

EXAMPLE FLEXIBLE PAVEMENT DESIGN

Given the bold faced information, determine the pavement materials and thickness required for a truck route.

Step 1 - Develop Equivalent Single Axle Load, W18

Vehicles per Lifetime	Breakdown of Vehicles	Table 600.03 Vehicle Equivalency Factors	W18
338502756	5%	Heavy Truck 6.5	110013396
	5%	Medium Truck 1	16925138
	5%	Light Truck 0.25	4231284
	85%	Automobile 0.0008	230182
W18 =			131400000

Step 2 Develop soil resilient Modulus, Mr

Mr = 1500CBR
= 1500(10)
= 15000 psi

Step 3 Determine the overall standard deviation, So

So = 0.45 Typical

Step 4 Select the level of reliability, R

Truck Route, Table 600.04 R = 99.9 ZR = -3.090
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Step 5 Select design serviceability loss, PSI

Table 600.05
po = 4.2
pt = 3.0
PSI = 1.2

Step 6 Solve for structural number, SN

SN = 8.0

Step 7 - Determine Material Thickness

Table 600.06		Trial Thickness (per cm)	SN Contribution
Pavement Material	Coefficient (per cm)		
Asphaltic Concrete	0.17	30	5.1
Aggregate Base	0.05	22	1.1
Sand-Asphalt Base	0.08	0	0.0
Soil Subbase	0.04	45	1.8
Actual SN =			8.0

Note: Various material combinations can be compared economically to determine the optimum design. Make certain thickness meet Table 600.07.