

ABSTRACT

Many areas in the State of Iowa are presently either in short supply, or entirely void of, high quality coarse aggregate for portland cement concrete pavement. Where adequate quality aggregate does exist, the supply is sooner or later to be exhausted.

A project was conceived to utilize an existing pavement or a reconstruction project. The concept was to crush the old and use as aggregate for the new.

The project selected was 1.5 miles of U.S. 75 in Lyon County, Iowa, located approximately 6 miles south of Rock Rapids. The project consisted of two sections, separated by approximately 4 miles.

The existing roadway was a 10"-7"-10" portland cement concrete, some 18 feet and some 20 feet wide, paved in 1934 and 1936, using gravel as a coarse aggregate. It had been widened with 10 inches of p.c. concrete in 1958 and resurfaced with 3 inches of asphalt concrete in 1963.

Two objectives were involved in this recycling project:

1. To determine if the asphalt concrete surfacing could be removed, the existing portland cement concrete pavement broken, removed, crushed to 1-1/2 inch minus, proportioned through a conventional central mix proportioning plant with the addition of concrete sand, and placed with a conventional slipform paver.

2. To determine if a two course, composite pavement, each course of different mix proportions, could be placed monolithically with conventional slipform equipment after being proportioned and mixed in a conventional central mix plant.

The pavement removal began in March, 1976; the paving was completed in mid-October, 1976.

The project was completed with no major problem. The objectives were satisfactorily met. The project was a success to the degree that the Iowa D.O.T. is proceeding with at least two projects for the 1977 construction season that will utilize the old pavement as aggregate for the new pavement.