

# Development and Evaluation of Experimental Information Signs

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## ABRIDGMENT

•AS freeway entrance ramp metering becomes a more widely accepted operational tool of the traffic engineer, the desire to reduce those adverse effects resulting from its employment increases. Studies conducted by the Chicago Area Expressway Surveillance Project have shown that the major portion of the delay is confined to the queues that develop on a controlled ramp.

This paper summarizes the development and evaluation of one technique that can be used to reduce the effects of queues. The potential expressway user has only a modicum of real-time information concerning traffic conditions existing along his route. If the driver were made aware in advance of the amount of delay that might accrue to him if he used the nearest controlled entrance ramp, he might divert to another entrance ramp or use the arterial street system for his entire trip. The efficiency of the highway system could be improved if his extra travel time were less than the delay he would have experienced at the nearest ramp.

Four color-coded changeable message signs were installed to provide the expressway-bound motorist with current expressway traffic information. The sign face is in the form of a map representing the arterial streets, entrance ramps, and the freeway. An arrow-shaped opening is cut out of the face of the sign at each location where traffic conditions are to be displayed. A translucent color wheel, divided into red, yellow, and green sectors, is placed inside the sign between each opening and a flood lamp. Each sign has four openings and displays information for the ramp and freeway at the nearest and next downstream entrance ramp. A digital computer and control system causes the appropriate sector of the color wheel to appear in the opening.

The evaluation of the sign's effect on the driver's decision process was conducted in two phases. The first phase was an attempt to estimate the alteration in traffic patterns caused by the signs. The policy under which the signs were operated did not allow erroneous information to be knowingly displayed, and only a limited amount of data could be obtained. The data indicated that the maximum diversion attributable solely to the signs could constitute about only one-fourth of the total diversion.

The second phase of the evaluation utilized a questionnaire to determine comprehension of and response to the sign. In general, most motorists that passed the sign understood its purpose. A large portion (50 percent) of the sample indicated that they made use of the displayed information in selecting their route.

Thus, two different techniques for determining the use of the sign information have produced somewhat divergent results. Additional investigations in the area of driver information are needed before dissemination systems can be planned on a rational basis.