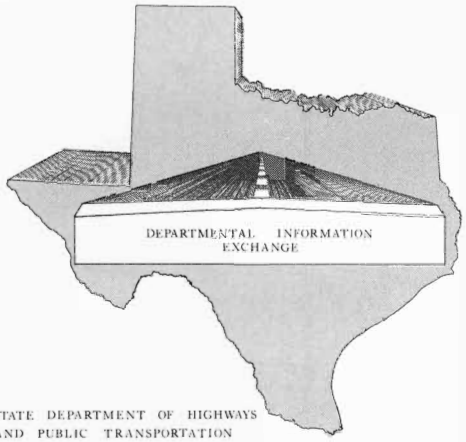

STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION

EXPERIMENTAL PROJECTS

APPLICATION OF A HOT ASPHALT-RUBBER UNDERSEAL OVER ACP PRIOR TO OVERLAY

Category II Experimental Project

Control 142-1-49

IR 10-3(59)469

Interstate Highway 10; Kimble County

From: Kerr County Line

to 9.7 Miles Northwest

Experimental Project Report 606-6

January, 1980

DISCLAIMER STATEMENT

The material contained in this report is experimental in nature and is published for informational purposes only. Any discrepancies with official views or policies of the DHT should be discussed with the appropriate Austin Division prior to implementation of the procedures or results.

Location of Project: On IH 10 in Kimble County from Kerr County line to 9.7 miles northwest.

Description: Application of hot asphalt-rubber underseal over old ACP prior to placement of 1 1/2 inches of Type D ACP overlay.

Purpose: To retard reflective cracking from old pavement to new overlay.

Narrative: The original pavement consisting of 1 1/2 inches of Type B and 1 1/2 inches of Type D ACP was completed in December, 1967 and was beginning to show evidence of considerable cracking in the right lanes of each roadway.

The decision was made to apply an underseal of hot asphalt-rubber prior to placing of a 1 1/2 inch overlay of Type D ACP. A Contract for the underseal and overlay was let in June, 1979 with Strain Brothers, Inc. of San Angelo, Texas being the successful bidder.

The prime contractor sub-contracted the application of the hot asphalt-rubber to Sahuaro Petroleum Company of Phoenix, Arizona. This sub-contract consisted of furnishing and applying only the hot asphalt-rubber and Strain Brothers, Inc. furnished and applied the cover aggregate.

The materials used and the work performed was in conformance with the applicable Standard Specifications and Special Specification 3132 "Hot Asphalt-Rubber Seal Coat".

The rubber used in the mixture was produced by Atlas Rubber, Los Angeles, California. The asphalt, AC-10, and the diluent was produced by American Petrofina, Big Springs, Texas. Cover stone was Class B Type PB Grade 3 as specified under Item 304 of the Standard Specifications and produced by

Whites Uvalde Mines from the Dabney plant with a minimum polish value of 35. The site of the storage, mixing, and weighing operations for the asphalt-rubber was located approximately 3 miles from the west end of the project. Since the unit of measurement for the mixture was by the ton, each distributor was weighed before and after loading on scales later used in the overlay work. The aggregate stockpiles were at 4 separate locations along the length of the project.

The application of the mixture began on August 14, 1979 and was completed on August 27, 1979. The application of the underseal was in two 13 foot widths (26 feet) for each of the roadways and applied at a 16 foot width on all ramps. Traffic was confined to one 12 foot lane and the paved shoulder during the operation for the half widths.

Rubber comprised 25 per cent of the mixture and diluent added to provide a viscosity of approximately 8000-8500 centipoises at 340°-350° F. The temperature at application on the roadway for the project varied from 330° to 350° F. Application was at an average rate of 0.6 gal (4.51 lbs) per sq. yd. and the aggregate was applied at a rate of 1:80.

The contractor used 3 distributors of approximately 4000 gal. capacity for the work. The length of each application was normally 3 rock lands in length in order for the aggregate operation to keep up with the hot asphalt-rubber. Application began immediately behind the distributor and the rolling operation with 2 medium pneumatic rollers started as soon as possible behind this operation. The rates of asphalt-rubber and aggregate seemed to be optimum for this particular project. An elapsed time of 30 days for curing purposes was required before the ACP overlay could be placed. Close observation of the seal coat during this period did not reveal any cracks showing through the surface, any flushing or any loss of aggregate under traffic.