a predominance of coarse sizes.
- ❑ **Cohesion**—Bonding of aggregates by asphalt binder in HMA, increasing the stability of the mixture.
- ❑ **Cold In-Place Recycling**—A method of reconstructing an existing HMA pavement into a flexible base, to be used as a platform for subsequent overlay or surface treatment. The process consists of milling the existing pavement, mixing the milled material with a rejuvenating agent, and placing and compacting the mixture to specified grade and profile.

- ❑ **Cold In-Place Recycling Train**—A unit consisting of a large milling machine towing a screening/crushing plant and a pugmill mixer for the addition of rejuvenating agent and the production of cold mix base.
- ❑ **Compaction**—The act of compressing a given volume of material into a smaller volume.
- ❑ **Consensus Properties**—Aggregate characteristics that must follow certain criteria to satisfy a Superpave mix design. Specified test values for these properties are not source-specific but widely agreed upon. They include coarse aggregate angularity, fine aggregate angularity, flat or elongated particles, and clay content.
- ❑ **Consistency (Asphalt Binder)**—The degree of fluidity of asphalt binder (cement) at any particular temperature. The consistency of asphalt binder varies with its temperature; therefore, it is necessary to use a common or standard temperature when comparing the consistency of one asphalt binder with another.
- ❑ **Corrugations (Washboarding) and Shoving**—A type of pavement distortion, typically occurring on HMA layers that lack stability. Corrugation is a form of plastic deformation typified by ripples across the pavement surface. These distortions usually occur at points where traffic starts and stops, on hills where vehicles brake on the downgrade, on sharp curves, or where bumps cause vehicles to bounce up and down.
- ❑ **Crack**—An approximately vertical random cleavage of the pavement caused by traffic loading, thermal stresses, and/or aging of the binder.
- ❑ **Crack and Seat**—A fractured slab technique used in the rehabilitation of portland cement concrete (PCC) pavements that minimizes slab action in a jointed concrete pavement by fracturing the PCC layer into smaller segments. This reduction in slab length minimizes reflective cracking in HMA overlays.
- ❑ **Crack-Relief Layer**—An open-graded asphalt mixture placed over a distressed pavement that minimizes reflective cracking by absorbing the energy produced by movement in the underlying pavement.

- ❑ **Curing**—The development of the mechanical properties of the asphalt binder. This occurs after the emulsion has broken and the emulsion particles coalesce and bond to the aggregate.
- ❑ **Cutback Asphalt**—Asphalt cement that has been liquefied by blending with petroleum solvents (diluent). Upon exposure to atmospheric conditions, the diluents evaporate, leaving the asphalt cement to perform its function.
- ❑ **Deep Strength Asphalt Pavement**—Pavement containing at least four inches on HMA over non-stabilized base courses.
- ❑ **Deflection**—A load-induced, downward movement of a pavement section.
- ❑ **Delivery Tolerances**—Permissible variations from the exact desired proportions of aggregate and bituminous material as manufactured by an asphalt plant.
- ❑ **Dense-Graded Aggregate**—An aggregate that has a particle size distribution such that when it is compacted, the resulting voids between the aggregate particles, expressed as a percentage of the total space occupied by the material, are less than 10%.
- ❑ **Densification**—The act of increasing the density of a mixture during the compaction process.
- ❑ **Density**—The unit weight or the weight of a specific volume of mix.
- ❑ **Design ESAL**—The total number of equivalent 80-kN (18,000-lb.), single-axle load applications expected throughout the design period.
- ❑ **Design Lane**—The lane on which the greatest number of equivalent 80-kN (18,000-lb.) single axle loads (ESALs) is expected. This will normally be either lane of a two-lane roadway or the outside lane of a multi-lane highway.
- ❑ **Design Period**—The number of years from the initial application of traffic until the first planned major resurfacing or overlay. This term should not be confused with pavement life or analysis period. Adding HMA overlays as required will extend pavement life indefinitely or until geometric considerations (or other factors) make the pavement obsolete.

- ❑ **Disintegration**—The breaking up of a pavement into small, loose fragments caused by traffic or weathering.
- ❑ **Distortion**—Any change of a pavement surface from its original shape.
- ❑ **Drum Mix (Continuous) Plant**—A manufacturing facility for producing asphalt paving mixtures that proportions the aggregate, then dries and coats the aggregate with a proportional amount of asphalt in the same drum. Variations of this type of plant use several types of drum modifications, separate (and smaller) mixing drums, and coating units (coater) to accomplish the mixing process. They are more suited for long runs of the same product.
- ❑ **Dryer**—An apparatus that will dry the aggregates and heat them to the specified temperatures.
- ❑ **Ductility**—The ability of a substance to be drawn out or stretched thin. While ductility is considered an important characteristic of asphalt cements in many applications, the presence or absence of ductility is usually considered more significant than the actual degree of ductility.
- ❑ **Durability**—The property of an asphalt pavement that represents its ability to resist disintegration by weathering and traffic.
- ❑ **Edge Joint Cracks**—The separation of the joint between the pavement and the shoulder, commonly caused by the alternate wetting and drying beneath the shoulder surface. Other causes are shoulder settlement, mix shrinkage, and trucks straddling the joint.
- ❑ **Effective Thickness**—The ratio of the thickness of an existing pavement material compared to the equivalent thickness of a new HMA later.
- ❑ **Emulsifying Agent or Emulsifier**—The chemical added to the water and asphalt that keeps the asphalt in stable suspension in the water. The emulsifier determines the charge of the emulsion and controls the breaking rate.

- ESAL (Equivalent Single Axle Load)**—The effect on pavement performance of any combination of axle loads of varying magnitude equated to the number of 80-kN (18,000-lb.) single-axle loads that are required to produce an equivalent effect.
- Fatigue Resistance**—The ability of asphalt pavement to resist crack initiation caused by repeated flexing.
- Fault**—A difference in elevation of two slabs at a joint or crack.
- Fine Aggregate**—Aggregate passing the 2.36 mm (No. 8) sieve.
- Fine-Graded**—Aggregate having a continuous grading in sizes of particles from coarse through fine with a predominance of fine sizes.
- Flexibility**—The ability of an asphalt pavement structure to conform to settlement of the foundation. Generally, flexibility of the asphalt paving mixture is enhanced by high asphalt content.
- Fog Seal**—A light application of diluted asphalt emulsion. It is used to renew old asphalt surfaces, seal small cracks and surface voids, and inhibit raveling.
- Fractured Slab Techniques**—Processes used to rehabilitate portland cement concrete (PCC) pavements by eliminating slab action through the reduction of slab size (crack/break and seat) or the pulverization of the PCC slab (rubblization) into essentially a granular base.
- Full-Depth Asphalt Pavement**—The term full-depth (registered by the Asphalt Institute with the U.S. Patent Office) certifies that the pavement is one in which asphalt mixtures are employed for all courses above the prepared subgrade or subbase.
- Grade Depressions**—Localized low areas of limited size.
- Heavy Trucks**—Two-axle, six-tire trucks or larger. Pickup, panel and light four-tire trucks are not included. Trucks with heavy-duty, wide-base tires are included.

- ❑ **Hot Mix Asphalt (HMA)**—High quality, thoroughly controlled hot mixture of asphalt binder (cement) and well-graded, high quality aggregate, which can be compacted into a uniform dense mass.
- ❑ **Hot Mix Asphalt (HMA) Overlay**—One or more courses of HMA over an existing pavement.
- ❑ **Impermeability**—The resistance an asphalt pavement has to the passage of air and water into or through the pavement.
- ❑ **Intermediate Course**—The HMA course immediately below the surface course, sometimes consisting of larger aggregates and less asphalt (by weight) than the surface. (Also known as binder course.)
- ❑ **Kinematic Viscosity**—A measure of the viscosity of asphalt, measured in centistokes, conducted at a temperature of 135 °C (275 °F).
- ❑ **Lane Joint Cracks**—Longitudinal separations along the seam between two paving lanes.
- ❑ **Leveling Course**—A course of HMA of variable thickness used to eliminate irregularities in the contour of an existing surface prior to placing the subsequent course.
- ❑ **Lift**—A layer or course of paving material applied to a base or a previous layer.
- ❑ **Lime Treated Subgrade**—A subgrade preparation technique in which the subgrade soil and added lime are mechanically mixed and compacted to produce a higher modulus base material than the in-situ material.
- ❑ **Lime-Fly Ash Base**—A road base material consisting of a blend of mineral aggregate, lime, fly ash, and water, which when combined in proper proportions and compacted produces a dense mass of increased strength.
- ❑ **Load Equivalency Factor**—The number of 80-kN (18,000-lb.) single-axle load applications (ESALs) contributed by one passage of an axle.
- ❑ **Longitudinal Crack**—A vertical crack in the pavement that follows a course approximately parallel to the centerline.

- ❑ **Maintenance Mix**—A mixture of asphalt emulsion and mineral aggregate for use in relatively small areas to patch holes, depressions, and distressed areas in existing pavements. Appropriate hand or mechanical methods are used in placing and compacting the mix.
- ❑ **Mechanical Spreaders**—Spreader boxes that are mounted on wheels. The spreaders are attached to and pushed by dump trucks (HMA boxes are pulled and chip spreaders are pushed).
- ❑ **Medium-Curing (MC) Asphalt**—Cutback asphalt composed of asphalt cement and a diluent of medium volatility.
- ❑ **Mesh**—The square opening of a sieve.
- ❑ **Micro-Surfacing**—A mixture of polymer modified asphalt emulsion, crushed dense graded aggregate, mineral filler, additives, and water. It provides a resurfacing of 10 to 20 mm (3/8 to 3/4 in.) to the pavement.
- ❑ **Milling Machine**—A self-propelled unit having a cutting head equipped with carbide-tipped tools for the pulverization and removal of layers of asphalt materials from pavements.
- ❑ **Mineral Dust**—The portion of the fine aggregate passing the 0.075 mm (No. 200) sieve.
- ❑ **Mineral Filler**—A finely divided mineral product, at least 70% of which will pass a 0.075 mm (No. 200) sieve. Pulverized limestone is the most commonly manufactured filler, although other stone dust, hydrated lime, portland cement, and certain natural deposits of finely divided mineral matter are also used.
- ❑ **Natural (Native) Asphalt**—Asphalt occurring in nature, which has been derived from petroleum through natural processes of evaporation of volatile fractions, leaving the asphalt fractions. The native asphalt of most importance is found in the Trinidad and Bermudez Lake deposits. Asphalt from these sources is often called lake asphalt.

- Nondestructive Testing (NDT)**—In the context of pavement evaluation, NDT is deflection testing, without destruction to the pavement, to determine a pavement's response to pavement loading.
- Overlay**—The placement of hot asphalt over existing asphalt bound with a tack coat.
- Pavement Base**—The lower or underlying pavement course atop the subbase or subgrade and under the top or wearing course.
- Pavement Structure**—The entire pavement system of selected materials from subgrade to the surface.
- Penetration**—The consistence of a bituminous material expressed as the distance (in tenths of a millimeter) that a standard needle penetrates a sample vertically under specified conditions of loading, time, and temperature.
- Penetration Grading**—A classification system of asphalt cements based on penetration in 0.1 mm at 25 °C (77 °F). There are five standard penetration grades for paving: 40-50, 60-70, 85-100, 120-150, and 200-300.
- Performance Graded (PG) Binder**—Asphalt binder grade designation used in Superpave. It is based on the binder's mechanical performance at critical temperatures and aging conditions.
- Planned Stage Construction**—A construction process where stages of the project are performed sequentially according to design and a predetermined time schedule.
- Plant Mix (Cold)**—A mixture of emulsified (or cutback) asphalt and unheated mineral aggregate prepared in a central mixing plant and spread and compacted with conventional paving equipment while the mixture is at or near ambient temperature.
- Plant Screens**—Screens located between the dryer and hot bins, which separate heated aggregates into proper hot bin sizes.
- Pneumatic-Tire Roller**—A compactor with a number of tires spaced so their tracks overlap delivering a kneading type of compaction.

- Polished Aggregate**—Aggregate particles in a pavement surface that have been worn smooth by traffic.
- Polymer-Modified Asphalt Binder**—Conventional asphalt cement to which one or more polymer compounds have been added to improve resistance to deformation at high pavement temperatures and often cracking resistance at low temperatures.
- Potholes**—Bowl-shaped openings in the pavement resulting from localized disintegration.
- Power Sweeper**—A power operated rotary broom used to clean loose material from the pavement surface.
- Present Serviceability**—The ability of a specific section of pavement to serve its intended use in its existing condition.
- Pumping**—Slab deflection under passing loads sometimes resulting in the discharge of water and subgrade soils along joints, cracks and pavement edges.
- Rapid-Curing (RC) Asphalt**—Cutback asphalt composed of asphalt cement and a naphtha or gasoline-type diluent of high volatility.
- Raveling**—The progressive separation of aggregate particles in a pavement from the surface downward or from the edges inward.
- Reclaimed Asphalt Pavement (RAP)**—Excavated asphalt pavement that has been pulverized, usually by milling, and is used like an aggregate in the recycling of asphalt pavements.
- Reclaiming Machine**—A self-propelled unit having a transverse cutting and mixing head inside a closed chamber for the pulverization and mixing of existing pavement materials with asphalt emulsion. Asphalt emulsion (and mixing water) may be added directly through the machine by a liquid additive system and spray bar.
- Recycled Asphalt Mix**—A mixture produced after processing existing asphalt pavement materials. The recycled mix may be produced by hot or cold mixing at a plant, or by processing the materials cold and in-place.

- ❑ **Reflection Cracks**—Cracks in asphalt overlays (usually over deteriorated PCC pavements) that reflect the crack or joint pattern in the pavement structure below it.
- ❑ **Residue**—The asphalt binder that remains from an asphalt emulsion after the emulsifying agent has broken and cured, or the remains of a cutback after the volatiles have cured.
- ❑ **Resilient Modulus of Elasticity**—A laboratory measurement of the behavior of pavement materials to characterize their stiffness and resiliency. A confined or unconfined test specimen (core or recompacted) is repeatedly loaded and unloaded at a prescribed rate. The resilient modulus is a function of load duration, load frequency, and number of loading cycles.
- ❑ **Road Oil**—Asphalt binder (cement) and oils of low volatility, usually similar to one of the slow-curing (SC) grades.
- ❑ **Roadway**—All facilities on which motor vehicles are intended to travel such as Interstate highways, secondary roads, streets and parking lots.
- ❑ **Roughometer**—An instrumented, single-wheel trailer, which measures the roughness of a pavement surface in accumulated millimeters, or inches, per mile.
- ❑ **Rubblization**—The pulverization of a Portland cement concrete pavement into smaller particles, reducing the existing pavement layer to a sound, structural base that will be compatible with subsequent asphalt overlay.
- ❑ **Rutting (Channeling)**—Channeled depressions that sometimes develop in the wheel paths of an asphalt pavement, usually due to extreme temperatures combined with high wheel loads.
- ❑ **Sand**—Fine aggregate (any fraction below a No. 8 sieve) resulting from natural disintegration and abrasion or processing of rock.
- ❑ **Sandy Soil**—A material consisting essentially of fine aggregate particles smaller than 2.36 mm (No. 8) sieve and usually containing material passing a 75 μm (No. 200) sieve. This material usually exhibits some plasticity characteristics.

- ❑ **Saw-Cut and Seal**—A method of controlling reflective cracking in HMA overlays that involves construction of joints in the new overlay exactly over the joints in the existing pavement.
- ❑ **Scaling**—The peeling away or disintegrating of the surface of Portland cement concrete.
- ❑ **Seal Coat**—A thin surface treatment used to improve the surface texture and protect an asphalt surface. The main types of seal coats are fog seals, sand seals, slurry seals, micro-surfacing, and chip seals.
- ❑ **Self-Propelled Spreaders**—Spreaders having their own power units and two hoppers. The spreader pulls the truck as it dumps its load into the receiving hopper. Conveyor belts move the aggregate forward to the spreading hopper.
- ❑ **Shoving**—A form of plastic movement resulting in localized bulging of the pavement.
- ❑ **Shrinkage Cracks**—Interconnected cracks forming a series of large blocks, usually with sharp corners or angles.
- ❑ **Sieve**—An apparatus for laboratory work in which the openings in the mesh are square for separating sizes of material.
- ❑ **Skid Hazard**—Any condition that might contribute to the reduction of friction forces on the pavement surface.
- ❑ **Skid Resistance**—The ability of a paved surface, particularly when wet, to offer resistance to slipping or skidding. Proper asphalt content and aggregate with a rough surface texture are the greatest contributors. The aggregate must also resist polishing.
- ❑ **Slippage Cracks**—Crescent-shaped cracks resulting from traffic-induced horizontal forces that are open in the direction of the thrust of wheels of the pavement surface. They result when severe or repeated shear stresses are applied to the surface and there is a lack of bond between the surface layer and the course beneath.

- ❑ **Slow-Curing (SC) Asphalt**—Cutback asphalt composed of asphalt cement and oils of low volatility.
- ❑ **Slurry Seal**—A mixture of emulsified asphalt, well-graded fine aggregate, mineral filler or other additives, and water. A slurry seal will fill minor cracks, restore a uniform surface texture, and restore friction values.
- ❑ **Soil/Cement Base**—A hardened material formed by curing a mechanically mixed and compacted mixture of pulverized soil, Portland cement and water used as a layer in a pavement system to reinforce and protect the subgrade.
- ❑ **Solubility**—A measure of the purity of asphalt binder (cement). The ability of the portion of the asphalt binder that is soluble to be dissolved in a specified solvent.
- ❑ **Source Properties**—Aggregate characteristics that must follow certain criteria to satisfy a Superpave mix design. They include toughness, soundness, and deleterious materials.
- ❑ **Spalling**—The breaking or chipping of a portland cement concrete (PCC) pavement at joints, cracks, or edges, usually resulting in fragments with feathered edges.
- ❑ **Stability**—The ability of an asphalt paving mixture to resist deformation from imposed loads. Stability is dependent upon both internal friction and cohesion.
- ❑ **Stationary Plants**—Asphalt plants that are so constructed that moving them is not considered economically feasible.
- ❑ **Steel-Wheel Static Rollers**—Tandem or three-wheel rollers with cylindrical steel rolls that apply their weight directly to the pavement.
- ❑ **Steel-Wheel Vibratory Rollers**—A compactor having single or double cylindrical steel rolls that applies compactive effort with weight and vibration. The amount of compactive force is adjusted by changing the frequency and amplitude of vibration.
- ❑ **Structural Overlay**—A HMA overlay constructed for the purpose of increasing the structural value and ride quality of the pavement system.

- ❑ **Subbase**—The course in the asphalt pavement structure immediately below the base course.
- ❑ **Subgrade**—The soil prepared to support a pavement structure or a pavement system. It is the foundation of the pavement structure.
- ❑ **Subgrade, Improved**—Subgrade that has been improved as a working platform by the incorporation of granular materials or stabilizers such as asphalt, lime, or portland cement into the subgrade soil.
- ❑ **Superpave**—Short for Superior Performing Asphalt Pavement, a pavement-based system for selecting and specifying asphalt binders and for designing asphalt mixtures.
- ❑ **Superpave Gyrotory Compactor**—A device used during Superpave mix design or quality control activities for compacting samples of HMA into specimens used for volumetric analysis. Continuous densification of the specimen is measured during the compaction process.
- ❑ **Superpave Mix Design**—An asphalt mixture design system that integrates the selection of materials (asphalt, aggregate) and volumetric proportioning with the project's climate and design traffic.
- ❑ **Tack Coat**—A relatively thin application of asphalt binder applied to an existing asphalt concrete or PCC surface at a prescribed rate. Asphalt emulsion diluted with water is the preferred type. It is used to form a bond between an existing surface and the overlying course.
- ❑ **Transverse Crack**—A crack that follows a course approximately at right angles to the centerline.
- ❑ **Travel Plants**—Self-propelled pugmill plants that proportion and mix aggregates and asphalt as they move along the road.
- ❑ **Truck Factor**—The number of ESALs contributed by one passage of a vehicle. Truck Factors can apply to vehicles of a single type or class or to a group of vehicles of different types.
- ❑ **Upheaval**—The localized upward displacement of a pavement due to swelling of the subgrade or some portion of the pavement structure.

- ❑ **Viscosity**—A measure of a liquid's resistance to flow with respect to time.
- ❑ **Viscosity Grading**—A classification system of asphalt cements based on viscosity ranges at two critical temperatures: 60 °C (140 °F) approximates the maximum temperature of an asphalt pavement surface in service in the U.S., and 135 °C (275°F) approximates the typical mixing and laydown temperature for HMA pavements.
- ❑ **Voids in the Mineral Aggregate (VMA)**—Void spaces that exist between the aggregate particles in the compacted mix, including spaces filled with asphalt binder. It represents the space available to accommodate effective volume of asphalt binder and air voids in the compacted mix.
- ❑ **Well-Graded Aggregate**—Aggregate graded with relatively uniform proportions, from the maximum size down to filler.
- ❑ **Wet Mixing Period**—The interval of time between the beginning of application of asphalt materials into a pugmill and the opening of the discharge gate.
- ❑ **Workability**—The ease which paving mixtures may be placed and compacted.