

TECHNICAL REPORT TITLE PAGE

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Asphalt Rubber Cement Concrete
Webster County

Final Report, 4-92 to 2-93

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7. ACKNOWLEDGMENT OF COOPERATING ORGANIZATIONS/INDIVIDUALS

8. ABSTRACT

Discarded tires have become a major disposal problem in the U.S. Different techniques of recycling these discarded tires have been tried. The state of Iowa has evaluated the use of discarded tires ground into crumb rubber and blending it with asphalt to make asphalt rubber cement (ARC). This was the sixth project using this process. The project is located on US 169 from the east junction of IA 175 west and north to US 20.

Only the binder course was placed during this research with the surface course to be let at a later date. There were four test sections, two sections with conventional mixtures and two with ARC mixtures.

There were no significant differences in placement or performance between the two mix types. The cost of the ARC mixture was significantly higher.

9. KEY WORDS **10. NO. OF PAGES**

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Recycled tires,
Asphalt rubber cement,
Crumb rubber modifier,
Asphalt concrete

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INTRODUCTION

Recycling discarded tires into asphalt rubber cement (ARC) has been evaluated in several research projects by the Iowa DOT and others. The process used in this project involved blending the crumb rubber with AC-5 before mixing it with the aggregates (this is the so-called "wet process").

Only the binder (lower) course was completed as part of this research. There were areas of reconstruction and finally an overlay of the entire project at a later date. The project contained two test sections with ARC and two control sections with conventional asphalt cement concrete (ACC). The control sections were placed on August 13, 1992 and the test sections later on August 24, 1992.

OBJECTIVE

The objective of this project was to compare the cost and performance of ARC to conventional ACC.

CONTRACTORS

Mathy Construction Company of Onalaska, Wisconsin was the contractor on this project. Rouse Rubber Products of Vicksburg, Mississippi furnished the reactor and the crumb rubber for the project.

PROJECT LOCATION

The project was located on US 169 from the east junction with IA 175 west and north to the junction with US 20. Test sections are shown in Table 1 below. A map is provided in Appendix A.

<u>Test Section</u>	<u>Stations (Mileposts)</u>	<u>Type</u>
1	221+00 (137.76) to 247+00 (138.25)	Conventional
2	303+50 (139.32) to 383+50 (140.84)	ARC binder
3	430+00 (141.72) to 510+00 (143.23)	ARC binder
4	565+00 (144.27) to 590+00 (144.75)	Conventional

PRECONSTRUCTION SURVEY

The original road was a 24-foot wide by 7-inch thick Portland cement concrete (PCC) pavement built in 1930. It had been overlaid with three inches of ACC in 1960. The 1991 traffic volume was 2550 VPD with 12 percent trucks.