

Motor-Vehicle Accident Rates as Related to Design Elements of Rural Highways

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ABRIDGMENT

•THE results obtained from Phase 2 of the National Cooperative Highway Research Program Project 2-3 are summarized.

The study utilized highway and accident data from Ohio, Connecticut and Florida. The highway network of each state was subdivided into segments, each 0.3 mile long, each with known ADT, each homogeneous with respect to number of lanes, access control, and median, and each containing known geometric elements (curvature, gradient, intersections, and structures). Data of accidents occurring on the highway were affixed to the segment containing the site of occurrence. Proper grouping allowed calculation of accident rates for the various geometric elements.

The results showed that access control had the most powerful accident-reducing effect; one-vehicle accident rates (MVM) decreased with increasing ADT and multi-vehicle accident rates increased with increasing ADT; with no median and no access control, four-lane highways had higher accident rates than two-lane highways; medians tended to decrease the number of accidents, although the effect was not clear-cut; presence of curvature, gradients, intersections, and structures increased accident rates—intersections being the dominant element; presence of combinations of these elements generated higher accident rates than the presence of individual elements; the effect of grades and curves appeared to be constant for all gradients above 4 percent and for all curvature sharper than 4 degrees.

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