

## TECHNICAL REPORT TITLE PAGE

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**1. REPORT NO.**

TR-474

**2. REPORT DATE**

December 2003

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**3. TITLE AND SUBTITLE**

Development of a Mix Design Process for Cold-In-Place Rehabilitation Using Foamed Asphalt

**4. TYPE OF REPORT & PERIOD COVERED**

Final Report, May 2002 to December 2003

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**7. ACKNOWLEDGMENT OF COOPERATING ORGANIZATIONS/INDIVIDUALS**

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**8. ABSTRACT**

The need to provide a safe, efficient, and cost effective roadway system has led to a significant increase in the need to rehabilitate our existing pavements. Asphalt recycling has grown dramatically the last several decades as a preferred way to rehabilitate existing pavements. The rehabilitation of existing pavements has been done using different techniques; one of them, Cold In-Place Recycling (CIR) was evaluated as part of this research.

Most agencies have their own mix design procedure that determines the amount of emulsion based on a mix design using recycled material sampled from the roadway. There is a wide variation in emulsion type, water contents, temperatures, compaction methods, and many other variables between the state and local agencies polled.

This project had the following activities:

- A review was made of past research efforts on foamed asphalt as the binder in CIR.
- The accuracy of the Wirtgen laboratory foaming equipment was evaluated.
- A field study of CIR with foamed asphalt was undertaken.
- A laboratory study was performed comparing several mix designs.

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**9. KEY WORDS**

ACC, HMA, cold-in-place recycling, foamed asphalt

**10. NO. OF PAGES**

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