

INTRODUCTION

The Consolidation Monitoring Device (CMD) was developed for the Federal Highway Administration (FHWA) to continuously monitor the density of plastic portland cement concrete immediately following placement by a paving machine. The device is attached to the rear of a paving machine.

As the strength, chemical resistance, and life of PC concrete are affected by the density, it would be very beneficial to know the density of the plastic concrete. If ~~the~~ concrete were ~~out of specification~~, correction of the problem would be more economical while the concrete was in the plastic state.

LOW DENSITY - WAS ENCOUNTERED

The prototype CMD was field tested in Iowa in 1978. It was concluded that the impossible task of maintaining the necessary one-inch air gap was the probable cause for the poor field correlation with core densities.

To overcome the air gap problem, a method to electronically compensate the density reading for air gap variation was developed and added to the system. The second generation CMD was ready for field testing and in July of 1983, Iowa was again selected as a test site.

OBJECTIVE

The objective was to evaluate the usefulness, accuracy, precision, and reproducibility of the second generation CMD for PC concrete under production conditions.