

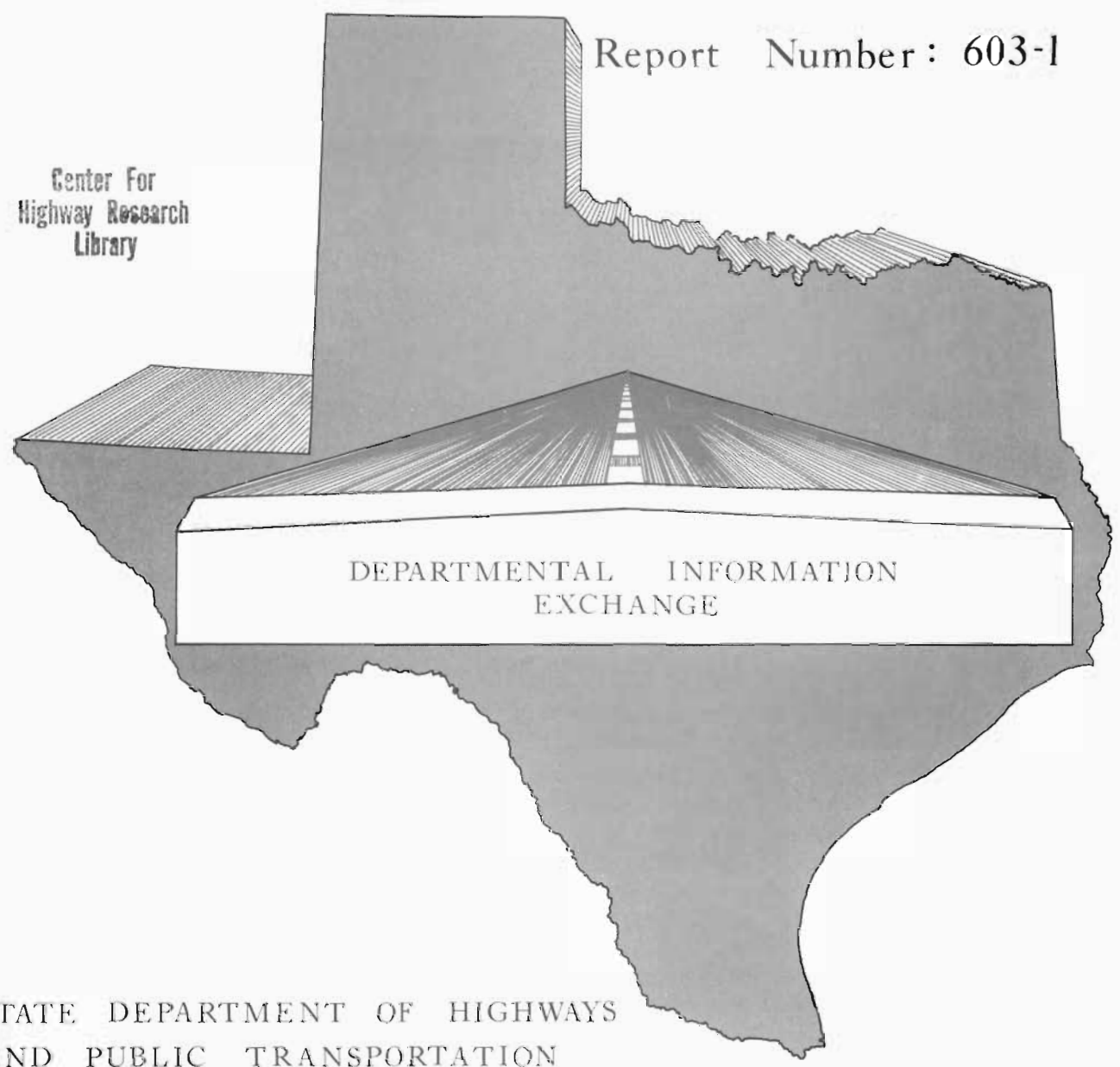
JUL 28 1975

EXPERIMENTAL PROJECTS

LIGHTWEIGHT AGGREGATE SPRINKLE TREATMENT

Report Number: 603-1

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STATE DEPARTMENT OF HIGHWAYS
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L006347

TEST SECTIONS
OF
TYPE "C" ACP
WITH
SPRINKLE TREATMENT SURFACE

U.S. 87, Lynn County
Project C 68-3-18
Control 68-3-18

A NARRATIVE REPORT



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A NARRATIVE REPORT

In February of 1975 Texas Highway Department District Five personnel placed two test sections of Sprinkle Treated Hot Mix Asphaltic Concrete Pavement on U.S. Highway 87 south of Tahoka in Lynn County, Control 68-3-18. Average daily traffic is approximately 3200 on a four-lane divided facility.

The type aggregate which was used for treating the test sections was Grade 4, Lightweight Synthetic produced by Featherlite Corporation, Ranger, Texas. The specification and gradation of this material is found in Item 303 of the 1972 edition of Texas Standard Specifications for Road and Bridge Construction, and the gradation is listed as follows:

		<u>Percent by Weight</u>
Retained on	5/8"	0
"	1/2"	0-5
"	3/8"	20-40
"	No. 4	95-100
"	No. 10	98-100

District Five Maintenance personnel windrowed 10 c.y. of the synthetic aggregate in the maintenance yard. The material was pre-coated with a mixture of 1/3 emulsion, EA-11M and 2/3 water. Six hundred gallons of mixture was used to coat the aggregate in two separate applications. About four hundred gallons was used for the first application, thoroughly mixed and allowed to set overnight for

the emulsion to break. The remainder was applied and mixed the following day.

Mixing was accomplished with a blade. Emulsion mixture was sprayed from an asphalt pot. Precoated material had some tendency to stick together in the stockpile. Application of precoated aggregate to the roadway was accomplished using a 4 c.y. single fan salt spreader mounted on a dump truck. The precoated aggregate was applied between the laydown machine and a conventional three-wheel steel (10-12 ton) knockdown roller by backing the truck down the mat. Truck tires were dieseled and tire pickup was minimal. Tire marks in the mat are evident, but there are no ruts.

Rolling operations were completed using a two-wheel tandem followed by a pneumatic roller.

Aggregate for the Type C Hot Mix Asphaltic Concrete Pavement used on this project was produced from the Moody Neely Pit approximately nine miles southwest of O'Donnell in Dawson County. The material consists of crushed limestone and caliche rock (Los Angeles Abrasion - 24; Polish Value 40). Screenings used were made from the aggregate. Field sand was from a local source. Asphalt (AC-10) from American Petrofina, Big Spring at the rate of 6.7% by weight was used in the mixture. Approximately 63% by weight of the aggregates was retained on the #10 mesh sieve.

Data on the respective test sections are as follows:

Test Section I - Placed 2-13-75

Sta 1121+00 to Sta 1140+00 North Bound Travel Lane - 12' wide

Placed 4 c.y. on 2,533 S.Y. (1,900')

Aggregate Rate 1:633

Retained most of the rock to date.

Sprinkle-treated HMAC Skid Value 4-4-75

High - 35, Low - 28, Avg. - 32

Untreated HMAC Skid Value 4-4-75

High - 37, Low - 27, Avg. - 32

Sprinkle-treated HMAC Skid Value 5-16-75

High - 42, Low - 35, Avg. - 39

Untreated HMAC Skid Value 5-16-75

High - 44, Low - 32, Avg. - 38

Test Section II - Placed 2-21-75

Sta 1474+50 to Sta 1488+75 North Bound Travel Lane - 12' wide

Placed 4 c.y. on 1,900 S.Y. (1,425')

Aggregate Rate 1:475

Retained most of the rock to date.

Sprinkle-treated HMAC Skid Value 4-4-75

High - 36, Low - 32, Avg. - 33

Untreated HMAC Skid Value 4-4-75

High - 37, Low - 27, Avg. - 32

Sprinkle-treated HMAC Skid Value 5-16-75

High - 42, Low - 38, Avg. - 40

Untreated HMAC Skid Value 5-16-75

High - 44, Low - 32, Avg. - 38

COMMENTS

1. At the present time we are concerned of the narrow variance in skid test results between the treated and untreated sections. We believe there is a logical explanation for this. Visual inspection of the project after construction depicted that a thin membrane of asphalt still exists on the wearing surface of the precoated particles. This condition should improve as the surface is subjected to additional wear. Subsequent skid tests will be made periodically and reported.
2. Total cost of the two test sections was approximately \$300.00 or 6.8 cents per square yard. This cost per square yard could be drastically reduced by constructing larger areas.