

DRIVER AWARENESS OF WET WEATHER SKIDDING ACCIDENT POTENTIAL (Abridgement)

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This field study investigated the driver's general awareness and response to warning signs in a potentially hazardous situation of wet pavement subjected to high lateral friction demand. Detailed vehicle performance data were collected, and speeds were used as the primary indication of hazard awareness and sign response. Driver interviewing was used to establish the motorist's cognizance of the hazard and his observation of the warning sign. Selected driver characteristics were obtained during the interview and were compared to hazard responses. (1)

Three curved highway sections were treated using five experimental signing conditions. Comparisons between all signs and the "no sign" condition were made for wet and dry pavements. Normative driving behavior data were used to resolve time-of-day speed variations. Experimental signing conditions were comprised of variations to the "Slippery When Wet" symbolic sign, ranging from its use by itself through increasing levels of specificity and conspicuity, to its use with flashing beacons and an advisory speed limit.

Specific vehicle performance measures examined were speeds and mean acceleration/deceleration. The primary measure of signing effectiveness was mean speeds at critical curve locations. The highest quartile speed group (fastest 25 percent) of vehicles arriving at the advance speed trap was selected as the target sample. Table 1 lists mean speed differences between wet pavement and normative driving for the target sample demonstrating increasingly improved responses for higher levels of sign conspicuity and specificity. A separate analysis of speeds obtained during the "no sign" condition demonstrated that little, if any, improvement resulted from use of the symbol sign alone. No significant sign-related changes were observed in mean acceleration/deceleration rates as motorists initiated speed reductions prior to reaching the curve, in cases of effective signing.

Sufficient site characterization at one site permitted a comparison of observed motorists' speeds with the critical wet pavement speed based on the site geometry and pavement characteristics. All high conspicuity experimental signing did result in virtually all motorists driving below that speed during wet pavement conditions. Substantial speed reductions obtained at the remaining sites with high conspicuity signing displayed during wet pavement conditions did corroborate that the flashing

Figure 1. Differences in highest quartile speeds between normal, no signing, dry pavement conditions and experimental signing, wet pavement conditions at site 1.

					
200' Advance	6	1.6	4.8	5.7	7.1
Enter Curve	1.4	3.2	4.9	6.8	7.8
Tight Curvature	2.3	3.7	4.3	5.4	6.4
Leave Curve	1.9	4.6	4.5	5.9	7.1

beacons were effective in warning motorists of the potential hazard.

Questionnaire results were revealing in terms of motorists' responses to experimental signing. Vehicle speeds of interviewed motorists demonstrated that motorists who saw signing slowed down more than those who did not. A driver's recognition of sign message versus appearance alone did not impact on his speed. The more familiar motorists were more likely to see the signs, and those with greater driving practice were more likely to read them. It was shown that the experimental skid hazard warning signs have a marginal effect on motorists' verbal assessment of the site as being a skid hazard.

Certain driver characteristics were linked to general perception of skid hazard. Younger drivers and those with prior skidding experience were seen to be more prone to assess test curves as potential skid hazards. Motorists who drive more miles per year exhibited higher speeds throughout the sites, but they were divided in their assessments of skidding potential. Female drivers were seen to be generally more sensitive to wet weather driving hazards as they gave lower estimates of safe wet pavement speeds, predominantly indicated that skid warning signs were helpful, and indicated a tendency to panic in the event of an unexpected skid.

References

1. F.R. Hanscom. Driver Awareness of Highway Sites with High Skid Accident Potential. FHWA-RD-74-66, 1974, Federal Highway Administration, Washington, D.C.