Ultra-Thin Portland Cement Concrete Overlay Extended Evaluation

The Iowa ultra-thin project demonstrated the application of thin portland cement concrete overlays as a rehabilitation technique. It combined the variables of base preparation, overlay thickness, slab size, and fiber enhancement into a series of test sections over a 7.2-mile length. This report identifies the performance of the overlays in terms of deflection reduction, reduced cracking, and improved bonding between the portland cement concrete (PCC) and asphalt cement concrete (ACC) base layers. The original research project was designed to evaluate the variables over a 5-year period of time. A second project provided the opportunity to test overlay rehabilitation techniques and continue measurement of the original overlay performance for 5 additional years.

All performance indicators identified exceptional performance over the 10-year evaluation period for each of the variable combinations considered. The report summarizes the research methods, results, and identifies future research ideas to aid the pavement overlay designer in the successful implementation of ultra-thin portland cement concrete overlays as an alternative pavement rehabilitation technique.