

## **HR-233 Field Demonstration of Foamed Asphalt**

**Key Words:** Foamed asphalt, ACC, Asphalt mixes

### **ABSTRACT**

In view of the energy, environmental, and economic advantages of the foamed asphalt process using local aggregates in cold mixes and the promising results from Research Project HR-212, a 4.2-mile section of county road in Muscatine County was built with foamed asphalt and local aggregates during August-September 1983. Extensive laboratory evaluation was carried out on five plant mixes representing foamed mixes used in the nine test sections, a laboratory prepared foamed mix, and a laboratory prepared hot mix similar to Plant Mix 1. The foamed mixes were compacted, cured under 15 curing conditions and tested for bulk specific gravity, Marshall stability at 77° F and at 140° F, cured moisture content, resilient modulus and effects of moisture damage due to freeze-thaw cycles, water soaking, and vacuum saturation. In addition, four sets of 83 core samples were taken at 1 to 15 months and tested for moisture content, specific gravity, Marshall stability, and resilient modulus.

In summary, the test road has performed satisfactorily for almost two years. The few early construction problems encountered were to be expected for experimental projects dealing with new materials and technologies.

Overall results to date are encouraging and foamed asphalt mixes have proved to have the potential as a viable base material in areas where marginal aggregates are available. It is hoped and expected that performance evaluation of the test sections will be continued and that more foamed asphalt trial projects will be constructed and monitored so that experiences and findings from this project can be verified and mix design criteria can be gradually established.

For future foamed asphalt projects it is recommended that anti-stripping additives, such as hydrated lime, be added in view of the potential moisture susceptibility of foamed mixes observed in the laboratory evaluation.