

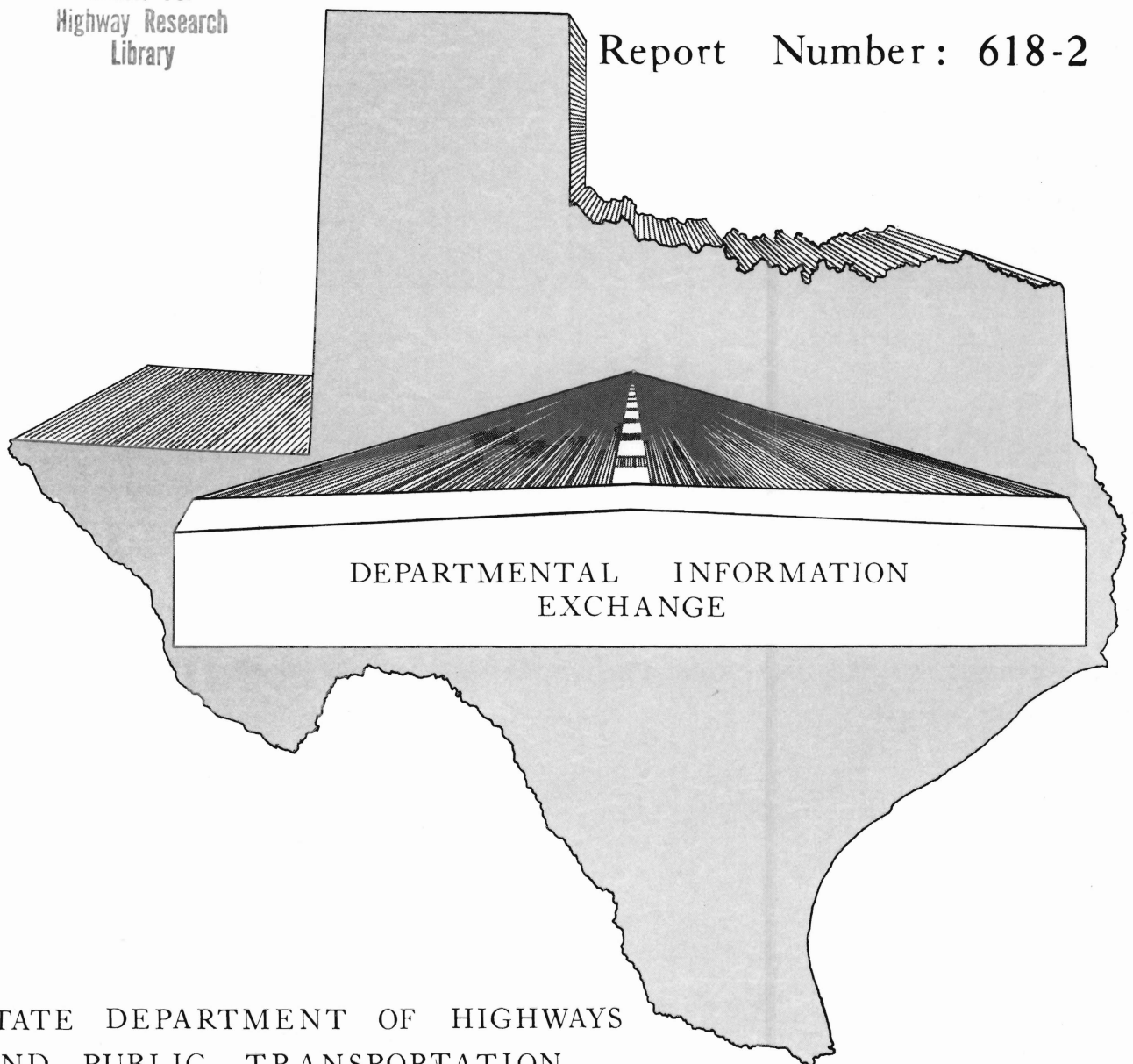
AUG 24 1976 REC'D

EXPERIMENTAL PROJECTS

EXPERIMENTAL PAVEMENT SURFACE IMPROVEMENT USING HEATER PLANER SPRINKLE TREATMENT WITH SANDSTONE AGGREGATE

Center For
Highway Research
Library

Report Number: 618-2



DEPARTMENTAL INFORMATION
EXCHANGE

STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION



L006282

EXPERIMENTAL PAVEMENT SURFACE IMPROVEMENT

USING

HEATER PLANER SPRINKLE TREATMENT

WITH

SANDSTONE AGGREGATE

ON

I. H. 10 WEST

SAN ANTONIO, TEXAS

SPECIAL MAINTIENANCE PROJECT

M 72-12-55

A NARRATIVE REPORT

REPORT NO. 618-2

Prepared by District 15 Laboratory
Donald J. Frye, Supervising Lab Engineer
July, 1976

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.

A NARRATIVE REPORT

In the late summer of 1975, we were faced with an embarrassing and potentially dangerous situation. Portions of a recently completed lightweight asphaltic concrete pavement was flushing and yielding less than desirable skid numbers.

This condition was occurring on the eastbound lanes of I.H. 10 West, between Loop 345 and Wonderland Drive in San Antonio. Traffic counts on the eastbound lanes ranged from 8,000 to 31,500 v.p.d. with a large amount of trucks on this facility.

It was decided to try two methods of corrective action with our forces using the Heater Planer. The first method was to be a Sprinkle Treatment and the second was to attempt to remove the glazed surface by shaving off about 1/8" of the surface.

We had good previous experience with the raw sandstone aggregate on the more conventional method of Sprinkle Treatment and chose to continue with sandstone in this work. As before, we purchased the sandstone aggregate from Heldenfels Inc. Plant on F.M. 624 in McMullen County. This material had a Polish Value of 43 and, as before, conformed to the following gradation requirements:

Retained 1/2" = 0%
Retained 3/8" = 8 - 35%
Retained #4 = 70 - 100%
Retained #10 = 92 - 100%

The Sprinkle Treatment technique ultimately adopted evolved from a series of different methods. We finally settled on applying, by conventional means, the raw aggregate to the surface of the pavement. The Heater Planer was then used in two passes to heat the aggregate and pavement surface in about 200' sections. Rolling followed immediately with an eight ton, three wheel roller.

We placed the Sprinkle Treatment at the gore of an entrance ramp and also placed a short section on Lane A nearby.

Two short sections of Lane A were then chosen and the top of the flushed surface was shaved off with the Heater Planer.

Subsequent testing revealed Skid Numbers in the low 50's on the Sprinkle Treated sections and mid 40's on the shaved sections. However, the shaved sections soon lost their good friction qualities, while the Sprinkle Treated sections continued to be satisfactory.

By January, 1976, it became obvious that we would need to improve almost all the surface of this eastbound facility, the outside lane, Lane B, was the most critical. When weather permitted we placed the Heater Planer Sprinkle Treatment on the worst sections of Lane B. However, even on relatively warm days we had difficulty in getting the aggregate and surface hot enough to obtain good retention of the aggregate. We had attempted to place the aggregate at a rate of 1:400; at that rate the retention was less than desired. On the 3.6 mile section that was treated, the Skid Numbers ranged from 33 to 52, with an average of 43.

In June, 1976, it was decided to Sprinkle Treat Lane A except for a one mile stretch that was in good condition and Re-sprinkle Treat all of Lane B. This work was completed toward the end of the month and was skidded on July 2, 1976, with results as follows:

Lane A (Not Treated)	Low 38, Average 44, High 48
Lane A (Sprinkle Treated)	Low 31, Average 43, High 50
Lane B (Sprinkle Treated)	Low 30, Average 38, High 48

It should be noted that our rolling techniques evolved into the use of two eight ton, three wheel rollers beginning during the January and February work.

Further, it should be noted that on the June work the rate of application was extended to about 1:500. Retention was good.

We have observed several factors that influence the quality of this type of work and offer these comments:

1. Temperature: If at all possible, this type of work should be done during the warmer months of the year. However, temporary work may be done during colder weather in order to treat a particularly hazardous condition.
2. Rolling: Rolling should follow immediately behind the Heater Planer on its second application of heat. Extra rolling will be necessary if the traffic has rutted the wheel paths.
3. Rate of Application of Aggregate: We would recommend a starting rate of 1:500 which can easily be adjusted to fit conditions.

We feel this unique method of restoring good friction qualities to flushing pavement surfaces deserves consideration for further use. Admittedly, we do not yet have all the problems solved but will continue to strive toward that end as we continue the use of Heater Planer Sprinkle Treatment.

This work will continue to be monitored and Skid Results published as they are obtained.