

FISHERINSIGHT

Falling Weight Deflectometer's Role in Selecting the Right Pavement Rehabilitation Treatment

Providing the appropriate pavement rehabilitation treatment is critical to ensuring you get the desired pavement service life. The wrong pavement treatment will result in either additional maintenance costs (if under designed) or the unnecessary expenditure of your already stretched infrastructure funds (if over designed).

Traditional pavement evaluation involves taking pavement cores at select locations, evaluating the cores, and selecting the rehabilitation treatment based on the core results. While this is a valid methodology, it provides location specific

data and does not provide a comprehensive assessment of the entire pavement section within the project limits. **Falling Weight Deflectometer (FWD)** technology generates a comprehensive understanding of the entire pavement structure. FWD is used to evaluate flexible pavement to determine overall structural strength as well as individual layer stiffness. FWD is also used on rigid pavement to evaluate the load transfer across slabs and can detect large voids when significant erosion of the base material has occurred under the slab joints. FWD is commonly used to determine the variability of overall deflection along the roadway alignment. It can also be used to determine the remaining pavement life before a pavement rehabilitation will be required. The FWD applies dynamic loads to a pavement surface, simulating the magnitude and duration of a single heavy moving wheel load.

The FWD loading system delivers a transient impulse load to the pavement surface. The pavement response (vertical deformation or deflection) at various distances from the loading plate are measured by a series of geophone sensors. A typical FWD test applies four different load levels at discrete locations; this test is completed in less than two minutes.



FWD, used in conjunction with pavement cores, provides a corroborated data set on which to determine the most appropriate and cost effective pavement rehabilitation treatment – which in many cases may be a combination of treatments due to varying pavement conditions throughout your corridor.

Fisher Associates utilized this technology most recently on our West Water Street Reconstruction Project in the City of Elmira where the FWD pavement information identified the need for full reconstruction throughout the entire corridor to provide the desired service life in lieu of the programmed mill and overlay. We also utilized FWD on our CR 64 Project for Chemung County which resulted in a cost savings because the pavement was determined to be in better condition than anticipated and did not require as thick of an overlay as was originally planned and budgeted.