



# Facilities Development Manual

ORIGINATOR Director, Bureau of Highway Construction		PROCEDURE 14-1-1
CHAPTER 14	Pavements	
SECTION 1	General	
SUBJECT 1	General	

## **Originator**

The Originator of this chapter is Laura Fenley, Pavement Structural Design Engineer. Any questions or comments regarding this chapter should be directed to her at Truax Center, 3502 Kinsman Boulevard, Madison, 53704, (608) 246-5455.

## **Objective**

The objective of pavement design is to provide the best combination and thickness of pavement structure materials, over the subgrade, that will reduce the stress caused by loading to within the load-carrying capacity of the subgrade soil. The design should also provide an economical structure that is consistent with the selected design period.

## **International Roughness Index (IRI)**

The Federal Highway Administration (FHWA) requests that State DOTs report roughness measurement data for the Highway Performance Monitoring System (HPMS) in International Roughness Index (IRI) units. IRI was chosen as a standard reference for road roughness to establish nationwide uniformity in the roughness data. The Department uses IRI as the principal roughness measurement tool.

The IRI is a roughness defined as a specific mathematical model of a longitudinal profile. WisDOT measures IRI directly using a South Dakota Type II Road Profiler.

## **Design Procedures**

In general, WisDOT follows the pavement design procedures provided in the American Association of State Highway & Transportation Officials (AASHTO) Interim Guide for Design of Pavement Structures, 1972, Chapter III Revised, 1981.

WisDOT has developed and uses the WisPAVE design program (refer to Subject 15 – Pavement Type Selection).

## **Soils**

Soils information should come from the soils report. In lieu of the report, standard correlations between pavement parameters are listed in Table 1.

**Table 1 - Soil Parameters for Pavement Design**

Material	AASHTO	Soil Support Value	Wisconsin Design Group Index	Subgrade K	Resilient Modulus M <sub>R</sub>
I – well sorted	A-1-a	5.5-5.4	0-2	300	7000
	A-1-b	5.3-5.2	3-4	275	6000
	A-3	5.1-5.0	5-6	250	5000
	A-2-4	4.9-4.7	7-8	225	4300
	A-2-4/A-4	4.6-4.5	9-10	200	3600
	A-4/A-6	4.4-4.2	11-12	175	3300
II – poorly sorted	A-4	4.2	12	150	3000
	A-4/A-6	4.1-3.8	13-15	125	2800
	A-7-6	3.7-3.5	16-17	100	2600
	A-7-5	3.3-3.0	18-20	75	2500

**Design Group Index as it Relates to Frost Index**

0-1	F-0 to F-1
1-6	F-2
6-15	F-3
15-20	F-4

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