

FLEXIBLE PAVEMENT DESIGN USING SOIL FACTORS^{1,5}

Required Gravel Equivalency (G.E. in inches) for various Soil Factors (S.F.)

For new construction or reconstruction use projected ADT or HCADT; for reconditioning projects use present ADT or HCADT

7 TON : LESS THAN 400 ADT			9 TON : 151 TO 300 HCADT			9 TON :1101 - 1500 HCADT ²		
S.F.	Minimum Bit. G.E.	Total G.E.	S.F.	Minimum Bit. G.E.	Total G.E.	S.F.	Minimum Bit. G.E.	Total G.E.
50	7	7.3 ⁶	50	7	14	50	8	20.3
75	7	9.4 ⁶	75	7	17.5	75	8	26.4
100	7	11.5	100	7	21	100	8	32.5
110	7	12.4	110	7	22.4	110	8	35
120	7	13.2	120	7	23.8	120	8	37.4
130	7	14	130	7	25.2	130	8	39.8

7 TON : 400 to 1000 ADT			9 TON : 301 TO 600 HCADT			<u>TYPE OF MAT'L</u> ³	<u>SPECIFICATION</u>	<u>G.E. FACTOR</u>
S.F.	Minimum Bit. G.E.	Total G.E.	S.F.	Minimum Bit. G.E.	Total G.E.			
50	7	9 ⁶	50	7	16	Bituminous Pavement	2360	2.25
75	7	12	75	7	20.5	Cold-Inplace Recycling (CIR)	2331	1.5
100	7	15	100	7	25	Rubblized Concrete	2231	1.5
110	7	16.2	110	7	26.8	Full-Depth Reclamation	2331	1.0
120	7	17.4	120	7	28.6	Stabilized Full-Depth Reclamation	2331	1.5
130	7	18.6	130	7	30.4	Aggregate Base class 5 & 6	3138	1.0
						Aggregate Sub-Base class 3 & 4	3138	0.75
						Select Granular Mat'l	3149.2B2	0.5

9 TON : LESS THAN 150 HCADT			9 TON : 601 TO 1100 HCADT			<u>AASHTO</u> <u>SOIL CLASS</u>	<u>SOIL FACTOR</u> <u>(S.F.)</u>	<u>ASSUMED</u> <u>R-VALUE</u>	<u>GENERAL</u> ⁴ <u>PLASTICITY</u>
S.F.	Minimum Bit. G.E.	Total G.E.	S.F.	Minimum Bit. G.E.	Total G.E.				
50	7	10.3 ⁶	50	8	18.5	A - 1	50 - 75	70 - 75	NP
75	7	13.9	75	8	23.7	A - 2	50 - 75	30 - 70	SP
100	7	17.5	100	8	29	A - 3	50	70	NP
110	7	19	110	8	31.1	A - 4	100 - 130	20	SP
120	7	20.5	120	8	33.2	A-5	130+	na	na
130	7	22	130	8	35.3	A - 6	100	12	P
						A - 7 - 5	120	12	P
						A - 7 - 6	130	10	P

Values may not be exact due to rounding

Notes:

¹For 10 Ton design see page 31 in Mn/DOT Pavement Manual, July 2007, Chapter 5, Section 3, Figure 5-3-7. Bituminous Pavement Design Chart (Aggregate Base)

²For HCADT over 1500 more advanced design procedures should be used; please contact Mn/DOT's Pavement Design Unit

³See page 32 in Mn/DOT Pavement Manual, July 2007, Chapter 5, Section 3, Table 5-3.4 - Granular Equivalent (G.E.) factors

⁴General Plasticity: NP = nonplastic; SP= semi-plastic; P = plastic; na = not applicable (An A-5 soil rarely occurs in Minnesota)

⁵ Safety edge (30° to 35° wedge) are recommended to minimize edge dropoff. See www.dot.state.mn.us/stateaid/sa_safety_edge.html

⁶ These GE values are for the finished pavement section. During construction additional GE may be warranted for a construction platform.