

Road safety and 96/53/EC - A joint position paper against larger lorries

Within the European Union, Directive 96/53/EC¹ regulates the permissible dimensions and weights for lorries and trucks in international traffic. Currently the maximum length of lorries for cross border use in the EU is limited to 16,5 metres for articulated vehicles and 18,75 metres for combination lorries, and weighing up to 40 tonnes. The European Commission has committed itself to updating this Directive². There is pressure from the Road Haulage industry to increase the length of the lorries up to 25,25 metres and weighing up to 60 tonnes.

In this paper, ECF and EAC aim to inform citizens and European decision makers about the dangers that longer and heavier vehicles (LHVs) pose on road safety and to other road users.

The European Commission's own study³ in 2008 stated that heavier and longer trucks are individually more dangerous than standard HGVs. Therefore, in the meantime, the commission and most industrial interest groups concentrated on pressure for longer lorries. However, there has not been any major empirical research on the effects of raising length of HGVs within the European context, particularly on safety issues. With this in mind and for the following reasons, we remain very sceptical that accommodating larger lorries up to 25,25 metres and with/without 60 tonnes, would have anything other than a negative effect on road safety⁴:



Source: NoMegatrucks.eu

1 http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31996L0053&model=guichett
2 http://ec.europa.eu/transport/road/weights-and-dimensions_en.htm
3 TML (2008): Effects of adapting the rules on weights and dimensions of HGVs http://ec.europa.eu/transport/strategies/studies/doc/2009_01_weights_and_dimensions_vehicles.pdf
4 As UK statistics prove: Already today's HGVs are four times more likely to be involved in fatal accidents than cars on minor roads. (British Department for Transport: Traffic statistics table 2010, TRA0104, http://www.dft.gov.uk/statistics?orderby=title&post_type=table&series=traffic-tag or Accident statistics table, RAS 30017, <http://www.dft.gov.uk/statistics/tables/ras30017/>)

Road infrastructure adaption costs

Lanes, bridges, tunnels, crash barriers were not designed for longer and heavier vehicles. These new types of trucks will lead to an **increased deterioration** of the already damaged European road infrastructure.

The impact energy released when a 60 tonne LHV is involved in a collision is considerably greater than with a conventional vehicle weighing a total of 40 tonnes. Roadside and lane separation barriers of all kinds should nowadays be designed to cope with lateral forces caused by an impact from vehicles complying with regulations on mass and dimensions. However, barriers are still overrun in many collisions involving today's HGVs, which then leave the road or run into the opposite direction of divided roads because crash barriers were not designed to withstand the impact of an even longer and heavier truck.

Longer LHVs could present a serious risk for safety in **road tunnels**. The safety facilities of European tunnels were not designed for larger amounts of fire load. An increased volume of goods together with higher capacity of petrol tanks leads to an increase in the energy released during the fire. Upgrading them to maintain current safety levels would cost millions.

Even today, the existing **parking facilities for trucks**, enabling drivers to respect their rest periods, is not sufficient. Vehicles are already being forced to park in the approach and exit lanes of parking and service facilities which would normally be used for periods of slowing down and/or accelerating, creating serious and sometimes deadly consequences for all road users. Megatrucks would aggravate this problem substantially. The maximum length of designated parking areas for HGVs normally is 18.75 metres, which is far too short for the new 25-metre trucks. This would compromise drivers taking sufficient rest, making them a potential risk for other road users.

Blind Spots

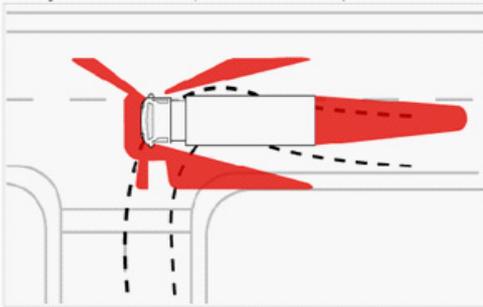
Currently HGV lorries are disproportionately involved in serious accidents with other road users. They make up about 3% of the EU vehicle fleet, but give rise to 18 % of fatal collisions, amounting to more than 4 000 annual fatalities.

The larger size of LHV's would increase the number and size of blind spots. With a decrease in the ability of the driver to see into the most dangerous areas around the lorry, there would be an increase in fatalities and serious injuries to other road users.

A UK TRL Report⁵ states that

“When cornering, most of the LHV’s assessed would suffer some additional blind spots. These would be similar for the B-double... rigid/A- dolly/semi ... and the C-train...configurations. For each of these, the rigid vehicle or front trailer would prevent vision of the area in front of the rear trailer.”⁶

A German report⁷ claims that the danger of a pedestrian or cyclist being overrun by a Heavy Goods Vehicle is related to the number of axles of the lorry, particularly on right turning blind spot accidents of accidents.



Source: European Cyclists' Federation

Manoeuvrability and handling

With increased length, the space required to perform turning manoeuvres also increases. Vehicles with a steering axle (dolly) attached to a semi-trailer make full use of any reserve road space, despite the fact that manufacturers claim that such vehicles are especially manoeuvrable. Even if a driver manages to maintain a perfectly straight line, there will be **no more safety margin** remaining on either side of a longer vehicle. In practice, this means that a vehicle's wheels will regularly leave the designated carriageway, with consequences for road safety, particularly for pedestrians and cyclists.

A German Federal Highway Research Institute⁸ report states that

“Room for manoeuvre and safety distances are generally no longer available, so that even small deviations from a correct line will result in adjoining surfaces being driven on” [...] “Driving over or touching surfaces in adjoining areas can endanger other road users (pedestrians and cyclists)[...]”

Danger will also be increased due to the time required to clear **cross-roads and railway crossings**. A 25 metre truck will need considerably more time for turning and manoeuvring. Driving through cross-roads will hinder car traffic and make the whole situation confusing for other road users.

In terms of **stability** there are also problems with how the trailers react when being driven in a straight line. In tests carried out most, and sometimes, all of the large lorry combinations performed worse in the following tests

- Rearward amplification - the degree to which the trailer(s) amplify or exaggerate the sideways motion of the tractor unit
- High speed off-tracking - at speed the rear trailer(s) may track to the outside of the path of the towing unit
- Yaw damping - this quantifies how quickly yaw oscillations (sway) of the rear of a trailer take to settle after a rapid steering manoeuvre

In fact there were shown to be significant **tensions between low speed manoeuvrability and higher speed stability** which with regards to very dangerous rear amplification (oscillation).

⁵ European Commission Care Database “Heavy Goods Vehicles and Buses”, 2010
⁶ Study of the Likely Effects if Permitted in the UK: Final Report, TRL Limited. (<http://www.nomegatrucks.eu/independent-research/trl-trl-study-effects-of-permitting-mega-trucks.pdf>)

⁷ http://www.bast.de/nn_40694/DE/Publikationen/Berichte/unterreihe-f/2007-2000/f54.html

⁸ Klaus-Peter Glaeser et al (2006): Auswirkungen von neuen Fahrzeugkonzepten auf die Infrastruktur des Bundesfernstraßennetzes, Schlussbericht, http://www.bast.de/nn_42642/DE/Publikationen/Download-Berichte/unterseiten/60-tonner.html

“... the extra articulation will reduce turning space at slow speed, but this same feature increases the likelihood of a “snake” occurring at higher speeds, for example changing lane on a dual carriageway.” [...]

This means major consequences for other motorised vehicles, cyclists and pedestrians when lorries may have problems staying within the given lane or road space and given unfavourable weather conditions or the need for quick, emergency manoeuvres, veer into cycle lanes, pavements or oncoming vehicles on the road

There is also early, but significant evidence that lorries with trailers (the vast majority of longer LHV's will have trailers) have a serious and extra weakness that is not seen with the traditional single wagons. Research from SWOV⁹, the Dutch national road safety research institute has shown that lorries with trailers carry an almost equal if not greater risk of accidents with cyclists occurring on the side of the lorry and/or on the side of the trailer and thereby possibly doubling the risk that cyclists face with all lorries.

Traffic Flow and other Road users

One of the prime sources of concern is that of overtaking manoeuvres between longer LHV's, or of other vehicles trying to overtake them. The time needed to pass longer vehicles is bound to be longer than for current goods vehicles, while at the same time **driver visibility would be reduced** when performing the manoeuvre. On rural roads other than motorways, characterised by opposing traffic flows with different vehicle types, this concern is particularly relevant.

An additional problem is the effect of **strong side-winds** for LHV's, e.g. over bridges, and for other smaller vehicles while overtaking LHV's due to the slipstream.



Source: NoMegatrucks.eu

A vehicle that has rolled over in a crash may be the cause of **secondary crashes**, especially if the speed of the other vehicles is high and there is little space for overtaking manoeuvres. Due to its greater length, this new type of vehicles is more likely than current goods vehicles to block the entire clear width of traffic lane(s). Moreover, the time required to clear the site of a crashed longer LHV may very well be longer, thus increasing the probability of a secondary crash.

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⁹ Schoon, DeBruin (2008): De toedracht van dodehoekongevallen en maatregelen voor de korte en lange termijn. (<http://www.swov.nl/rapport/R-2008-11A.pdf>)