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<b>16. Abstract</b> <p>In this day of the mature highway systems, a new set of problems is facing the highway engineer. The existing infrastructure has aged to or past the design life of the original pavement design. In many cases, increased commercial traffic is creating the need for additional load carrying capacity, causing state highway engineers to consider new alternatives for rehabilitation of existing surfaces. Alternative surface materials, thicknesses, and methods of installation must be identified to meet the needs of individual pavements and budgets. With overlays being one of the most frequently used rehabilitation alternatives, it is important to learn more about the limitations and potential performance of thin bonded portland cement overlays and subsequent rehabilitation.</p> <p>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.</p> <p>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.</p>			
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