

February 28, 2020

LIGHT WEIGHT VEHICLE LEGISLATION IN FINLAND

- Finland's additional justification and background information on matters discussed between the Finnish delegation and the European Commission on 21 February, 2020

1. Why could the Government of Finland propose a maximum speed limit of 45 km/h instead of lower or higher maximum speed limits (for example 30 km/h or 60 km/h)?

Speed plays a major role in accidents with vulnerable road users. One estimate¹ of the effect of *impact* speed (note: *not* speed travelled in traffic before impact, or the speed limit) in pedestrian fatality risk is presented in the table below:

Impact speed [km/h]	Risk of fatality
30	1,5 %
45	5,5 %
60	18,2 %

Like moped cars, most of the lightweight cars would be primarily used in extra-urban or rural areas, where the speed limit is between 40 and 80km/h. Limiting the speed to 30km/h would mean that the vehicles would travel under the speed of normal traffic flow, which would result in more overtaking maneuvers, which in turn could be dangerous. It would also lead to additional congestion. In any case, the drivers of lightweight cars would still have to follow speed limits, regardless of the maximum design speed of the vehicle.

From the point of view of both road safety and traffic flow, and considering the limit for L6e-category vehicles, 45km/h would seem to be a suitable medium, which is why the previous Finnish government originally proposed this limit.

Effect of 30km/h on emissions

30km/h limit, as applied in Sweden, has resulted in high emissions due to the technical requirements. Usually a Swedish A-tractor travels at a very high engine speed all the time, which results in low efficiency and high fuel consumption. Usually an engine runs at 1500-2000 rpm at normal speeds, whereas an A-tractor can run at 5000 rpm, or over double the normal engine speed, travelling at 30km/h.

2. Note on pedestrian safety of lightweight cars vs moped cars

Pedestrian safety of passenger cars has been well researched. Similar studies are not available for moped cars, so no final assessment on this subject can be made. However, there are a few key factors that need to be taken into account.

¹ Rosen & Sander 2009 (Pedestrian fatality risk as a function of car impact speed)

Factors in favor of moped cars:

+ lower mass (extent of effect limited, as moped cars are heavy enough to impart large forces on the pedestrian)²

Factors in favor of light weight cars:

+ impact-friendly design of the front (through mandatory pedestrian safety requirements)
+ better active safety (ABS, ESP, automatic emergency braking systems) -> avoidance of accidents, lower impact speeds

The conclusion by the Finnish authorities has been that it is unlikely that moped cars would be significantly better for pedestrians than lightweight cars, and that the opposite in fact seems likely. In any case, the number of accidents involving pedestrians and moped cars in Finland has remained low, and considering similar use cases for both, the potential effect would remain limited.

3. About limiting the power and weight of lightweight cars while ensuring availability of suitable vehicles

Maximum weight of around 1300kg would limit the vehicles to the smallest vehicles on the market (Ford Fiesta, VW Polo, Smart Fortwo etc.), but would include certain compact cars (ie. Toyota Corolla). Typical power of these vehicles ranges from 70 to 80kW, with certain models having well over 100kW. Suitable limit would seem to be around 70 to 80kW, to avoid sportier models to be used.

Exact limits for both weight and power need to be carefully assessed, to take into account availability of suitable vehicles from a broad range of manufacturers. Furthermore, fully electric vehicles should have their specific rules, to make sure they are not excluded.

4. About ensuring effective enforcement and sanctions in case of violation of the rules

Enforcement of tampering will be performed by the police on the roadside. Lightweight cars will also have to go through periodical technical inspections, where tampering can be monitored. Lightweight cars will be clearly marked on the outside to facilitate enforcement. Police can do a quick check by themselves, e.g. by measuring the maximum speed of the vehicle on a test drive. They also have the possibility to refer the vehicle to a more thorough inspection at a periodical technical inspection facility.

If the police determine that the vehicle does not conform to the requirements, they can prevent the use of the vehicle and remove the license plates, which are returned to the owner/holder only when the vehicle has successfully passed a special inspection. They will also issue a fine to the driver, and insurance company will assess if this would have affected the insurance premium. In case the driver has been speeding, there is a possibility to suspend the driving license, depending again on the seriousness of the offence. There are many ways to target the enforcement, for instance by targeting schools or other places where young people frequent. Similar enforcement activities are already taking place for mopeds (L1e category).

The Finnish transport authorities continue to evaluate additional possibilities to provide in the upcoming amended lightweight car legislation as effective penalties as necessary. This will require

² Effect of size of the vehicle has been studied for passenger cars (see for example 2015 study for TRAN committee by TRL, "The impact of higher or lower weight and volume of cars on road safety, particularly for vulnerable users"). Studies seem to disagree whether there is a correlation, however in any case the difference should be because of the shape of the vehicle, not the weight.

further discussions with the Ministry of Justice and the Police, among other key stakeholders inside the Government and the public sector.