Full Depth Reclamation of Asphalt Pavements Using Class F Fly Ash

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ABSTRACT

This study demonstrates the use of Class F fly ash in combination with lime or lime kiln dust in the full depth reclamation (FDR) of asphalt pavements. FDR is a process of pulverizing a predetermined amount of flexible pavement that is structurally deficient, blending it with chemical additives and water, and compacting it in place to construct a new stabilized base course.

With funding from the Ohio Coal Development office, two existing failed asphalt pavements in the fastest growing counties of Ohio were rehabilitated in Summer of 2006 with Class F fly ash in combination with lime and lime kiln dust. After the construction, relationships for the service performance and structural behavior of the FDR pavements were monitored to determine how the fly ash sections compared to other more traditional pavement rehabilitation techniques.

Service performance and structural behavior were determined with the use of sensors embedded in the road and Falling Weight Deflectometer (FWD) tests. This allowed the research team to measure the horizontal strain (longitudinal and transverse), vertical displacement (load deflection behavior), pore pressure, and pressure through the pavement depth and conduct a structural capacity assessment for the reclaimed road. These assessments were done at regular intervals in the order of months so that the time dependent properties of the reclaimed pavement could be evaluated.

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