SWOV ARTICLE
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Urban distribution

Safety gains with integral approach

Many municipalities seriously attend to their urban distribution policy. More efficient delivery to shops and bars, specific delivery hours during which delivery is allowed, and restrictions on heavy vehicles are intended to reduce inconvenience and environmental impact. Road safety considerations often play no major role in this scenario. This is a missed opportunity, because economic, environmental, and road safety benefits can be gained from an integral approach. SWOV has developed a method that can show the extent of these road safety benefits. This is described in the SWOV report *Urban distribution: conceptual approach to road safety improvement*.

The 'old' urban distribution policy consists of restricted delivery times and restrictions set to lorries, such as maximum mass and/or length. The new distribution policy is more concerned with logistic organization and the use of smaller vehicles. However, the aspect of road safety is absent from this policy, even though in 2009 95 fatalities due to crashes with lorries in urban areas were recorded. Therefore, the Urban Distribution Ambassador has wisely included road safety as a point of attention in his National Action Programme. He states that 'the SWOV road safety scans are important for a good urban distribution.' A plan for this scan has now been set up.

Four types of measures

Focussing on freight traffic only, four ways of improving its road safety can be observed: by reducing the volume of freight traffic, by having heavy freight vehicles drive at different times (not during the morning rush hour), by using safer vehicles and by using safer routes and safer loading and unloading zones. The SWOV concept scan can in fact calculate the road safety gains of these measures.

Calculating safety benefit

The road safety scan is based on the relation between mobility and crash rate (the number of crashes per kilometre): mobility leads to crashes and crashes result in casualties. The four types of measures reduce or shift the mobility, or they reduce the crash rate. In order to calculate the actual safety benefit, municipal mobility data is required for each hour of the day. SWOV did not have this data, yet, by means of model calculations based on earlier crash data, SWOV could illustrate how the road safety scan works.

Crashes between lorries and cyclists were taken as the starting point. If the amount of freight traffic can be reduced by 20%, cycling mobility and crash rate will remain the same, yet the number of crashes will decrease by the same 20%. If freight traffic is to drive during different hours, the total mobility will remain the same, but lorries and cyclists will meet less, so that the number of crashes will again decrease. Many crashes between lorries and cyclists occur during the morning rush hour. It has been investigated what might occur if freight mobility were to shift from 6 to 9 in the morning to 6 to 9 in the evening. In the model calculations the number of lorry-cyclist crashes decreased by about a hundred. Both the use of safer vehicles

(20% of the total number of vehicles) and the use of safer routes by freight traffic resulted in a notional decrease of a few hundred crashes.

Mobility data

As was mentioned earlier, the results of the model calculations should be considered with a certain restraint. In order to illustrate the effect of the scan, SWOV had to make assumptions and had to use national data for the calculations. A transfer to a specific municipal situation can result in a completely different outcome. The input of the correct data is crucial to a correct road safety scan. This is mobility data that is already being collected by various municipalities to calculate the impact of the distribution policy on the environment. With its report *Urban distribution: conceptual approach to road safety improvement*, SWOV has illustrated that road safety and urban distribution can best be tackled with one integral approach. Road safety can co-benefit from the measures taken by municipalities for the improvement of their urban distribution. And at the same time, municipalities may further be stimulated to organize their distribution policy actively when it becomes clear what its positive effect is on road safety.

Follow-up

SWOV will pay further attention to urban distribution and road safety in the 2011 research programme. Various measures will be monitored on their road safety effect in a pilot study. Attention will also be paid to the Quality Network Freight Transport outside the urban area.

The following SWOV report has been published on this subject:

Urban distribution: conceptual approach to road safety improvement. J. Mesken & C. Schoon (2011). H-2011-2. SWOV, Leidschendam.