GLOSSARY OF TERMS

AGGREGATE BASE – A layer of aggregate material of specified quality and planned thickness placed immediately below the pavement or surfacing.

AGGREGATE INTERLOCK – The interaction of the aggregate particles within a mix causing the aggregate to lock together, forming a tight bond.

AIR VOIDS – Empty spaces in a compacted mix surrounded by asphalt coated particles.

ASPHALT – Asphalt is a component in varying proportions of most crude petroleums.

ASPHALT CEMENT – Asphalt that is refined to meet specifications for paving.

ASPHALT CONCRETE (HMA) – High quality, thoroughly controlled hot mixture of asphalt cement and well graded, high quality aggregate, thoroughly compacted into a uniform dense mass.

BASEMENT SOIL (Subgrade Soil) – The material in excavations, embankments, and embankment foundations immediately below the lowest layer of the engineered structural section and extending to the depth that affects structural design.

CEMENT TREATED BASE (CTB) – A base layer constructed with good quality, well graded aggregate mixed with up to 6% cement. CTB provides a high slab strength, allowing the imposed load to be spread over a large area.

> Class "A" CTB is used under asphalt concrete to provide added strength on the heavier travelled roads.
>
> Class "B" CTY is not designed to provide a specific compressive strength. The cement is sued primarily to increase the R-value of a material so as to make it suitable for use as a base course under a bituminous surface.

COLD PLANE – The process of using a cold milling machine to mill off the existing pavement to a determined depth.

CORE – A sample of asphalt concrete or Portland cement concrete obtained by drilling a hole through the pavement and retrieving the sample.

CORE DENSITY – The unit weight of an asphalt concrete core. Usually compared against maximum laboratory compacted unit weight to determine relative compaction.

CRACKS – Breaks in the surface of an asphalt pavement. The common types are:

> Alligator Cracks – Interconnected cracks forming a series of small blocks resembling alligator skin or chicken wire, caused by excessive deflection of the surface over unstable subgrade or lower courses of the pavement.
>
> Block Cracks – Interconnected cracks on flexible pavement, that are not load associated, which form a series of large polygons usually with sharp corners or angles.

Edge Joint Cracks – These cracks are 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.

Lane Joint Cracks – Longitudinal separations along the seam between two paving lanes caused by a weak seam between adjoining spreads in the courses of the pavement.

Longitudinal Cracks – Cracks or breaks in flexible or rigid pavement which are approximately parallel to the pavement center line.

Reflective Cracks – Cracks in asphalt overlays that reflect the crack pattern in the pavement structure underneath. They are caused by vertical or horizontal movements in the pavement beneath the overlay, brought on by expansion and contraction with temperature or moisture changes.

Shrinkage Cracks – Are interconnected cracks forming a series of large blocks usually with sharp corners or angles. Frequently they are caused by volume change in either the asphalt mix or in the base or subgrade.

Slippage Cracks – Are crescent shaped cracks that are open in the direction of the thrust of wheels on the pavement surface. They result when there is a lack of good bond between the surface layer and the underlying layer.

Thermal Cracks – Are caused by the repetitive expansion and contraction due to thermal changes. It is a particularly important distress type in areas where nighttime temperatures consistently are below freezing.

Transverse Cracking – Cracks in asphalt concrete pavement approximately at right angles to the center line, most often created by thermal forces exceeding the tensile strength of the asphalt concrete.

DEFLECTION – The amount of downward vertical movement of a surface due to the application of a load to the surface.

DEFLECTION ANALYSIS – An in situ analysis of an existing pavement structure. Describes pavement structural needs.

DIGOUT (Pavement Repair) – A digout is an isolated removal and replacement of the pavement surfacing and some or all of the underlying aggregate base. Its purpose is to repair a failure in the structural section. These failures normally are indicated by alligator cracking with or without rutting.

EMULSIFIED ASPHALT – An emulsion of asphalt cement and water which contains a small amount of an emulsifying agent. Emulsified asphalt droplets may be of either the anionic (negative charge) or cationic (positive charge) type, depending upon the emulsifying agent.

EQUIVALENT AXLE LOAD (EAL) – The number of repetitions of an 18,000 pound axle load which would have the same damaging effect as the truck axle or axles being considered.

FLEXIBLE PAVEMENT – A traffic load carrying system that is made up of one or more layers that are designed to transmit and distribute that loading to the underlying roadbed material. The highest quality layer is the surface course (generally asphalt concrete), which is usually underlaid by a lesser quality base and in turn a sub base. It is called flexible because it can tolerate deflection bending under heavy loads.

FOG SEAL – A light application of slow setting asphalt emulsion diluted with water. It is used to renew old asphalt surfaces, seal small cracks, and fill surface voids and inhibit raveling.

GEOTEXTILE – A geotextile is a manufactured synthetic fabric. Different fabrics are made for the purpose of stabilization, providing a filter membrane and pavement reinforcing fabric to retard reflective cracking in asphalt concrete and Portland cement concrete rehabilitation projects.

IN SITU – Soil in its original or undisturbed position.

LEVELING COURSE – The layer, generally of AC or other treated or processed material, that is placed to improve the surface profile or ride quality before placement of subsequent layers. It can also be used to prepare a cracked surface for placement of a pavement fabric.

LIME STABILIZED MATERIALS – Lime is primarily used to treat clay type soils in the structural section. Response is normally poor when used with granular materials. Application is usually made in the basement soil or sub base layer, although the use of lime stabilized material in the base course has been successful on lightly traveled roads. It is necessary to verify that materials can be satisfactorily treated with lime by appropriate testing.

LIME TREATMENT – The mixing of lime with native or embankment materials to increase the strength (R-value) of the material which supports the structural section.

OVERLAY – An overlay is a layer, usually asphalt concrete, placed on existing asphalt or Portland cement concrete pavement to restore ride quality, to increase structural strength (load carrying capacity), and to extend the service life.

PAVEMENT DEFECT – Term used to describe a less than desirable pavement condition.

PAVEMENT MANAGEMENT SYSTEM (PMS) – A pavement management system is a pavement inventory system designed to assist in the management and budgeting of routine maintenance for pavement systems. Many of these systems are computerized. Pavement management systems are chiefly used by owners of large pavement systems with many different segments and/ or aspects being included in the inventory. However, concepts of pavement management are applicable to simple multiyear budgeting for single project.

PAVEMENT RECYCLING – Reuse of existing materials to reconstruct or rehabilitate a structural section. There are many processes used to recycle asphalt concrete, Portland cement pavements and existing aggregates.

PAVEMENT REINFORCING FABRIC (see Geotextile) – As used by Caltrans, nonwoven bonded fiber engineering grade synthetic fabric that is placed as an interlay in asphalt concrete overlays primarily to minimize surface water infiltration and retard reflection cracking through the overlay, from cracks or joints in the existing pavement. Also commonly known as pavement engineering fabric or Petromat.

PNEUMATIC-TIRE ROLLER – Rollers, usually two-axle and self-propelled, with a number of tires spaced with overlapping tire tracks. The pneumatic tires give a kneading compaction.

PORTLAND CEMENT CONCRETE (PCC) – Portland cement concrete is a combination of graded aggregate, Portland cement and water to form a solid structural material for use in structures and pavements. In pavement, it may be unreinforced or reinforced with steel bars.

QUALITY ASSURANCE – The process of ascertaining compliance with the required quality standards. It is normally the responsibility of the Owner of Purchaser or his recognized and authorized representative to perform quality assurance work.

QUALITY CONTROL – Quality control is the process whereby a manufacturer or installer controls the manufacturing or construction process to measure compliance of the finished product with a specified standard.

RAVELING – The progressive separation of aggregate particles in a pavement from the surface downward or from the edges inward. Raveling is caused by lack of compaction, construction of a thin lift during cold weather, dirty or disintegrating aggregate, too little asphalt in the mix, or the overheating of the asphalt mix.

RECONSTRUCTION (Rehabilitation) – Work undertaken to extend the service life of an existing facility. This includes placement of additional surfacing and/ or other work necessary to return an existing pavement to a condition of structural or functional adequacy. This might include the partial or complete removal and replacement of the structural section.

REHABILITATION (Reconstruction) – Work undertaken to extend the service life of an existing facility. This includes placement of additional surfacing and/ or other work necessary to return an existing pavement to a condition of structural or functional adequacy. This might include the partial or complete removal and replacement of the structural section.

RELATIVE COMPACTION – Relative compaction is the ratio of the measured field density to the specified maximum density determined in the laboratory.

RESURFACING (Overlay) – A supplemental surface layer or replacement layer placed on an existing pavement to restore the riding quality or to increase the structural (load carrying) strength.

RIGID PAVEMENT – Portland cement concrete (PCC) pavement which distributes the superimposed axle loads over a relatively wide area of underlying structural section layers and soil because of its rigidity and high modulus of elasticity. A thick (greater than 6 inches) asphalt concrete pavement is often considered a rigid pavement.

RUBBERIZED ASPHALT (RHMA) – A mixture of paving asphalt combined with specified percentages of granulated reclaimed rubber for use as the binder in asphalt concrete and in stress absorbing membrane interlayers within or under asphalt concrete overlays. Primary applications are in providing a resilient and durable wearing surface for overlays, on pavement exposed to war by tire chains, and to retard reflective cracking. Rubberized asphalt joint sealant is used to keep incompressible materials out of joints in concrete pavement and retard surface water infiltration in concrete pavement.

RUTTING – Longitudinal depressions that develop in the wheel paths of flexible pavement under traffic. This permanent and sometimes progressive deformation is most often caused by unstable asphalt concrete pavement or inadequate strength of the underlying foundations. Rutting may also occur in asphalt and concrete pavements due to chains, studded tire abrasion, or raveling.

R-VALUE – Resistance value of treated or untreated soil or aggregate as determined by the stabilometer test (California Test 301). This is a measure of the supporting strength of the basement soil and subsequent layers used in the design of structural sections.

SEAL COAT – A bituminous coating with or without aggregate applied to the surface of a pavement for the purpose of waterproofing and preserving the surface, rejuvenating a previous bituminous surface, altering the surface texture of the pavement, or providing resistance to traffic abrasion. Seal coats are suitable for delineating the traveled way. They provide a thin wearing surface and also fill shrinkage cracks in the pavement.

STABILITY – The ability of asphalt paving mixture to resist deformation from imposed loads. Stability is dependent upon both internal friction and cohesion.

STRUCTURAL SECTION – The planned traffic support layers of specified materials, normally consisting of sub base, base, and pavement placed over the basement soil. The structural section is also commonly called the pavement structural section.

SUBBASE – One or more courses of soil or aggregate or both, of planned thickness and quality, placed on the subgrade as a foundation for a base. This is used where the basement soil will not support a structural section consisting of pavement and base alone, or where it is more economical to reduce the base thickness requirement by introducing this lower priced layer.

SURFACE COURSE – The top layer of AC pavement. This top layer of AC pavement is sometimes called the "wearing course".

SURFACING – The uppermost layer of material placed on the traveled way, or shoulders. This term is used interchangeably with pavement.

TACK COAT (PAINT BINDER) – The initial application of bituminous material to an existing asphalt concrete surface to insure bond between the superimposed construction and the old surface. It usually consists of an asphaltic emulsion, although paving asphalt is sometimes used.

TRAFFIC INDEX (TI) – A value used in a structural section design which represents the cumulative effects of both composition and intensity of truck traffic.

TRIP/ FALL HAZARD – An unexpected obstruction which can cause a pedestrian to trip or fall due to its inconvenient location.

VIBRATORY ROLLER – Motorized mechanical devise with one or two steel drum wheels which vibrate and can be varied in amplitude and frequency. Used to compact soils, aggregates and asphalt concrete.