

ABSTRACT

An Analysis of Driver Behavior at Narrow Bridges

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Narrow bridges and their approaches have historically borne a disproportionate share of accidents. Current criteria for determining whether a bridge is narrow are based primarily on the width of the bridge and the type of highway on which the bridge is located. Little consideration is given to other criteria such as bridge length, geometry, construction, or roadway approach characteristics. No consideration is given to driver behavior in defining a narrow bridge.

The objectives of this study were to identify the perceptual parameters affecting driver behavior at narrow bridges and to classify narrow bridges in terms of these perceptual parameters.

Preliminary studies at narrow bridge sites indicated that driver behavior could be expressed in terms of changes in speed and position. These studies, in conjunction with a review of previous research, also identified the parameters which influence driver behavior. A study was made using multiple linear regression techniques to quantify and rank these parameters. Equations were developed permitting estimates of driver behavior expressed as a changed speed or position at the entrance to the bridge, given the values for the various parameters used in the

equations. Graphical procedures for solving these equations are developed.

Inadequacies of current data gathering techniques and the restrictions they engender on field and laboratory studies of driver behavior are identified and discussed. Suggestions for improvements in these techniques are set forth.