

APPENDIX E – GLOSSARY OF TERMS

Asphalt Binder/ Asphalt Cement – A dark brown to black cementitious material in which the predominant constituents are bituminous which occur in nature or are obtained in petroleum processing.

Asphaltic Concrete Pavement – See **Hot Asphalt Concrete Pavement**

Base Course – A pavement layer, either bound or unbound, above the subbase or subgrade and below the surfacing.

Binder Course – The layer of asphalt immediately beneath the surfacing in an asphalt pavement, typically with larger size aggregate.

Bleeding – The upward movement of asphalt binder in an asphalt surfacing resulting in the formation of a film of asphalt on the surface. The most common cause is too much asphalt in one or more of the pavement courses.

Cape Seal – A surface treatment where a chip seal is followed by the application of either a slurry seal or microsurfacing.

Cellular Concrete – A cellular geosynthetic in which the voids are filled with concrete to form a flexible pavement mat.

Chip Seal – A surface treatment using one or more layers of aggregate chips and asphalt binding agent.

Cold In-Place Recycling – A rehabilitation treatment involving cold milling of the pavement surface and remixing with the addition of emulsified asphalt, Portland cement or other modifiers to improve the properties, followed by screeding and compaction of the reprocessed material in one continuous operation.

Cold Milling – A process which uses specialized equipment, consisting of a rotating drum with helically placed teeth, to grind up the pavement into pieces to the desired depth.

Cold Mix Asphalt Concrete – A blend of coarse and fine aggregate with emulsified or cutback asphalt as a binder. Cold mix requires no heating during the production process and can be placed directly after mixing or stockpiled for later use.

Context Sensitive Design/Context Sensitive Solutions – The process of selecting a design solution that, while meeting all the functional design requirements, also considers all aspects of the component's surroundings, environment, and overall context.

Corrugation – Type of pavement distortion. Corrugation, or “washboarding” is a form of plastic movement typified by ripples, typically in a transverse direction, across the asphalt pavement surface.

Cross Slope – The slope across the width of a road lane. On a two-lane road, it is the slope measured from the road centerline to the outer edge of the lane.

Crown – The high point at the center of a road’s cross section. A road is crowned to promote water flow to the outer edges of the road.

Cutback Asphalt – asphalt cement that has been liquefied by blending with petroleum solvents (also called a diluent). Upon exposure to atmospheric conditions the diluents evaporate, leaving the asphalt cement to perform its function.

Depression – A localized area that has a slightly lower elevation than the surrounding surface.

Dirt Road – A common term used to describe an unbound road surfacing composed of mineral soil or aggregate.

Distortion – Any change of a pavement shape from its originally constructed shape.

Draindown – Process by which asphalt binder drains from the asphalt mix during mix transportation and laydown.

Dust – Fugitive fines generated from an unbound road surfacing as the road dries and particles are carried by wind or passing vehicles. The term dust is also used to describe the very fine component of an asphalt mix aggregate.

Dust Suppressant – A product that is applied to, or blended with, an unbound road surface to control the generation of dust. Also referred to as a dust palliative.

Emulsified Asphalt – A suspension of minute globules of asphalt cement in water or in an aqueous solution.

Equivalent Single Axle Load (ESAL) – A concept developed to permit the cumulative damage of a spectrum of vehicle loading to be quantified. It equates the damage to a pavement structure caused by the passage of any axle load to that of a standard 80 kN (18,000 pound) axle load, in terms of equal conditions of distress or loss of serviceability.

Faulting – A difference in elevation between opposing sides of a crack or joint caused by weak or moisture-sensitive foundation material.

Fines – The fine aggregate component of a gravel or aggregate blend. It generally refers to that component of an aggregate with particle size smaller than 75 microns (0.003 in.). The term fines is also used to describe the silt and clay fraction (smaller than 75 microns) of a subgrade soil.

Foamed/Expanded Asphalt – A stabilization technique where asphalt cement is used through a foaming process to bind existing or new granular material into a flexible base or subbase layer. Foamed asphalt is constructed with hot asphalt cement, cold water and a foaming agent.

Fog Seal – Sprayed on application of low viscosity, slow to medium setting emulsified asphalt, which seals a pavement surface, controls water infiltration, and retards oxidation.

Fly Ash – Residue from coal combustion, which is carried in flue gases, and is used as a pozzolan or cementing material to replace a portion of the Portland cement in concrete.

Geogrid – A geosynthetic product that is a coarse meshed polymer grid structure capable of developing high tensile stresses with little deformation.

Geosynthetics – Woven or non-woven man-made materials designed for such applications as drainage, filtration, separation, and strengthening. They can be subdivided into various groups: geotextiles, geoweb, geocomposites, geogrids or geodrains.

Geotextile – A geosynthetic product that is composed of synthetic fabrics having a broad range of applications in the highway and earth related construction industry. Three broad categories of geotextiles are woven, non-woven and knitted.

Haul – The term used to describe the distance to transport road construction materials from their source or point of manufacture to the road site.

Hot In-Place Recycling – A rehabilitation treatment used to correct asphalt pavement surface distress involving heating, removal of old asphalt concrete, processing, mixing with new aggregates, new asphalt binder and/or recycling agents, relaying, and compacting to meet specifications for conventional asphalt concrete.

Hot Mix Asphalt Concrete - A high quality, thoroughly controlled mixture of asphalt cement (binder) and well-graded, high quality aggregate, that is produced hot at a batch or drum-mixing facility and must be spread and compacted while at an elevated temperature.

Hot Asphalt Concrete Pavement – A flexible pavement structure with a surfacing layer consisting of hot mix asphalt concrete and supported on lower layers of hot mix asphalt concrete and/or aggregate layers.

Hydroplaning – A dangerous vehicle action that occurs as a vehicle tire loses direct contact with the pavement surface when a film of water intervenes between the pavement surface and a vehicle tire, reducing the driver's ability to control of the vehicle. Good pavement macrotexture reduces the potential for hydroplaning.

Interlocking Concrete Pavement – A pavement surface comprised of individual concrete paving units, positioned and interlocked together to support vehicular or pedestrian traffic.

Leachate –Solution of material washed from a solid. It is typically used to describe pollutants that are dispersed and transported by water seepage through a material.

Life-Cycle Cost Analysis (LCCA) – An economic analysis technique that allows comparisons of investment alternatives having different cost streams. LCCA involves estimating all costs associated with each alternative over a selected analysis period and conversion of those costs to economically comparable values considering the time-value of money. In addition to initial construction costs, the analysis also includes the costs for routine maintenance and rehabilitation.

Lifts – A layer of roadway material that is placed in one operation.

Microsurfacing – An enhanced slurry seal with a polymer modified binder, very high quality aggregates, and placed using specialized paving equipment.

Open Graded – having a relatively large amount of voids between particles, when expressed as a percentage of the total volume of a material.

Open Graded Friction Course (OGFC) – A pavement surface layer that consists of a high-void, plant mix asphalt concrete that permits rapid drainage of rainwater through the layer.

Otta Seal – A type of surface treatment constructed using a thick layer of soft asphalt binder covered by graded aggregates.

Oxidation – Process by which organic molecules in asphalt binder react with oxygen from the atmosphere; causing the structure and composition of the asphalt molecules to change and resulting in the asphalt binder becoming harder and more brittle.

PM₁₀ – Refers to fine particles suspended in air, consisting of particles with diameter less than approximately 10 micrometers.

Polymer – A synthetic additive that is mixed into asphalt binder to alter and improve performance characteristics.

Porous Pavement – A pavement that is purposely designed and constructed to be permeable to water infiltration. Stormwater that passes through the pavement is allowed to infiltrate into the underlying soil, with the excess being temporarily stored in a gravel filter bed or removed through a subsurface drainage system.

Portland Cement –A product made from limestone (or some other source of lime) and other materials, which are ground up, mixed, burned in a kiln, and subsequently ground to a fine powder which will harden when mixed with water.

Portland Cement Concrete – The product of mixing Portland cement, aggregate, water, and, in some cases, additives (such as an air entraining agent or a water reducing agent) to result in a hardened structural material after hydration occurs.

Portland Cement Concrete Pavement (PCCP) – A road pavement that is constructed with portland cement concrete, also referred to as a rigid pavement.

Potholes – Bowl-shaped holes of various sizes in the pavement resulting from localized disintegration under traffic.

Prime Coat – Low viscosity emulsion applied to an absorbent surface, such as granular base, prior to hot mix asphalt paving.

Pumping – The displacement and ejection of water and suspended fine particles at joints, cracks, and edges.

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

Reclaimed Asphalt Pavement (RAP) – Existing asphalt mixture that has been pulverized, usually by milling, and is used like an aggregate in the recycling of asphalt pavements. It can also be blended with virgin aggregates and used as an aggregate base or subbase material.

Resin Modified Pavement – A surfacing alternative that provides many of the performance characteristics of Portland cement concrete (PCC) but which can be constructed similar to a hot asphalt concrete pavement (HACP). The mix is an open graded asphalt mixture with 25-35% voids that are filled with a latex-rubber modified cement grout.

Ride Quality – As observed from within a vehicle, the smoothness of the roadway as impacted by defects and unevenness in the roadway surface.

Roadway Surfacing – The top layer of a road.

Roller Compacted Concrete – A zero slump (i.e. very stiff) mixture of aggregates, cementitious materials, and water that is consolidated by rolling with vibratory compactors.

Rutting – Grooves or longitudinal depressions that develop in the wheel tracks of a road. Channels may result from consolidation or lateral and vertical movement under traffic in one or more of the underlying courses, or by displacement in the asphalt surface layer itself.

Sand Seal – An asphalt surface treatment constructed by spraying emulsified asphalt and immediately spreading and rolling a thin fine aggregate cover. Similar to a chip seal, except that finer aggregate is used in the cover.

Sandwich Seal – Similar to a double chip seal, except the first layer of asphalt binder is omitted.

Scrub Seal – An asphalt surface treatment where an emulsified asphalt is sprayed on an existing asphalt pavement surface followed by a 'brooming' action to force the emulsion into any voids in the surface left after the initial application. Sand is applied over the surface, followed by compaction.

Sett – A paving block or brick.

Shoving – Permanent, longitudinal displacement of a localized area of a road surface caused by traffic-induced shear forces.

Skid Number (SN) – A standard test measure of the friction between a tire and a wetted road surface.

Skid Resistance – That ability of a roadway surface, particularly when wet, to offer resistance to slipping or skidding.

Slurry Seal – A surface treatment of emulsified asphalt, sand, additives, and water, placed as a aqueous mixture.

Soft Spots – Weak areas in the subgrade of a road structure that can lead to pavement performance problems.

Stabilizing Additive – A mechanical, chemical, or bituminous product or material used to increase or maintain the strength, durability, or moisture susceptibility of a material or to improve its engineering properties.

Stone Mastic/Matrix Asphalt (SMA) – An asphalt mix type that provides excellent performance with high stability, durability, rut resistance, and good friction properties for heavy traffic roads. SMA consists of two parts: a coarse aggregate skeleton with an asphalt binder-rich mortar. The mixture has an aggregate skeleton with coarse aggregate stone on stone contact. A fiber is added to the asphalt binder to prevent draindown.

Structural Layer Coefficient – From the AASHTO pavement design procedure, the empirical relationship between Structural Number (SN) and layer thickness which expresses the relative ability of a material to function as a structural component of a pavement.

Structural Number (SN) – An index number derived from an analysis of traffic, roadbed soil conditions, and environment which may be converted to thickness of flexible pavement layers through the use of suitable layer coefficients related to the type of material being used in each layer of the pavement structure.

Subbase – The layer in a flexible pavement structure immediately below the base course. Also used to describe the single aggregate layer above the subgrade in a rigid pavement structure.

Subgrade – The natural soil or rock layer, or placed earth or rock fill layer, prepared to support a pavement structure. It is the foundation of the pavement structure.

Surface Course – The top layer of a flexible or composite pavement, that comes into direct contact with vehicles.

Surface Texture – The roughness or contours of the traveling surface of the road defined in terms of microtexture and macrotexture. Microtexture is what makes an aggregate smooth or rough to the touch. The macrotexture is surface contours that result from the shape, size, and arrangement of the aggregate particles (for flexible pavements), or the surface finish (for concrete surfaces).

Tack Coat – An application of liquid asphalt or emulsified or cutback asphalt to an existing asphalt concrete surface prior to the placement of an asphalt concrete lift or overlay.

Tining – A series of parallel grooves placed in the surface of a concrete pavement that run parallel or transverse to the longitudinal joint of the road. Tining is used to improve frictional characteristics.

Traffic Loading – The dynamic forces imposed on a pavement structure as a result of normal moving traffic operations.

Unit Paver – Accurately dimensioned, dense concrete products that are fitted snugly together to form a road surfacing. (see Sett).

Washboarding – A series of transverse undulations or corrugations that form in a transverse direction in the surface of an unbound road surface.

Weathering – The natural process of deterioration of a road surfacing over time due to exposure to the elements (e.g. sun, rain, and ice).

