

MICHIGAN  
STATE HIGHWAY DEPARTMENT  
Charles M. Ziegler  
State Highway Commissioner

REPORT ON RESEARCH LABORATORY

JULY, 1943 - JULY, 1944

By

E. A. Finney

Research Laboratory  
Testing and Research Division  
Report No. 55  
June 15, 1944



MICHIGAN  
STATE HIGHWAY DEPARTMENT  
LANSING

89

CHARLES M. ZIEGLER  
STATE HIGHWAY COMMISSIONER

June 15, 1944

H. B. Dirks  
Dean of Engineering  
Olds Hall of Engineering  
Michigan State College  
East Lansing, Michigan

Dear Dean Dirks:

It is my pleasure to submit the following report covering the activities of the Research Laboratory, Testing and Research Division for the year ending June 30, 1944.

During the year just concluded the Research Laboratory has been able to show consistent progress in spite of limited personnel and added work. Some long range projects have been temporarily suspended which has naturally resulted in an intensified effort directed to certain projects nearing completion, short-term projects, and to those intimately associated with the Highway Department's post-war planning program.

Following are brief statements about the work in progress during the past year.

The Michigan Test Road: This major long range research project of the Research Laboratory has been given full consideration in all its different phases. A progress report on the Durability Section has been completed and is now being prepared for publication. Also the preparation of a progress report on the Design Section is being prepared at the request of the Public Roads Administration for presentation at the Highway Research Board meeting this fall. Analysis of data obtained thus far from these studies is influencing to a considerable extent the design of concrete pavements for post-war construction.

Cooperative Projects: A cooperative research project between the Michigan Agricultural Experiment Station, the Michigan State Highway Department, and the Bureau of Plant Industry of the United States Department of Agriculture, relative to turf growth for airfields and highways has been established.

Page 2 - June 15, 1944  
H. B. Dirks

The Research Engineering Laboratory of the University of Michigan has asked the Research Laboratory to cooperate with them on a project involving the testing of model concrete pavement slabs to verify present stress formulae and to study slab action under various type loadings.

The Laboratory has prepared a technical report covering the micro-analysis of concrete pavement scale for publication as a Bulletin of the Engineering Experiment Station at Michigan State College.

Miscellaneous Long Range Projects: The following projects are in active progress.

1. Concrete Pavement Design. Including the determination of sub-grade bearing values, coefficient of friction of different subgrades, load stresses and slab thickness.
2. Membranes Curing of Concrete Pavements. Including a survey of curing materials on the market and a study of their performance under working conditions for the purpose of improving specifications.
3. Changes in Characteristics of Hot Curing Asphaltic Oils. Samples from several selected test projects are submitted each year to the laboratory for study and analysis of changes which take place in the bituminous material with time.
4. Compilation of Design and Construction Data Pertaining to Concrete Pavements. This work pertains to all concrete pavements on the State's trunk line system and the associated data will be of great value in the process of evaluating the many factors incidental to the service behavior of concrete pavements in Michigan constructed during the past twenty years.
5. Development of Joint Sealing Compounds. The Laboratory is continuously attempting to improve by experiment and study the characteristics of bituminous joint sealing materials.

Short Term Projects: During the course of a year several short term projects have come up for consideration among which are:

1. Colored Concrete for Highway Ramps.
2. Abnormal Failure of Concrete Pavement, Kalkaska to Mancelona.
3. Condition Survey of Concrete Recapped Projects.
4. Stripping and Painting of Highway Signs.

Page 2 - June 15, 1944  
H. B. Dirks

During the past year the Laboratory furnished part-time employment to twelve engineering students at various periods, some of whom have found subjects for further scholastic work in the field of highway research.

The friendly relationship between the college staff and the research personnel has been most gratifying and it is hoped that this feeling of mutual cooperation will continue in the future.

Yours very truly

W. H. McLaughlin  
Testing and Research Engineer

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