The assessment of pavement performance life is necessary in order to identify and define pavement maintenance and rehabilitation needs.

Different maintenance strategies can be applied and performance life of rehabilitated pavement can change depending on the techniques.

The performance models used for rehabilitated pavements are the same as those used for new pavements.

**Introduction**

**Objective**

Evaluate the factors affecting performance life of milling-surfacing of flexible pavement and test of performance models used.

**Some existents performance models**

**Fatigue cracking**

\[
D = \sum_{i=1}^{n} d_{r_i} = \sum_{i=1}^{n} n_{f_i} N_{f_i} \quad \text{(Miner's law)}
\]

\[
N_{f_i} = k_1 \left( \frac{1}{e_i} \right)^{k_2} \left( \frac{1}{E} \right)^{k_3}
\]

Where:

- \( D \): damage;
- \( n_{f_i} \): actual traffic for period \( i \);
- \( n \): total number of periods;
- \( N_{f_i} \): allowed traffic under conditions prevailing period \( i \);
- \( e_i \): tensile strain at the critical location;
- \( E \): stiffness of the material;
- \( k_1, k_2, k_3 \): regression coefficients.

**Permanent Deformation**

\[
PD = \sum_{i=1}^{n} e_{p_i} h_i
\]

\[
e_{p_i} = a_1 \times T^{a_2} N^{a_3}
\]

Where:

- \( PD \): pavement permanent deformation;
- \( h_i \): thickness of sublayers \( i \);
- \( t \): total plastic strain in sublayer \( i \);
- \( e_{p_i} \): accumulated plastic strain at N repetitions of load (in/in);
- \( c_r \): resilient strain of the asphalt material (in/in);
- \( N \): number of load repetitions;
- \( T \): temperature (degF);
- \( a_1, a_2, a_3 \): regression coefficients.

- Overlay thickness and mixture type (with RAP or not) have an effect on fatigue, rut and IRI performance trends.
- Results predicted with mechanistic-empirical software (AASHTOWare Pavement ME) are different for those observed.
- Mechanistic empirical models doesn’t consider different factors having influence on performance life of rehabilitated pavements such as recycled mixture, overlay thickness, cracks before overlay...