

MICHIGAN
STATE HIGHWAY DEPARTMENT
Charles M. Ziegler
State Highway Commissioner

REPORT ON RESEARCH LABORATORY

1944 - 1945

By

E. A. Finney

Research Laboratory
Testing and Research Division
Report No. 71
July 10, 1945

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

Dear Dean Dirks:

As requested in your communication of June 30, I am submitting herewith a brief report summarizing the activities of the Research Laboratory for the year ending June 30, 1945.

The work of the Laboratory during the past year has been concentrated primarily on two major projects; first, the preparation of a progress report at the request of the Public Roads Administration covering the slab behavior on the design project of the Michigan Test Road during the past four years; and second, the preparation of design recommendations for the use by the Department in their post war construction program. This work has been completed.

Other projects of special interest which have been in progress during the past year include an investigation concerning the use of synthetic latices with liquid asphaltic materials for the development of a satisfactory joint-sealing compound for concrete pavements. The work so far has revealed the fact that certain synthetic latices can be used successfully for this purpose. The resulting products have physical characteristics similar to those compounds in which natural latex has been used. The project is still in the laboratory stage.

During the year a model concrete slab was constructed at Ann Arbor in cooperation with the Engineering Research Laboratory of the University of Michigan for further study in connection with concrete pavement design. The slab was subjected to various types of loadings simulating common truck axle and wheel arrangements. Stresses in the concrete slab at predetermined points were obtained by means of R. S. type electrical strain gages cemented to the concrete slab. The results from this work have encouraged the continuation of the project using full scale pavement slabs.

An experimental grass plot consisting of various soil mixtures common to highway shoulder construction was prepared in cooperation with the

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Soils Department at Michigan State College. The turf development under the various soil conditions is now under observation.

A technical report covering the study of concrete pavement scale was published as a bulletin of the Engineering Experiment Station.

A new project concerned with the use of Sodium Chloride on concrete pavements for ice control purposes was started last winter. There is indication that the project will disclose additional data on the effect of age of concrete in relation to its ability to resist the disintegrating effect of chloride salts.

The laboratory has prepared and published a compendium of design and construction data pertaining to concrete pavements constructed on the State's trunkline system prior to 1944. This information will be of great value for future reference especially in connection with various research problems on concrete pavement design or allied subjects.

In addition to the above activities the laboratory has completed several short projects of particular interest to certain members of the Department. These projects include; blowups on bituminous capped pavements, transit mixed concrete containing air entraining cement, unusual cracking on certain concrete pavements, the use of Vinsol resin in bridge structures and hardening of wood by chemical process. Certain long range research projects have been continued in active progress.

Mr. L. D. Childs, formerly an instructor in the Mathematics Department at Michigan State College joined the staff of the Research Laboratory last July.

In conclusion, I wish to express my sincere appreciation for the splendid cooperation accorded by the Engineering Staff of the College. I am looking forward to the time when conditions will permit more active cooperation between the Research Laboratory and the Engineering Experiment Station on research problems of mutual interest.

Very truly yours,

E. A. Flinney
Assistant Testing and Research
Engineer in charge of Research

EAF:GT

CC:WNL