

Report of Concrete Pavement Evaluation: Project 105 C-4181-01 Donahoo Road, Wyandotte County

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Donahoo Road

Project Description

The physical properties of hardened concrete cores and fresh concrete test results were compared with aggregate gradation workability differences. The concrete cores were taken from a rural two-lane concrete road in northeastern Kansas constructed in 2011. The aggregates were crushed granite and local river sand. The aggregate workability was compared to a target workability for a given aggregate coarseness factor to determine the workability difference.

The workability difference was compared to the total percent air, air void spacing factor, the rapid chloride permeability, the percent permeable voids and the strength of concrete cores obtained in January 2013. The results of concrete tests performed during construction, including compressive strength of cores, slump, total air content and unit weight were also compared to the workability difference.

Project Results

The only statistically significant difference in the hardened concrete properties between the lowest workability difference concrete and the highest workability difference concrete was in compressive strength. This effect was observed in samples cored and tested at the time of construction, but not in those cored and tested later. A correlation may exist between workability difference and total air content. The variability of both strength and air content may also increase with increasing workability difference.

Project Information

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