

## STRUCTURAL ASSESSMENT OF IN-SERVICE DOWELED CONCRETE PAVEMENT JOINTS

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### *ABSTRACT*

Most jointed concrete pavement failures can be attributed to failures at the joint, as opposed to inadequate structural capacity. The structural condition of the joints are evaluated by applying load at one side of a joint, by Falling Weight Deflectometer (FWD), and measuring the vertical deflection at each side. If the ratio between the deflections on the unloaded and loaded sides, known as load transfer efficiency (LTE), is low, then the condition of the joint is considered as poor and remedial work is needed. However, only measuring LTE may not be adequate, because, at raised temperature joints tend to lock because of expansion of concrete, which may lead to an artificially good load transfer. In this study, approximately 950 deflections bowls were analysed and it was found that LTE alone is not sufficient to evaluate joint condition especially where the problem may be associated with under slab voiding. The results also demonstrated that the underlying defects could be discriminated well if both LTE and void intercept (VI) are used.

**KEY WORDS:** Concrete pavement, joints, Falling Weight Deflectometer (FWD), absolute deflection, load transfer efficiency, and void intercepts.