

HR-205 Effects of Special Aggregate in Bridge Deck Overlay Frictional Properties

Key Words: Aggregate, Bridge deck overlays, Friction, Iowa Method

ABSTRACT

The Iowa DOT has been using the "Iowa Method" thin bonded low-slump dense Portland Cement Concrete (PCC) bridge deck overlay for rehabilitation of delaminated decks since 1963. In time, continued use of studded tires will wear away the transverse grooved texture.

The objective of this research was to evaluate the benefit of incorporating a hard durable aggregate into a dense PCC overlay to provide frictional property longevity. The project included three overlays on I-35 near Ankeny. The texture and friction properties of two overlays, one constructed with crushed granite and the other with crushed quartzite coarse aggregate, were compared to an overlay constructed with locally available crushed limestone.

There were no construction problems resulting from the use of crushed granite or quartzite. There was no significant frictional property benefit from the crushed granite or crushed quartzite through six years.