

FHWA Study Tour for Speed Management and Enforcement Technology

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This report surveyed speed management practices in the Netherlands, Germany, Sweden, and Australia.

Realistic Speed Limits

A prerequisite to developing any effective speed management program is to establish realistic speed limits to match roadway design and area characteristics. The relationship between speed limits and the roadway environment must be credible and consistent. If speed limits are viewed as unrealistic for prevailing conditions by the majority of road users, they won't be obeyed.

Variable Speed Limit

Experiences with variable speed limits on motorways in the Netherlands and on autobahns in Germany indicate that traffic flow can be improved, e.g. a 5 to 15% reduction in travel time has been reported. Accident reductions of 25 to 50% have also been achieved with these systems.

Differential Speed Limits by Vehicle Type

Differential speed limits can lead to large differences in speed, which may have adverse safety effects. No studies have been conducted in the countries visited to determine if the effects are real or imagined.

Speed Governors on Heavy Vehicles

As of January 1995, the European Union countries have required speed limiters on all heavy vehicles. It is too early to tell if speed differences between heavy vehicles and other road users will lead to safety problems. This technology could be implemented on heavy vehicles in the United States. It is likely that there would be little political resistance if top speeds for heavy vehicles were limited to 113km/h (70 mi/h).

Traffic Calming Techniques

Although traffic calming techniques are effective in reducing vehicle speeds, there are concerns with using these methods. Plowing difficulties may occur in snow areas due to the raised curbs and humps. Because calming techniques reduce vehicle speed, response times by emergency medical and fire vehicles may be reduced. In addition, the narrow lanes and curbs are fixed objects, which may invoke legal liability concerns in some communities.

Speed Limits Based on Driver Perception

Perceptual techniques, i.e., road narrowing through pavement markings, tactile strips, etc., give the driver visual indications that the roadway is intended for lower speed operations. Experience in the Netherlands on rural roads indicates that these methods can reduce vehicle speeds by 5 to 10 km/h and reduce accidents by 35%.

Public Education and Information

Several innovative education and information techniques were found in the countries visited. For example, in the Netherlands, Germany, and Australia, specific safety messages are conveyed to high-risk groups (based on their accident involvement) through rather unconventional methods. Music and sports figures were used to relay safety concepts to teenagers. In New South Wales, traffic safety curriculums have been developed and introduced into all grade levels in secondary schools.

Enforcement Technology

Europeans and Australians make more use of enforcement technology in comparison to jurisdictions in the United States, particularly Photo radar and red light cameras. Law enforcement personnel in both Europe and Australia have been trying to find more efficient ways of using existing technology without increasing personnel.

VASCAR

VASCAR (Visual Average Speed Computer and Recorder) was used to differing degrees in all countries visited. In the enforcement district surrounding Gothenburg, Sweden, VASCAR is the primary enforcement tool. All new police vehicles in Gothenburg are equipped with VASCAR.

Radar (Radio Distance and Ranging)

Moving and stationary radar was used in all countries visited in a manner similar to how it is used in the United States. In New South Wales, Australia, radar is the primary enforcement tool. All radar in the state is mounted outside the police vehicle to reduce exposure of the officer to radar microwaves, believed by some to cause cancer.

Lidar (Light Distance and Ranging)

Lidar, often referred to as laser, is used or being reviewed in each country visited. The enforcement area surrounding Gothenburg, Sweden, had four laser units available for approximately 100 traffic officers. New South Wales, Australia, plans to purchase as many lasers as they can for use by their 1,000 traffic officers.

Photo Radar

Photo radar is used in some manner in all countries visited. In the Netherlands and in New South Wales, Australia, photo radar was used as an enforcement tool. In Victoria, Australia, widespread use of photo radar is employed as a general deterrent. Because photo radar substantially increases police visibility without the need for additional personnel, this technology should be considered for use in the United States.