Asphalt Stabilization (Asphadur)

Final Report

Introduction

Asphadur (now called 3M Additive 5990) was incorporated into asphaltic concrete on a lane delineation, AC resurfacing, project in Council Bluffs. The experimental feature was included in the eastbound lanes of Interstate 480, beginning at the bridge over the Missouri River and ending at the bridge over North 41st Street. The project was constructed in October 1979.

Objective

The objective of the project was to investigate the manufacturer's claims of improved strength, stability and durability of an asphalt mix.

Construction

The asphaltic concrete was mixed in a Barber Greene batch plant The Asphadur was added in the pugmill. To successfully incorporate the Asphadur, the mix was heated to 400°F to 410°F. The mix was a 1/2" Type A mix laid 2-inches thick.

The intended asphalt cement content was 5.25% of AC-20 and the Asphadur content was 6% of the asphalt cment. Twelve samples of the mix were taken from the project. The average asphalt cement content was 5.16% and the average Marshall stability was 3925 pounds.

Evaluation

Within two years after construction there was one patch and six square feet of alligator cracking had developed. Most of the joints in the portland cement concrete pavement had reflected through the surface. After three years all the underlying joints and cracks had reflected through the surface and some random cracking was present. After four years of service a large increase in the random cracking and large areas of map cracking were observed. The surface had no rutting or shoving after four years of service.

Conclusions

Asphadur is an effective agent for increasing the stability of asphaltic concrete.

Increased strength and durability were not proven by this project.