

ABSTRACT

The paper describes the results of a research project with the objective to develop construction procedures for restoring load transfer in existing jointed concrete pavements and to evaluate the effectiveness of the restoration methods. A total of 28 test sections with various load transfer devices were placed. The devices include Split Pipe, Figure Eight, Vee, Double Vee, and dowel bars. Patching materials used on the project included three types of fast-setting grouts, three brands of polymer concrete, and plain portland cement concrete. The number and spacing of the devices and dowel bars were also variables in the project. The dowel bars and Double Vee devices were used on the major portion of the project. Performance evaluations were based upon deflection tests conducted with a 20,000 lb. axle load. Horizontal joint movement measurements and visual observations were also made.

The short-term performance data indicates good results with the dowel bar installations regardless of patching materials. The sections with Split Pipe, Figure Eight, and Vee devices failed in bond during the first winter cycle. The results with the Double Vee sections indicate the importance of the patching material to the success or failure of the Load Transfer System since some sections are performing well while other sections are performing poorly with Double Vee devices. The horizontal joint movement measurements indicate that neither the dowel bars nor the Double Vee devices are restricting joint movement.