

HIGH-SPEED SKID TESTING AT UNIVERSITY OF TENNESSEE

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•MOST skid tests carried out to date have been at modest vehicle speeds, i. e., 30 to 40 mph. Skid coefficients for higher speeds have been extrapolated from the results of these tests. The work of the Tennessee Highway Research Program (THRP) and other organizations has pointed to the questionable accuracy of this procedure.

Because the Interstate System of highways has provided the public with opportunities to travel at sustained speeds of 70 mph or higher, some knowledge of friction coefficients is needed for those speeds. A high-speed skid trailer built by the THRP and capable of operation in the 75- to 80-mph range is now being used to obtain high-speed skid data. These data are being used in two ways:

1. To attempt to find a minimum acceptable high-speed skid coefficient through a study of wet-pavement accidents and
2. To correlate high-speed friction coefficients with those usually measured (at lower speeds) to determine if high-speed data are truly necessary in order to classify a pavement as slippery.

To date, 80 test locations have been chosen from which accident data have been collected for the calendar year 1967. Although results are too sketchy to be statistically valid, indications are that correlations between wet-pavement accidents and high-speed coefficients are similar to those obtained by using data obtained at lower speeds. Additional work is planned in this area.

Work correlating pavement slipperiness rankings (using coefficients measured at 40 mph) with similar rankings for higher speed data has produced encouraging results. Use of the Spearman Rank Correlation Coefficient and the Student t-test (at the 1 percent significance level) indicates that there is no difference between highway slipperiness ratings made with low-speed data and those made with higher speed data. These results will be amplified when complete data are available.

On the basis of work done thus far, it may well be that more costly, delicate, and hazardous high-speed skid tests will not be necessary to assess a pavement's likelihood of causing a wet-pavement accident. Certainly, results to date are increasing our knowledge in this area.