

## Suggested Guidelines for Asphalt Pavements

June 15, 2012

Superpave Typical Layer Design by Total Thickness	
Total (inch)	Top to Base (inch)
0.75	0.75-S6
1	1-S6
1.5	1.5-S5 or 1.5-S4
2	2-S4 or 2-S5
2.5	2.5-S4
3	1.5-S4, 1.5-S5 or 1.5-S4, 1.5-S4
3.5	2-S4, 1.5-S5 or 2-S4, 1.5-S4
4	2-S4, 2-S4
4.5	2-S4, 2.5-S3
5	2-S4, 3-S3
6	2-S4, 4-S3
7	2-S4, 2.5-S3, 2.5-S3
8	2-S4, 3-S3, 3-S3
9	2-S4, 3-S3, 4-S3
10	2-S4, 3-S3, 2.5-S3, 2.5-S3 or 2-S4, 2.5-S3, 2.5-S3, 3-RBL
11	2-S4, 3-S3, 3-S3, 3-S3 or 2-S4, 3-S3, 3-S3, 3-RBL
12	2-S4, 3-S3, 3.5-S3, 3.5-S3 or 2-S4, 3.5-S3, 3.5-S3, 3-RBL
13	2-S4, 3-S3, 4-S3, 4-S3 or 2-S4, 4-S3, 4-S3, 3-RBL
14	2-S4, 3-S3, 3-S3, 3-S3, 3-S3 or 2-S4, 3-S3, 3-S3, 3-S3, 3-RBL
15	2-S4, 3-S3, 3-S3, 3.5-S3, 3.5-S3 or 2-S4, 3-S3, 3.5-S3, 3.5-S3, 3-RBL

### Selection of Performance Grade Binder:

(Updated "Materials Division" hyperlink (below) to current URL 07/06/2016)

PG 70-28 OK or PG 76-28 OK may be desirable in high volume areas where slow, standing, or turning traffic occurs, such as urban intersections or off-ramps. Off-ramps should at least use the same binder as the mainline.

A higher grade of asphalt binder than indicated on the Plans may be used, but at no additional cost to the Department.

Binder Grade	MESALs	ADT <sup>1</sup>	Notes
PG 64-22 OK	< 3	< 5,000	Use when more than 4-6 inches below the surface. Also use for shoulders, driveways, below PCC, and temporary construction.
PG 70-28 OK	< 10	< 10,000	Use only in the top 4-6 inches for driving lanes.
PG 76-28 OK	>= 10	>= 10,000	Use only in the top 4-6 inches for driving lanes.
PG 76-28 E	—	—	Contact <a href="#">Materials Division</a> for recommended use.

<sup>1</sup> Use ADT only when ESAL computational data is not available. Calculate the design ESALs based on 20 years.

**Note 1:** These typical layer designs are guidelines only. Perpetual pavement designs use RBL.

**Note 2:** The lift thickness range represents the absolute minimum to the absolute maximum lift thickness. The extremes should be avoided whenever possible.

**Note 3:** SMA is a premium asphalt surface course that may be used in-lieu-of S4.

#### Acronyms:

ADT – Average Daily Traffic

E – When used as suffix for a binder grade, designates extremely high traffic loading (AASHTO MP 19).

MESALs – Million Equivalent Single Axle Loads (1 ESAL = 18,000 pounds / axle for 20 year design life)

NMS – Nominal Maximum Size of Aggregate (AASHTO M 323)

OGFSC – Open Graded Friction Surface Course

OK – When used as a suffix for a binder grade, designates PG+ Specifications.

PCC – Portland Cement Concrete

PFC – Permeable Friction Course

PG – Performance Grade (AASHTO M 320)

RBL – Rich Bottom Layer

S3-S6 – Superpave Mixture Types from Coarse to Fine Graded

SMA – Stone Matrix Asphalt

Asphalt Mixture Lift Thickness Ranges				
Asphalt Mixture	NMS (inch)	NMS (mm)	Lift Thickness Range (inch)	Optimum Thickness (inch)
S3	0.75	19	2.25 - 4.5	3
S4	0.5	12.5	1.5 – 2.5	2
S5	0.375	9.5	1.25 - 2.25	1.5
S6	0.187	4.75	0.5 – 1	0.75
SMA	0.5	12.5	2 - 2.5	2
PFC	0.5	12.5	1.25 - 1.5	1.25
RBL	0.5	12.5	3	3
OGFSC	0.375	9.5	0.75 – 1	0.75