

## OFFICE MEMORANDUM

MICHIGAN

STATE HIGHWAY DEPARTMENT



April 21, 1965

To: W. W. McLaughlin  
Testing & Research Engineer

From: E. A. Finney

Subject: Plastic Signal Lenses. Research Project 54 G-73(4). Research Report No. R-515.

An investigation of plastic signal lenses was requested by H. H. Cooper in his letter of July 2, 1964. The Lancaster Glass Co. submitted colored lenses suitable for testing, but the clear lens sample required to perform photometric testing has not been received, and thus, laboratory data are not available.

Information has been gathered from various sources regarding plastic lenses. On the basis of candlepower distribution data obtained by the Electrical Testing Laboratories, plastic lenses adequately meet the requirements prepared by the Institute of Traffic Engineers. Color of the plastic lenses was discussed with A. H. Caesar of Rohm and Haas, who stated that green transparent Plexiglas H (high heat) has not been approved by the Institute of Traffic Engineers. Red and yellow have been approved. Color tests performed by the Research Laboratory showed that the red and yellow lens colors closely matched the dark limit ITE specification colors for traffic signals, and that the green lens was well within the limit colors.

Since the Elizabeth Division of ESNA Corp. did not respond to Department requests for sample AGA-Stimsonite lenses, their local sales representative was asked about this lack of cooperation. We were informed that AGA had dropped the sale of plastic lenses and was not anticipating further promotion of this product. No basic reason was given for this action, and Dr. Leberknight of Kopp Glass, Inc., was asked about the status of plastic lenses. Dr. Leberknight stated that plastic lenses presented an objectionable surface appearance, perhaps caused by the very sharp prism edges. Glass lenses cannot be molded with such sharp edges, and therefore, tend to diffuse light uniformly over their surfaces. It was assumed that lens appearance was the reason for the AGA action.

The recent Tentative Standard for Adjustable Face Vehicle Traffic Control Signal Heads published by the Institute of Traffic Engineers specifies that the lens material

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should be glass. The previous ITE Standard did not specify lens material. This change also may indicate the use of plastic lenses for traffic signals is not desirable at this time.

OFFICE OF TESTING AND RESEARCH

E. A. Finney, Director  
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EAF:MHJ:nl

cc: H. H. Cooper  
M. H. Janson