

Dynatest

Fast Falling Weight Deflectometer (FFWD) for Accelerated Pavement Testing (APT)

The possibility of using the FFWD for in-situ Accelerated Pavement Testing (APT) to study pavement deterioration will shorten the gap between the Heavy Vehicle Simulator (HVS) and small-scale laboratory test methods.



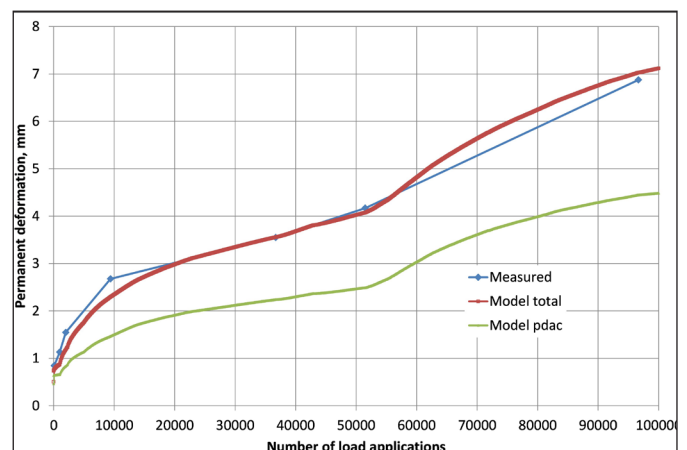
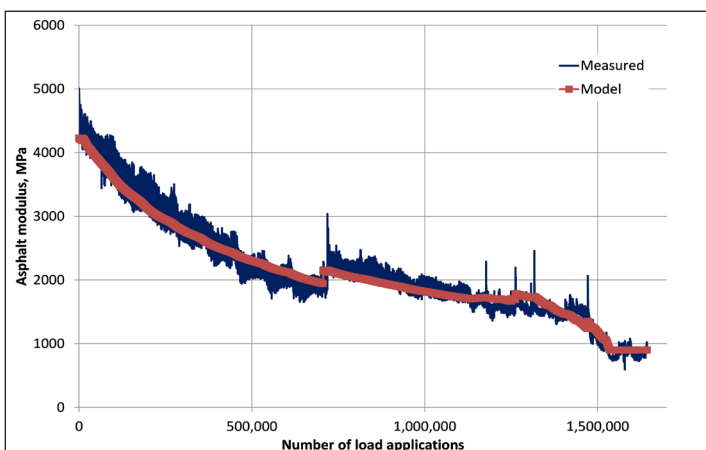
Evaluate new material and calibrate fatigue laws

The Dynatest Fast Falling Weight Deflectometer (FFWD)—an electrically powered Falling Weight Deflectometer (FWD) with faster loading rates was introduced to speed up testing procedures and overall productivity, with loading rate from 5 to 7.5 times faster than any existing FWD device. The higher loading rate of the Fast FWD makes it possible to provide the necessary input to develop 'empirical' relationships through in-situ testing of the actual pavement structure and materials.

Due to limited accessibility of full-scale APT methods, engineers have had to mainly rely on small-scale laboratory test methods. However, the inherent limitations of small-scale laboratory test methods have led to a significant discrepancy between the predictions from different laboratory test methods and hampered their ability to adequately predict the pavement fatigue performance, indicating the need for a more accessible full scale APT.

The (FFWD) is a more compact, economical, viable alternative when facilities, budgetary, or staffing limitations preclude the use of fixed tracks or full-scale mobile testing devices, or where a quick evaluation of new materials is required. The FFWD has been tested as an intermediate Accelerated Pavement Testing (iAPT) method to predict the fatigue performance of a flexible pavement structure as well as to understand the pavement behavior and its response under different loading and environment conditions.

It has been proved by several tests that the FFWD can apply over 100,000 load applications in a reasonable period of time describing, at the same time, the pavement structural condition and the progression of permanent deformation, developing and improving existing material modelling. Therefore, these tests indicates that the FFWD can be used as an intermediate tool, between the small-scale laboratory tests (bending beam tests, shear tests, triaxial) and full-scale APT tests, allowing for improvements in design and maintenance strategies.



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