

APPENDIX 1: GLOSSARY AND LIST OF ACRONYMS

A. Glossary

Analysis Period: the period of time during which the initial and any future costs for the project alternatives will be evaluated.

Activity Service Life: the estimated time period that the asset will remain viable for public use (at or above a minimum level of service).

Capital Preventive Maintenance (CAPM): CAPM consists of work performed to preserve the existing pavement structure utilizing strategies that preserve or extend pavement service life. See HDM Index 603.2 and the CAPM Guidelines (DIB 81) for further information.

Composite Pavement: pavements comprised of both rigid and flexible layers. Currently, for purposes of the procedures in the HDM, only flexible over rigid composite pavements are considered composite pavements.

Continuously Reinforced Concrete Pavement (CRCP): one type of rigid pavement with reinforcing steel and no transverse joints except at construction joints or paving stops for more than 30 minutes. CRCP pavements are reinforced in the longitudinal direction, and additional steel is also used in the transverse direction to hold the longitudinal steel. Due to the continuous reinforcement in the longitudinal direction, the pavement develops transverse cracks spaced at close intervals. These cracks develop due to changes in the concrete volume, restrained by the longitudinal reinforcement steel, resulting from moisture and temperature variation. Crack width can affect the rate of corrosion of the reinforcing steel at the crack locations when water or de-icing salts (if used) penetrate the cracks. In a well-designed CRCP, the longitudinal steel should be able to keep the transverse cracks tightly closed.

Crack, Seat, and Flexible Overlay (CSFOL): A rehabilitation strategy for rigid pavements. CSFOL practice requires the contractor to crack and seat the rigid pavement slabs, and place a flexible overlay with a pavement reinforcing fabric (PRF) interlayer.

Flexible Pavement: Pavements engineered to transmit and distribute traffic loads to the underlying layers. The highest quality layer is the surface course (generally asphalt binder mixes), which may or may not incorporate underlying layers of a base and a subbase. These types of pavements are called “flexible” because the total pavement structure bends or flexes to accommodate deflection bending under traffic loads.

Hot Mix Asphalt (HMA): formerly known as asphalt concrete (AC), is a graded asphalt concrete mixture (aggregate and asphalt binder) containing a small percentage of voids which is used primarily as a surface course to provide the structural strength needed to distribute loads to underlying layers of the pavement structure.

Hot Mix Asphalt with Open Graded Friction Course (HMA w/ OGFC): Open graded friction course (OGFC), formerly known as open graded asphalt concrete (OGAC), is a wearing course placed on top of HMA. OGFC is a wearing course mix consisting of asphalt binder and aggregate with relatively uniform grading and little or no fine aggregate and mineral filler. OGFC is designed to have a large number of void spaces in the compacted mix as compared to hot mix asphalt.

Hot Mix Asphalt with Rubberized Hot Mix Asphalt (HMA w/ RHMA): Rubberized hot mix asphalt (RHMA), formerly known as rubberized asphalt concrete (RAC) is a wearing course placed on top of HMA. RHMA is a material produced for hot mix applications by mixing either asphalt rubber or asphalt rubber binder with graded aggregate. RHMA may be gap- (RHMA-G) or open- (RHMA-O) graded.

Jointed Plain Concrete Pavement (JPCP): one type of rigid pavement, also referred to as Portland Cement Concrete Pavement (PCCP), constructed with longitudinal and transverse joints. JPCPs do not contain steel reinforcement, other than tie bars and dowel bars. JPCPs are doweled in the transverse joints to improve load transfer and prevent faulting of the slabs from occurring. Tie bars are used in the longitudinal joints to hold adjoining slabs together.

Lane Replacement: the removal of individual slabs (or panels) of concrete pavement where the total length of consecutive slabs is greater than 100 feet.

Maintenance Service Level (MSL): For maintenance programming purposes, the State highway system has been classified as Class 1, 2, and 3 highways based on the MSL descriptive definitions:

- MSL 1 – Contains route segments in urban areas functionally classified as Interstate, Other Freeway/Expressway, or Other Principal Arterial. In rural areas, the MSL 1 designation contains route segments functionally classified as Interstate or Other Principal Arterial.
- MSL 2 – Contains route segments classified as an Other Freeway/Expressway or Other Principal Arterial not in MSL 1, and route segments functionally classified as minor arterials not in MSL 3.
- MSL 3 – Indicates a route or route segment with the lowest maintenance priority. Typically, MSL 3 contains route segments functionally classified as major or minor collectors and local roads with relatively low traffic volumes. Route segments where route continuity is necessary are also assigned MSL 3 designation.

The MSL can be found in the Pavement Condition Report developed by the Division of Maintenance.

Pavement Structure: The planned, engineered system of layers of specified materials (typically consisting of surface course, base, and subbase) placed over the subgrade soil to support the cumulative traffic loading anticipated during the design life of the pavement.

The pavement is also referred to as the pavement structure and has been referred to as pavement structural section.

Open Graded Friction Course (OGFC): Formerly known as open graded asphalt concrete (OGAC), OGFC is a wearing course mix consisting of asphalt binder and aggregate with relatively uniform grading and little or no fine aggregate and mineral filler. OGFC is designed to have a large number of void spaces in the compacted mix as compared to hot mix asphalt.

Pavement Design Life: Also referred to as performance period, is the period of time that a newly constructed or rehabilitated pavement is engineered to perform before reaching a condition that requires at least Capital Preventive Maintenance (CAPM) or before reaching its terminal serviceability. The selected pavement design life varies depending on the characteristics of the highway facility, the objective of the project, and projected traffic volume and loading. See HDM Topic 612 for more information.

Precast Panel Concrete Pavement (PPCP): PPCPs use panels that are precast off-site instead of cast-in-place. The precast panels can be linked together with dowel bars and tie bars or can be post-tension after placement.

Rapid Strength Concrete (RSC): Also known as Rapid Set Concrete, which is a type of concrete that cures in 3 to 24 hours. RSC is used to replace concrete slabs and lanes during short construction windows where conventional Portland cement concrete will not have time to cure and gain strength.

Rehabilitation: Rehabilitation is work undertaken to extend the service life of an existing facility. This includes placement of an overlay and/or other work necessary to return an existing roadway, including shoulders, to a condition of structural or functional adequacy, for the specified service life. This might include the partial or complete removal and replacement of portions of the pavement structure. Rehabilitation work is classified as pavement rehabilitation activities and roadway rehabilitation activities.

Remaining Service Life Value (RSV): The value of the remaining activity service life beyond the end of the analysis period of a project alternative.

Rigid Pavement: pavements with a rigid surface course (typically Portland cement concrete or a variety of specialty cement mixes for rapid strength concretes), which may incorporate underlying layers of stabilized or non-stabilized base or subbase materials. These types of pavements rely on the substantially higher stiffness rigid slab to distribute the traffic loads over a relatively wide area of underlying layers and the subgrade. Some rigid slabs have reinforcing steel to help resist cracking due to temperature changes and repeated loading.

Rubberized Hot Mix Asphalt (RHMA): a material produced for hot mix applications by mixing either asphalt rubber or rubberized asphalt binder with graded aggregate. RHMA may be gap- (RHMA-G), or open- (RHMA-O) graded.

Rubberized Hot Mix Asphalt-Gap Graded (RHMA-G): a gap graded mixture of crushed coarse and fine aggregate, and of paving asphalt that is combined with specified percentages of granulated (crumb) reclaimed rubber. RHMA-G can be used as either a surface course or a non-structural wearing course.

Rubberized Hot Mix Asphalt-Open Graded (RHMA-O): same as RHMA-G, except RHMA-O is used only as a non-structural wearing course.

Slab Replacement: the removal of individual slabs (or panels) of concrete pavement with the total length of consecutive slabs being 100 feet or less.

Terminal Serviceability: the condition of the pavement at the end of its pavement design life. In California, this is defined as a condition that requires a CAPM, a major rehabilitation or reconstruction.

B. List of Acronyms

AADT	=	Annual Average Daily Traffic
BCA	=	Benefit-Cost Analysis
Caltrans	=	California Department of Transportation
Cal-B/C	=	California Life-Cycle Benefit/Cost Model
CAPM	=	Capital Preventive Maintenance
CRCP	=	Continuously Reinforced Concrete Pavement
CSFOL	=	Crack, Seal, and Flexible Overlay
FHWA	=	Federal Highway Administration
FO	=	Flexible Overlay
HDM	=	Highway Design Manual
HMA	=	Hot Mix Asphalt
JPCP	=	Jointed Plain Concrete Pavement
LCCA	=	Life-Cycle Cost Analysis
M&R	=	Maintenance & Rehabilitation/Reconstruction
MSL	=	Maintenance Service Level
MSRO	=	Mill, Slab Replacement & Overlay
OGFC	=	Open Graded Friction Course
PA&ED	=	Project Approval & Environmental Document
pcphpl	=	passenger cars per hour per lane
PDPM	=	Project Development Procedures Manual
PID	=	Project Initiation Document
PR	=	Project Report
PSSR	=	Project Scope Summary Report
RHMA	=	Rubberized Hot Mix Asphalt
RHMA-G	=	Rubberized Hot Mix Asphalt-Gap Graded
RHMA-O	=	Rubberized Hot Mix Asphalt-Open Graded
RSC	=	Rapid Strength Concrete
RSL	=	Remaining Service Life
SR	=	Slab Replacement
TI	=	Traffic Index
vph	=	vehicles per hour
vphpl	=	vehicles per hour per lane