

SUMMARY OF WORKSHOP ON ANTI-SKID PROGRAM MANAGEMENT

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•PARTICIPANTS in the Workshop on Anti-Skid Program Management stressed that skidding and its many related factors constitute a very serious and complex challenge in highway transportation. Skidding is clearly a major problem that is increasing and that warrants commitment of very substantial manpower, funds, and top-level support.

Whitehurst stated that the basic purpose for a comprehensive anti-skid program is to provide highway users with levels of pavement-tire skid resistance sufficient to permit all appropriate driving maneuvers with reasonable margins of safety. The fact that, under the 1966 Federal Highway Safety Act, the federal government can require a program meeting certain standards should help to attain better progress.

Baldwin's paper on assembly and usage of accident data should be required reading by all who are, or should be, concerned with anti-skid programs. He pointed out that accident records can provide sound guidance to a state in its anti-skid program, although the overall performance level is not yet up to its full potential. For example, only 19 states (of the 37 responding) in 1967 said that they used accident information for the detection of slippery pavement sections. Baldwin showed the correlation between side-force coefficient and skidding accident rate and the relation between rainy weather and accidents.

Ricker described the progressive program of the Pennsylvania highway authorities in using accident data to identify wet-pavement accident locations. He stressed the importance of the kind, quality, and accuracy of information provided in accident reports. In Pennsylvania, determination of accident location is given much attention. Cluster listings and tabulations of sections of highways involving high proportions of accidents in wet weather, as well as "search by hazard," provide information leading to skid-test lists. Any section (at present) with a skid number of less than 30 is treated immediately. Those with a skid number of 30 to 40 are placed on future programs for corrective measures. The Pennsylvania program has not been in effect long enough to make significant "after" studies.

Goodwin stressed that a sound management approach can be a major contributor to success in highway safety programs. Inspection of highway characteristics and inventory of pavements as to level of skid resistance must be continuing programs in each state. The methods and importance of vehicular inspection are important. Inspection programs should be useful in achieving the objectives of an anti-skid program and should be reviewed to ascertain their effectiveness.

Oliver presented legal concepts and case law relating to wet-weather conditions. His paper should receive the careful attention of state, county, and city attorneys as well as other officials dealing with anti-skid matters. Because government immunity has been increasingly challenged, there has been a substantial increase in litigation against government agencies in performance of proprietary functions. Because of the difficult financial problems of state and local governments, Oliver believes that courts will likely give more attention or emphasis to contributory negligence by the driver in relation to driver recovery of damages. Decisions allowing recovery for accidents on slippery roads have been based on not just the presence of slick conditions but the presence of a defect or obstruction. Oliver pointed out a number of other factors of importance in such litigation. The matter of legal responsibility of highway transportation agencies and officials is very important. One of the workshop groups recommended

that the Highway Research Board consider sponsoring a meeting on that subject. A digest concept was proposed.

Ivey, Keese, McNeill, and Brenner stated that there currently exist mismatches among driver capability, vehicle capability, and highway conditions. Elimination of such mismatches should be a primary goal of any program to reduce skid-initiated accidents. The interaction of driver, vehicle, and roadway has not been successfully synthesized, although it is critically needed. In research, relatively minor emphasis has been placed on interaction of variables. Almost all investigations have been based on empirical information, and there have been relatively few attempts to quantify effects theoretically. Nonetheless some important developments are occurring, and there is now much technology ready to be applied.

Mahone and Shaffer cited four major ingredients of a successful corrective program: (a) responsible attitude toward providing skid-resistant roads; (b) knowledge of friction needed; (c) reliable friction measuring method; and (d) technical knowledge of materials and methods, such as superelevation, spot improvements, resurfacing, grooving, elimination of sharp curves, and other techniques, used in providing skid-resistant roads. They mentioned British goals of skid numbers of 55 for high traffic roads, 50 for medium traffic, and 45 for lesser traffic. They also indicated that in Virginia lower skid numbers than expected are being obtained on heavy traffic roads.

The following points were raised repeatedly during the workshop:

1. There is a basic need for a much clearer understanding and quantification of anti-skid needs of drivers in carrying out the various driving maneuvers such as deceleration, acceleration, cornering, cornering while decelerating, overtaking, and passing;
2. This basic need can only be met when satisfactory and reliable measurements are made;
3. Tentative minimum levels of skid resistance for various situations and conditions must be set; and
4. Those responsible for highway safety must decide, on a local basis, how best to achieve and maintain at least minimum standards in a continuing anti-skid program.

In my opinion, two areas that did not receive enough attention at the workshop are the precautionary actions that drivers can take to decrease skidding accidents and the kinds of materials used in tires and their effects on skidding.

Because there are so many factors that influence an anti-skid program, priorities should be established for actions that experts in the anti-skid field need to take. The following are but a few of the many that should be considered.

1. Establish and maintain support for the program by improving communications among administrative, legislative, and judicial officials, researchers, interested groups, and the general public;
2. Develop techniques that will decrease the threat of skidding accidents;
3. Make research findings available as soon as possible, and implement research results that already exist and are applicable;
4. Prepare "white paper" explaining the importance of anti-skid work and justifying the need for more research; and
5. Summarize recommendations of this workshop so that they can be used as guidelines by highway transportation administrators and maintenance men during 1972.