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MICHIGAN  
STATE HIGHWAY DEPARTMENT  
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THIRD CONDITION SURVEY OF EXPERIMENTAL CONTRACT  
RESEALING AND PATCHING

US-16 Nunica to Fruitport  
Project Mc 70-28, C3

(Research Project 53 G-68)

by  
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Cooperative Research Program Between the Maintenance  
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### THIRD CONDITION SURVEY OF EXPERIMENTAL CONTRACT RESEALING AND PATCHING

A third complete condition survey of the experimental contract resealing and patching project on US-16 between Nunica and Fruitport was carried out on March 19, 1956. The resealing of joints and cracks and the repair work on broken slab corners of this pavement had been done during the period of August 11 to September 18, 1953 (Reports 197, Oct. 9, 1953 and 197A, Dec. 4, 1953). The first condition survey was made on Feb. 18, 1954 (Report 197B, March 31, 1955) and the second on March 16, 1955 (Report 225, March 31, 1955). These three surveys, including the current one, indicate the condition of the sealed cracks, the resealed joints and the concrete patches after 5 months, 1-1/2 years and 2-1/2 years of service under varying weather conditions.

The previous survey (Report 225, March 31, 1955) indicate that the Brand A sealer had failed in all transverse joints and open cracks where it was used and that the Brand B sealer had developed adhesion and cohesion failures in about half the transverse joints containing this material. The Brand C material had adhesion failure in only a few transverse joints while most of the Brand C joints were still in good condition. The other three materials in transverse joints were still in good condition. Open cracks sealed with Brands A and C sealer had failed in cohesion. The entire longitudinal joint and all fine cracks were still well sealed regardless of the brand of material used.

In the current survey it was found that the only major changes since the previous survey had occurred with Brands A and C sealer in transverse joints. With the exception of a few adhesion failures, Fig. 1-A, all the Brand A failure is now manifested as cohesion failure, Fig. 1-B. The deterioration of Brand B sealer has continued to the point where all transverse joints containing this sealer have failed in adhesion, Fig. 2.

The remainder of the maintenance repairs appear to be in exactly the same condition that they were a year ago. The Brand C sealer still shows adhesion failure in only a few transverse joints with most of them in good condition, Fig. 3. Transverse joints containing Brands D, E and F are still well sealed with no apparent failures of any kind, Fig. 4.

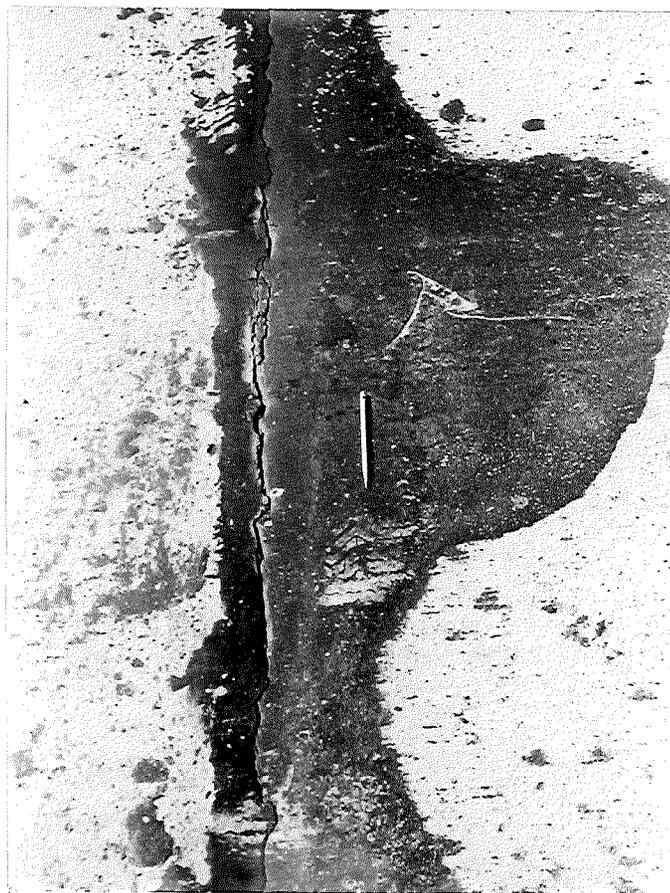
Open cracks sealed with Brands A and C still show cohesion failures, Fig. 5, while the longitudinal joint and fine cracks are still completely sealed, regardless of the brand of sealer used.

The concrete patches are still remaining bonded to the old concrete and are intact, although some scaling of their surfaces is now apparent, Fig. 6.

It is encouraging to find that such a small amount of change has taken place in these maintenance repairs during the past year. If further changes take place at this same rate, a relatively long life expectancy is indicated for the sections of pavement resealed with Brands D, E and F and possibly Brand C. This would appear to justify the extra care taken in cleaning and sandblasting the joints of this pavement before sealing.



A. Station 655+50 N. Failure mainly in adhesion.



B. Station 629+30 N. Failure mainly in cohesion - Typical of Brand A failures.

Figure 1. Transverse Joints Resealed with Brand A sealer.  
Appearance on March 19, 1956.



A. Station 645+50 N. Adhesion failure - Typical of joints resealed with Brand B.



B. Station 646+45 N. Best joint containing Brand B. Adhesion failure only near pavement edge.

Fig. 2. Transverse Joints Resealed with Brand B Sealer.  
Appearance on March 19, 1956.



A. Station 514+97 S. The sealer in this joint has lost adhesion to the joint face.



B. Station 587+52 N. This joint has no failures and is typical of joints containing Brand C.

Figure 3. Transverse Joints Resealed with Brand C Sealer.  
Appearance on March 19, 1956.



A. Station 482+50 S. Brand D  
in good condition.



B. Station 461+00 N. Brand E  
in good condition.



C. Station 430+20 N. Brand F  
in good condition.

Figure 4. Joints Resealed with Brands D, E and F.  
Typical Appearance on March 19, 1956.



A. Station 582+60 S. Sealed with Brand A. Failed in cohesion.



B. Station 582+60 N. Sealed with Brand C. Failed in Cohesion.

Figure 5. Typical Appearance of Open Cracks on March 19, 1956.

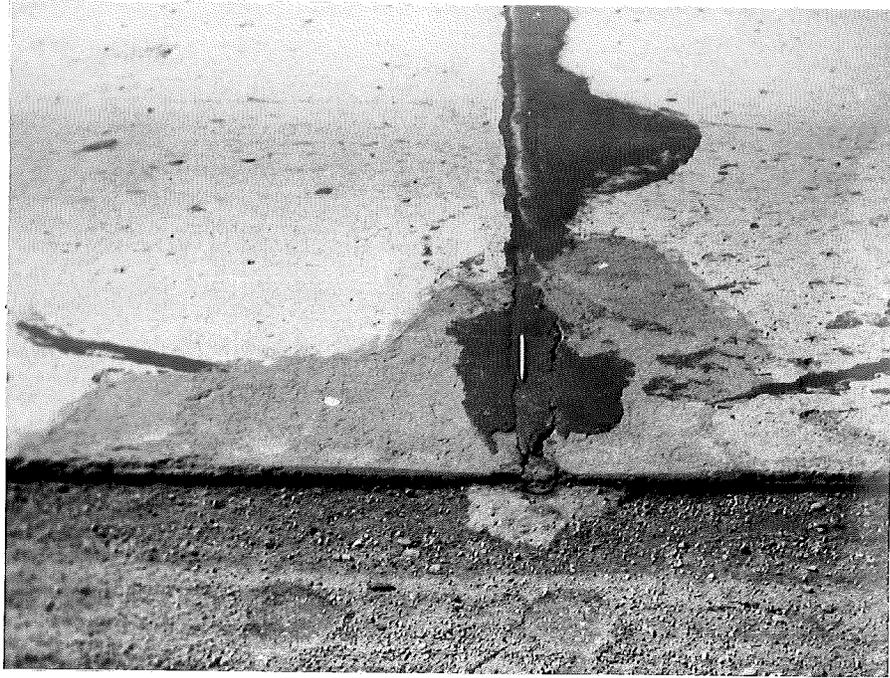


Figure 6. Station 451+00 N. Typical Appearance of Repaired Corner Breaks on March 19, 1956. After 2-1/2 Years of Service.