

Police enforcement and driving speed

Summary

Although speed plays a large part in the occurrence of crashes, drivers often exceed the speed limit. The police use various methods when carrying out their speed surveillance. In the Netherlands positive effects have been found of speed surveillance with radar cars (without stopping). It is to be expected that average speed checks over longer distances are more credible than controls at fixed locations, because a fine for a longer lasting offence is often seen as more just than a fine for a brief one. By introducing dynamic speed limits, a better relation between credible speed limits and road layout, and a good information provision for road users, the number of speeding offences can be (further) reduced.

Background

Speed is an important factor in road crashes (see the SWOV fact sheet [The relation between speed and crashes](#)). Speed limits in the Netherlands are exceeded on a massive scale with percentages offenders varying from 20% to 40% on most road types (Van Schagen, Wegman & Roszbach, 2004). Many measures in the Sustainable Safety programme (30 km/h zones, 60 km/h zones, roundabouts) aim at reducing speed at dangerous locations. However, because measures affecting the road or the vehicle cannot always be realized in the short term, a higher level of police surveillance of speeding at locations that are more dangerous than average is a measure to increase road safety.

Why is police enforcement necessary?

Police enforcement is one of the measures that can be used to improve road user behaviour. The most important factor in influencing traffic behaviour is a logical and clear organization of the traffic system and the traffic rules. This should result in broad support and voluntary compliance with the rules by the majority of road users. For influencing speed behaviour, it is of the utmost importance that the local speed limits are experienced as credible limits. Credible speed limits are defined as limits that match the road and its surroundings and the actual traffic situation (see the SWOV fact sheet [Towards credible speed limits](#)). In that situation most road users will wish to comply with the speed limits, but there will always be a number of road users who choose to violate speed limits or other rules. Therefore, among all the existing one's, police enforcement is an indispensable tool for influencing traffic behaviour. Police enforcement is a means to exert influence on those road users who forget or underestimate the importance of certain rules, or willingly and knowingly offend against those rules.

How does police enforcement work?

Police controls alongside the road determine what is known as the objective chance of being caught or the enforcement pressure. Based on this enforcement pressure and on what drivers read in newspapers or hear from friends or acquaintances, they estimate how big the chance is that they will be caught when offending (i.e. the subjective chance of being caught). When drivers regard this chance as being sufficiently big, they will avoid traffic offences.

In general, the preventive effects of police enforcement depend on the subjective chance of being caught, the certainty of punishment, the punishment rapidly following the offence, and the social acceptance of usefulness and necessity of the traffic law involved (public support). Each of these elements is a link in the chain of traffic surveillance. For example, if the subjective chance of being caught is small, the penalty, certainty of being punished, and speed of punishment will not make much difference in preventing offences. To increase the subjective chance it is important that controls are accompanied by the necessary publicity, take place regularly, are unpredictable, clearly visible and difficult to avoid. During the 1999-2003 period, more intensive enforcement projects were started in all police regions in the Netherlands, which increased the number of speed controls and both the objective and subjective chances of being caught. Within these enforcement projects the public support for rules and limits is also being increased by accompanying information and communication.

How is speed enforcement legally regulated?

An important legal framework in the Netherlands for police surveillance was introduced in 1992. This is the Administrative Enforcement of Traffic Offences Act, better known as the 'Mulder Law'. This law deals with frequent behaviour that is in violation of the legal traffic regulations. These offences are administratively settled out of court instead of there being a court case. The Mulder Law is used, for example for offences like exceeding the speed limit by less than 30 km/h. Greater speeding offences are still dealt with under criminal law: exceeding the speed limit by more than 30 km/h is followed by a settlement proposal and possibly a summons, and for exceeding the limit by more than 50 km/h the driving licence is suspended.

The Mulder Law has resulted in the settlement of traffic offences being a lot quicker, more efficient, and more complete, with less work for police and the courts. This is accompanied by the fact that the liability in Mulder Law offences lies with the owner/registration number holder of the vehicle involved instead of with the driver. This makes it possible to register offences using cameras and fine the registration number holder with the photographed number plate as evidence. It is possible to appeal, but the burden of proof lies with the registration number holder.

Together with Parliament, the Minister of Justice determines the amount of the fines. Since 1 January 2006 new rates have been set for traffic fines, based on the principle 'the more dangerous the offence, the higher the fine'. This means that the fines for red light running have been increased substantially. The rates for smaller speeding offences have been lowered, but the fines rapidly get higher with each extra kilometre over the limit. Urban speeding offences receive a somewhat higher fine than rural offences, which in turn are higher than motorway offences. The fines for exceeding the speed limit at road works are considerably higher in all cases. In 2006 police enforcement in the Netherlands yielded slightly more than 300 million euros in fines. This amount is added to the government's general funds.

How is the speed enforcement organized?

Traffic enforcement is part of the basic police task. In the Netherlands, police work on the street consists for one-third to two-thirds of controlling, settling and otherwise dealing with traffic events (Goldenbeld, 2005). The enforcement of speeding is one of the spearheads of the Dutch police policy plans.

At the local, district and regional levels, important decisions about traffic enforcement are made in the regular 'triangular' consultation between the mayor, the regional Chief Public Prosecutor, and the head of the police force.

In addition to the regular police surveillance of traffic offences, the Public Prosecutor's Office and the police started in 1997 with an intensified approach to traffic enforcement which was put down in regional traffic enforcement plans. These are special traffic projects for which the police forces are given extra personnel and means. In 1999, a so-called regional plan was started in eight police regions; in 2003 all 25 police regions had such a plan. The framework and the tasks and targets of each of the regional traffic enforcement plans are laid down in a covenant between a police force and the Bureau Traffic Enforcement of the Public Prosecution Service (BVOM).

How many fines are imposed?

Speed enforcement has an important place in the regional enforcement plans. The aim is to spend more than half the capacity (in personnel hours) on this. The number of speeding fines within the framework of the Mulder Law has become five times higher in the 1995-2006 period (*Figure 1*). Speeding offences now account for about 75% of all Mulder Law cases; in 1995 this was 50%. In 2006, 41% of a total of 8.9 million speed fines was imposed for urban offences, 40% was for offences on motorways, and 19% on rural roads.

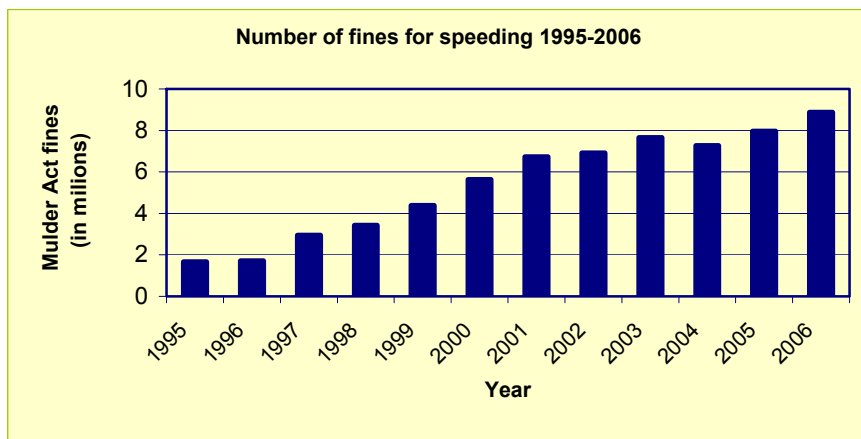


Figure 1. Source: Central Fine Collection Agency /SWOV Knowledge base.

Figure 2 shows that most of the offences (approximately 60%) consisted of exceeding the limit by 0-10 km/h. This means exceeding the legally determined offence limit. This offence limit takes account of a tolerance level and is determined as follows:

- Everybody gets a deduction to correct for the maximum measurement error of the instrument. The deduction is 3 km/h below 100 km/h, and 4 km/h above.
- On 80 km/h roads, the instruments are tuned at 87 km/h and on 100 km/h roads at 108 km/h. A speed lower than 87 or 108 km/h is not registered as an offence.

An offence in the category 0-5 km/h over the limit on 80 km/h roads is in fact always a corrected speed that, with a 100% certainty, was at least a measured speed of 87 or 88 km/h. An offence in the category 6-10 km/h over the limit in fact means a measured speed of at least 89-93 km/h.

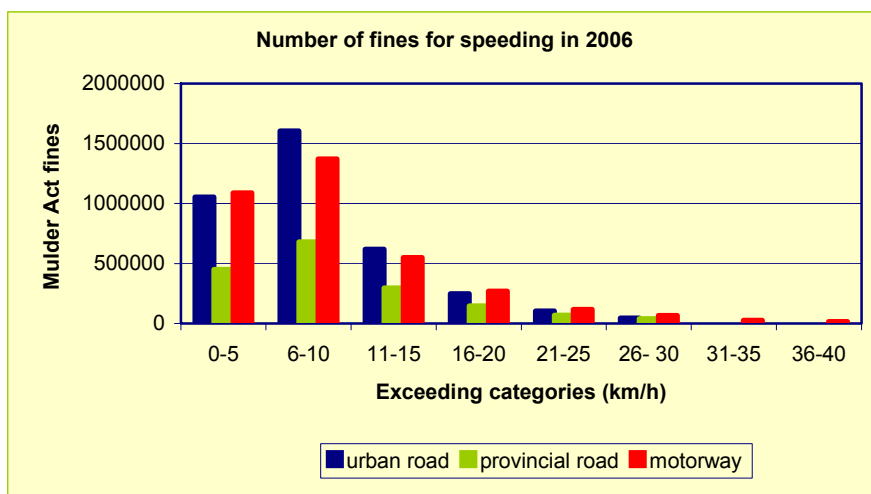


Figure 2. Source: Central Fine Collection Agency / SWOV Knowledge base.

Where are speed checks held?

The speed checks that are carried out by the Regional Traffic Enforcement Teams usually take place on roads that meet three subsequent criteria: 1) a relatively large number of crashes, 2) a clear or at least plausible link between crashes and speed, and 3) a relatively high percentage of speed offenders. A relatively large number of crashes on a road section does not necessarily indicate a high crash rate (number of crashes per vehicle kilometres); it may just be a busy road. Since 2005, the Regional Traffic Enforcement Teams have consistently paid attention to the subjective feeling of unsafety. Together with other enforcement projects, *Subjective road unsafety* is being tackled methodically. Citizens' complaints are the starting point for further investigation of local safety problems. Questionnaires are used to carry out zero measurements and effect measurements of the objective traffic behaviour as well as of the subjective feelings of road unsafety. The used enforcement capacity is also registered. The website www.verkeershandhaving.nl contains more information (a small part in English).

How effective are the various methods of traffic enforcement?

Four main speed surveillance methods are used in the Netherlands:

- automatic speed controls at permanent locations with fixed speed cameras;
- speed controls at varying locations using radar cars, laser guns, or cameras hidden in objects – with or without stopping offenders;
- mobile surveillances and stopping speed offenders;
- speed controls in which the average speed of all passing vehicles along a particular road section is determined (known as section controls or average speed checks).

Different studies have been made of the effectiveness of the various methods of speed enforcement. A recent assessment of the effect of speed cameras (permanent fixed cameras, but also mobile controls with speed cameras) on driving speeds and road safety in Great Britain shows large reductions in the number of speeding offenders and road crashes (Gains et al., 2005). The following estimations of reductions in injury crashes compared with the regional trend were made: 22% and 33% fewer for *fixed cameras* on urban and rural roads respectively, 22% and 15% fewer for *mobile cameras* on urban and rural roads.

In contrast with Great Britain the road safety effect of fixed speed cameras in the Netherlands has not yet been unambiguously determined. Dutch studies of the effects of intensified police enforcement, of speed surveillance in particular, produce a less unanimous positive picture with varying results per police region (Mathijssen & De Craen, 2004). It was found that speed checks lower the driving speed on specific roads, but this does not lead to extra safety in every region.

Distinctly positive results were found in the Netherlands for a specific method of speed surveillance. In the province of Friesland at 28 above-average dangerous road sections, research was done of the effects of radar cars on speed and road safety. The results were comparable with those in Great Britain: fewer offenders and improved safety on roads with extra control, viz. a 21% reduction of injury crashes involving motorized traffic (Goldenbeld et al., 2004).

It has been established from literature studies that mobile surveillance with stopping offenders is the least effective method, if the desired effect is to exercise a strong preventive influence on the driving speeds of large numbers of motorists. This method simply cannot be used to catch enough offenders, but it is suitable for specifically catching drivers far in excess of the limit.

A relatively new method is that of road section control, or average speed check. This method, in which the speeds of passing vehicles are measured along a section of several kilometres, can considerably increase the distance along which control has an effect, meaning that controls have a more sustainable behavioural effect (Goldenbeld, 2005). The initial technical problem (being able to identify number plates) has been reduced by improved digital camera equipment and by number plate recognition software. The surveillance, begun in 2001, of a new 80 km/h speed limit on part of the A13 motorway between Rotterdam and Delft, is carried out by automatic road section control with digital cameras. It resulted in the percentage of offenders declining to less than 1% (RWS, 2003). It is therefore recommended to use this method more extensively, also because motorists themselves consider it more fair to be fined for a longer lasting speeding offence than for one which was perhaps committed very briefly (Van Schagen, Wegman & Rosebush, 2004).

What do the Dutch think of speed enforcement?

The results of a repeated survey among more than 6,000 people in the Netherlands (a study by BVOM) show that there is a fair amount of support in the Netherlands for various kinds of enforcement, including speed enforcement (*Table 1*).

	2003	2004	2005	2006
Speed controls	72%	74%	76%	82%
Alcohol controls	99%	99%	99%	99%
Seatbelt controls	81%	80%	83%	84%
Red light running controls	94%	95%	94%	95%

Table 1. *Percentages of respondents that regard certain control types as being useful (Source: BVOM, 2006).*

Nearly everybody sees the sense of alcohol, seatbelt and red light running controls. There was slightly less public support for speed checks, but it has increased in the last few years: in 2006, four out of five citizens found speed controls useful. Although nobody likes being fined for speeding, there is still a lot of social support for speed controls. The SARTRE study held in 2002 (Goldenfeld, 2003) had very similar results: four out of five drivers (85%) agree very much or to an extent with using automatic red light cameras as a surveillance method. The support for automatic speed cameras is less: seven out of ten drivers (71%) agree very much or to an extent.

The BVOM study also shows which types of speed control were acceptable to a larger or lesser extent (Table 2). Especially the use of concealed speed control equipment and the use of the laser gun which perhaps is also regarded as a concealed instrument, are found less acceptable.

	2003	2004	2005	2006
Fixed camera	68%	67%	67%	66%
Being stopped	79%	80%	77%	78%
Laser gun	45%	48%	47%	48%
Concealed position	46%	48%	45%	46%
Video car	65%	68%	66%	66%
Road section control	66%	69%	70%	69%

Table 2. *Percentages of respondents that regard certain control types as being (very) acceptable (Source: BVOM, 2006).*

Public support for speed controls (Table 1) requires attention and should be strengthened by credible types of speed enforcement. This are speed checks that are experienced as useful for road safety in terms of purpose and effect. The opinion which is held by some people that speed controls are only carried out for financial reasons should be corrected.

Which measures can support speed enforcement?

Speeding offences can be reduced considerably by introducing dynamic speed limits, by a better agreement between a credible speed limit and the road layout, and by constantly giving drivers the correct information about the actual speed limit (Van Schagen, Wegman, & Roszbach).

A more credible police enforcement of driving speeds is required to increase the effectiveness of the speed enforcement itself and to stimulate compliance with the law.

The following recommendations, which to some extent are already being carried out, can be made:

- Speed enforcement should explicitly concentrate on sections or locations with a speed related safety problem. The goal must be made clear in the accompanying communication and information.
- There must be more average speed checks over longer distances. If these road section controls are clearly visible and recognizable, such a surveillance method will be more credible, be considered fairer, than speed checks at just one location.
- Comparable with the alcolock for recidivist drink-drivers an obligatory form of Intelligent Speed Assistance (ISA) for habitual and excessive offenders can possibly be a more effective alternative to licence suspension.

Conclusions

Speed plays an important role in road crashes. The speed limits are often exceeded and on a number of roads fast driving results in above average crash rates. In the Netherlands it has been proved that

especially speed controls with radar cars can be effective in increasing road safety. There has been less research on the effectiveness of other methods.

Speeding offences can be reduced considerably by introducing dynamic speed limits, a better agreement between credible limits and road layout, and constantly providing motorists with correct information about the limit. In addition it is recommended to make speed surveillance more credible.

Publications and sources (SWOV reports in Dutch have an English summary)

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