

Falling Weight Deflectometer

American Engineering Testing, Inc. (AET) Dynatest Falling Weight Deflectometer (FWD).

FACT

Pavement structure design procedures are typically calibrated to pavement performance using data from existing roadways.

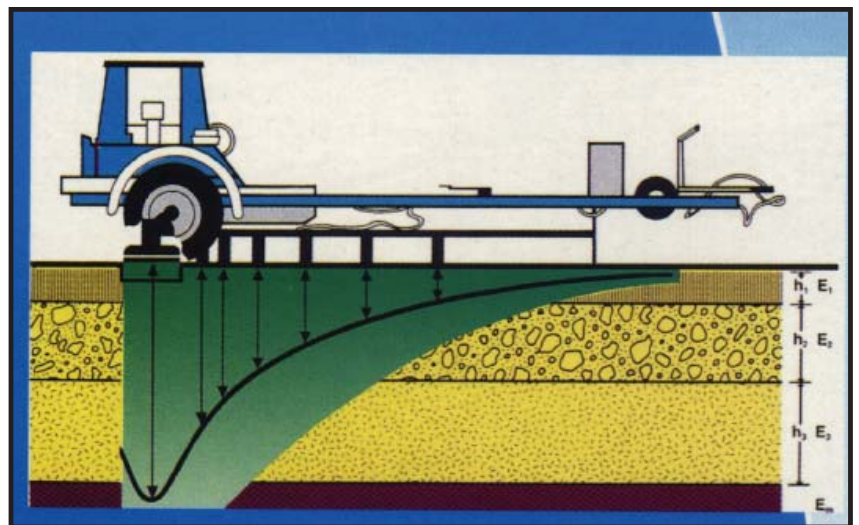
The Dynatest Falling Weight Deflectometer (FWD) is a nondestructive pavement testing device. It quickly and economically provides the data, now becoming necessary, for evaluation of pavement structures. The pavement, base and subgrade response data obtained is utilized in AASHTO's, most recent, Mechanistic-Empirical Pavement Design procedures for design of new pavement structures and rehabilitation of existing pavement structures.

The type of rehabilitation to be implemented on a given pavement is of considerable economic significance. FWD data enhances the design procedure. The data provided by FWD testing and analysis is used in a structural design procedure to calculate pavement bearing capacity, estimate expected life and the required overlay thickness to achieve a desired design life. Pavement rehabilitation techniques include determining optimal mill and overlay thickness based upon desired load carrying capacity, traffic volumes and condition. Mechanistic-empirical analysis is also useful in determining the structural value of recycled asphalt pavements as well as treated and stabilized base and subbase materials. This allows the choice of an appropriate rehabilitation technique.

The FWD applies a load impulse to the roadway surface by a specially designed loading system which simulates the dynamic short term loading of a moving wheel load. The deflection basin response of the pavement is measured with a set of 9 precision geophones at varying distances from the loading plate. AET evaluates the deflection response of the pavement and can calculate the pavement strength as well as the "in-situ" resilient E-moduli of each layer in a pavement structure. The resilient E-moduli of each layer of material are important factors for new pavement design as well as estimating the performance of rehabilitation options.



FWD testing to determine structural capacity of an industrial parking lot



Typical Deflection Basin Courtesy of Dynatest



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