railfuture

Campaigning for better services over a bigger rail network

please reply to:

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2021-02-01

Dear Sir/Madam,

Ending the longer semi-trailer trial

Railfuture is Britain's leading, longest-established, national independent voluntary organisation campaigning exclusively for a better railway across a bigger network for passengers and for freight users, to support economic (productivity and housing) growth, environmental improvement and better-connected communities.

We seek to influence decision makers at local, regional and national levels to implement pro-rail policies in development and transport planning.

We recognise that for our nation to prosper, all freight modes must play their part in a wider freight and logistics network. We believe that freight movements should operate in the most sustainable way, minimising environmental impacts, and to that end Railfuture's aims and supporting activities include increasing the volume and proportion of goods moved by rail.

Our response below comprises four parts: first a five-page Response to the set questions, then a seven-page Appendix focusing on safety to expand on the rationale behind our response and highlight some issues which we consider are not yet fully covered in the regulatory proposal, with a one-page set of Recommendations as a list of suggested improvements to the proposal which would enable us to support it, and finally a one-page set of Conclusions.

Yours faithfully,

Roger Blake BA, MRTPI (Rtd), MTPS
Railfuture
Director for Infrastructure & Networks

railfuture

Respondent information

1/ Name
Railfuture

2/ Are you responding on behalf of a business or organisation?
Organisation

3/ Have you or your company operated an LST under the trial?
No

Consultation Response

4/ Noting the evidence set out in this consultation and in the annual trial reports, do you believe that the LST trial should be concluded prior to its planned end date of 2027 and replaced by more widespread operation?
No, not with the proposed light regulation option – further refinement of regulation would be required before we could give qualified support to the ending of the trial and its replacement with widespread operation.

5/ Do you prefer no operation of LSTs outside the trial, the lighter additional regulation option, heavier or general circulation?
Heavier – we feel that some components of the heavier regulation approach will bring significant additional benefit (we detail these later).

6/ If LST use is to be permitted more widely, what is your view of the government proposals, in relation to:

- *the number of LSTs to be permitted?*
  We would support a market-based approach to control of numbers, but only if our regulatory and construction and use suggestions are taken up.
- *data required to be collected by operators?*
  We welcome the proposal for making and retention of risk assessments, and the collection and retention of driver feedback.
- *incident reporting required by operators?*
  We welcome an incident reporting system since it promotes a safety culture. This is expanded in our Appendix.
- *controls on usage of specific road types?*
  It seems unrealistic to specify and limit the proposed type of LST to specific road types.
- *specific Operator Licencing requirements for LST operators?*
  Elements in our narrative response could be implemented as operator licence requirements.
- *LST-specific Construction and Use requirements?*
  We detail our observations in the Appendix.

7/ If LST use is to be permitted more widely, how long would you expect to own an LST for?
Not applicable.

8/ If a maximum age should be placed on the life of an LST what do you think that age should be?
We have no opinion on this aspect of the proposal.

9/ Should operators be required to apply to the Traffic Commissioner on an annual basis for approval to continue to operate an LST once the LST is over 10 years old?
We have no opinion on this aspect of the proposal.

10/ Compared to the trial, how much do you consider the lighter additional regulatory option will act as a barrier to you purchasing and operating LSTs?
Not applicable to our organisation – see our Appendix on level of regulation.

11/ Compared to the trial, how much do you consider the heavier additional regulatory option will act as a barrier to you purchasing and operating LSTs?
Not applicable – see our Appendix on level of regulation.

12/ Under the option of no additional regulatory measures, to what extent do you agree or disagree with the below statements:

- *I would seek to purchase more LSTs than I would have done under the other regulatory options*
- *I would now seek to operate LSTs where I would not have done under the other regulatory options*
- *I would operate LSTs as I can identify a current business need for them*
- *I have no current business need for operating LSTs but would like to own one to open up further business opportunities*
- *I would replace one or more of my 13.6m trailers with an LST variant instead*

Not applicable to our organisation, but we would strongly oppose a 'no regulation' option, on safety grounds.

13/ Do you have any further comments/barriers to owning LSTs with no additional regulation? if so please provide them.
We would be very strongly opposed to a 'no regulation' option, and are not satisfied with the current 'light regulation' proposal. Our concerns and rationale are detailed in the Appendix to our response.

14/ Are there any other costs or benefits that we have not considered in the Impact Assessment that you think should be considered? Please could you provide detail for these using evidence where available
Yes, there is a considerable amount of cost which has not been considered, and a number of benefits are overstated.

In broad terms the largely privatised benefits have been evaluated, but socialised costs have been neglected.

Our evidence is drawn from the extensive and detailed research which the DfT itself commissioned during the development of this policy proposal, much of which appears to have been ignored in the current impact assessment.

DfT commissioned research by TRL June 2008
http://data.parliament.uk/DepositedPapers/Files/DEP2008-1410/DEP2008-1410.pdf This is a very detailed and comprehensive piece of research, with full analysis of the cost / benefits relating to this policy.

Trial impact assessment WSP 2010
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/3820/report.pdf This impact assessment neglected some of the (largely socialised) costs identified in the 2008 research.

Broadly the current impact assessment has built upon the 2010 assessment, but discarded a further set of socialised costs in evaluating the cost / benefit.

2008 research (p295) evaluates the cost / benefit of the proposed type of LST as having an annual net benefit of £23-37m. Adjusting for inflation from 2008 to 2021 (+36%) this is annual range of £31-51m.

The current impact assessment has a much larger annual benefit of £44-63m - some 30% higher than indicated by the department's own 2008 research.

Three specific cost elements we highlight are:

1) Pavement wear
2) Prevention of modal shift to rail
3) Congestion

1) Pavement wear

The 2008 research (p31) identifies that – even after accounting for the reduced number of trips –pavement wear would **increase** by 11%.

Table 17: Relative Road Wear Factors

Vehicle Type	Gross Vehicle Weight (tonnes) and number of axles	Relative wear factor (standard axles) for a typical lading pattern	
		per vehicle	per 100 tonnes of goods
1 (base single-deck)	44 tonnes / 6 axles	1.00	1.00
2 (base double-deck)	44 tonnes / 6 axles	1.06	1.18
3 (longer semi-trailer)	44 tonnes / 6 axles	1.04	1.11

And in conclusions (p78)

"Despite the fact that none of the vehicle types assessed involved changing the maximum permitted axle weight, the different vehicle types were found to affect the structural road wear factors per unit of goods moved when typical lading patterns were considered;

o ***Single deck articulated vehicles of 18.75m in length would slightly increase road wear factors, by an amount comparable to that of existing double decked vehicles, because of the increased unladen weight****."*

The current impact assessment turns this socialised cost into a benefit by neglecting the change in vehicle weight and only considering reduced number of trips. (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/933259/impact-assessment-longer-semi-trailer-trial.pdf)

It makes the, to us, highly-questionable assumption that current vehicles are fully loaded up to the 44t weight limit (para 121) – and that new longer vehicles containing more of the same types of goods will be the same 44t, so assuming that every removed journey is fully laden by weight, and acknowledges that this results in an over-estimate of the benefits to infrastructure. This is despite the trial itself collecting loading data (para 116).

"therefore we would be overestimating the benefits as the journeys removed are not 44 tonnes in weight"

The current impact assessment makes a hand-waving offset of weight vs tyre scrub, despite there being absolutely no research presented in any of the previous papers to quantify any cost/benefit from reduced tyre scrub. (para 121)

"and any extra weight would be mitigated by the self-steering features available on most trailers, as the impact on road wear is lower whilst cornering compared to conventional trailers."

Table 83. Financial costs of road wear

Road Type	£ per Standard Axle-km
Motorways	£0.03
Other trunk	£0.04
Local authority prin	£0.08
Local authority othe	£0.32
All roads	£0.06

2008 research (p188)

The severity of impact is particularly severe on non-principle local authority roads due to them being constructed to a lesser standard.

Depending on laden weight and pattern, a typical 6 axle articulated lorry imposes a load of 4-5 standard axles, a 10% increase in this cost would be an increased socialised cost of 2.4 – 3p/km per trip.

2) Prevention of modal shift to rail

Even with current levels of rail freight electrification, rail emits only 24% of the CO_2 of road haulage, so prevention of modal shift to rail has a negative impact on emissions. Rail has mature and proven technology that is ready to be deployed at scale to further reduce its level of emissions through further electrification of rail freight. There is no proven and mature technology that is currently available to de-carbonise heavy goods vehicles for anything other than short journeys.

road 62 g CO_2/ tonne-km rail 22 g CO_2/ tonne-km short surface shipping 16.0 g CO_2/ tonne-km
https://www.ecta.com/resources/Documents/Best%20Practices%20Guidelines/guideline_for_measuring_and_managing_co2.pdf

The previous research made a detailed assessment of the harm imposed by prevention of modal shift to rail. (2008 research p290)

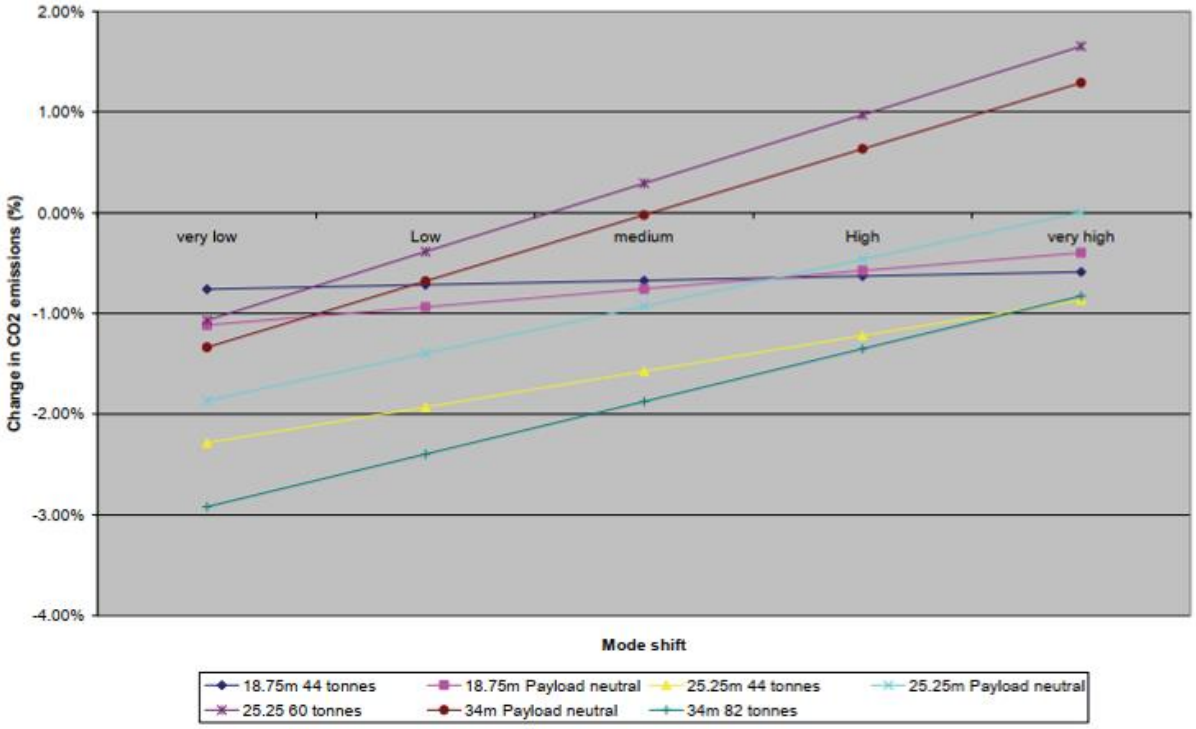

Figure 96. Effect of mode shift on CO_2 emitted assuming very high take-up and no induced demand

The amount of reduction in CO_2 emissions from LST is small – and approximately ¼ of this small benefit is eroded depending on the degree of prevention of modal shift to rail.

Ultimately modal shift to rail, particularly for the embryonic domestic inter-modal rail market has much larger CO_2 reducing potential than LST. Damaging this embryonic market through increased competition at an early stage may significantly impede its rate of growth (and CO_2 reduction)

There is extensive analysis of prevention of modal shift to rail in earlier research (2008 p59)

6.5.3Rail – domestic intermodal

"but the effect that the 18.75m articulated vehicle could have in preventing this growth was assessed by assuming that the growth would take place and then assessing mode shift from rail to road on the basis of cost reduction and price elasticity. The mode shift factors were adapted to account for the fact that the cost model (see section 7.2) does not segregate the different rail markets from the total. ***This assessment suggested that mode shift estimates of 0.25% to 0.75% of all rail tonne kms would be appropriate to account both for the mode shift from rail to road of existing domestic intermodal traffic, and for the prevention of future mode shift from road to rail that would otherwise be expected to result in the growth of the domestic intermodal market."***

Note degree of modal shift is expressed in terms of all rail tonne km. Since 2008 intermodal has increased its proportion of all rail traffic as coal traffic has reduced so the magnitude of this harm measured by all rail tonne km has increased.
https://www.networkrail.co.uk/wp-content/uploads/2020/08/Rail-freight-forecasts-Scenarios-for-2023-24.pdf

3) Congestion

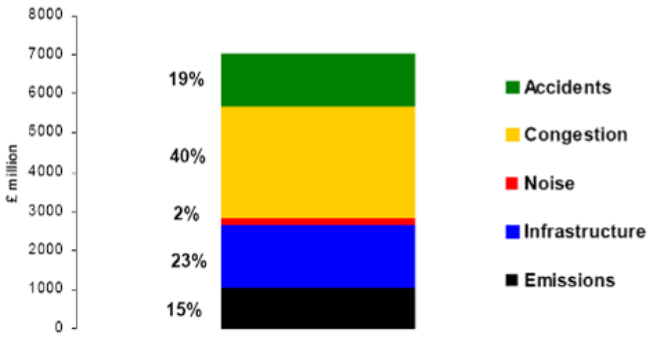

Figure 4: Total external costs of HDV activity in the UK

Source: [Piecyk, 2007]

[Piecyk, 2007] analysed external costs of HGV freight in the UK.

Reproduced from:
https://ec.europa.eu/transport/sites/transport/files/modes/road/events/doc/2009_06_24/2009_jrc52005.pdf
p13 External costs

Therefore errors in assessing the degree of congestion reduction will have a large impact on overall cost / benefit of the policy proposal.

The degree of congestion reduction is very difficult to quantify. The very comprehensive 2008 research did not identify a robust data source that allowed it to quantify the degree of harm / benefit on all types of road. (p37,38)

It is difficult to quantify the impact of LHVs on congestion – simulation models in current use do not reliably model overtaking on single carriageways roads.
However, if the introduction of LHVs leads to modal shift or generates additional road goods traffic, the effect on HGV travel will be less than implied by the capacity increase and the more efficient use of road space.
….this is because although LHVs make more efficient use of road space in terms of the load carried, they also have the potential to create additional congestion in their immediate surroundings, particularly on gradients and at junctions and intersections. It has not been possible to quantify the effects of these localised phenomena on congestion and for this reason, the final analysis of costs and benefits does not include a calculation of the congestion costs

The 2010 impact assessment chose to neglect any harm caused by slightly slower HGVs on single carriageway roads and selected a value based on vehicle length, with increased congestion for each trip offset by reduced number of overall trips.

Table 5.3: Longer semi-trailer externalities adjustment factors compared to conventional HGV

	External Cost Component	Factor for +1.0m LST	Factor for +2.05m LST	Rationale
1	Congestion	1.020	1.041	Contribution to congestion increases in proportion to one-third of additional length above standard 16.5m articulated HGV.
2	Accidents	1.000	1.000	No significant difference estimated by TRL
3	Noise	1.000	1.000	No difference assumed
4	Local Air Pollution	Approx. 1.016, varies between Options	Approx. 1.036, varies between Options	Increase in emissions in proportion to increased fuel consumption (TRL research showed small increase owing to additional unladen weight and aerodynamic drag).
5	Climate Change	Approx. 1.016, varies between Options	Approx. 1.036, varies between Options	Increase in emissions in proportion to increased fuel consumption (TRL research showed small increase owing to additional unladen weight and aerodynamic drag).
6	Infrastructure	1.000	1.000	No difference assumed as gvw not changed.

And went on to state:
"Various strands of analysis when combined, suggested that under reasonably congested conditions ***most of the driving time would be in circumstances in which the difference in impacts would be relatively small****. Accordingly, an estimate of an increased impact of one-third the percentage increase in total vehicle length seems appropriate"*

i.e. LST are most likely to be used by larger operators for their 'trunking' operations between large centres, which are predominantly made overnight.

This leads us to conclude that any benefit arising from reduced congestion is very likely to be overstated if it does not consider the time of day that LST are likely to be operating. Given the large part that congestion plays in overall externalities – there is a significant risk of congestion benefits being considerably overstated.

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Appendix

Safety:

All of our observations relate to improving and maintaining the safety of the proposal.

The air and rail sectors have a strongly ingrained 'safety culture', with organisations and accident investigation processes in place to investigate and continually improve safety. This has significant social benefits but comes at a considerable regulatory and operational cost for these modes of transport.

A safety culture is largely absent from the road transport sector – there is a toleration of the continual drip-drip-drip of two deaths here, one death there, that adds up to a KSI rate for passengers of 10x the rail sector. Compare the treatment of a train driver involved in a SPAD (Signal Passed At Danger) with a road vehicle driver running a red traffic light.

Every train 'running a red light' (a SPAD) will be automatically detected, and the driver will be the subject of an investigation and may well be suspended or put through additional training if the outcome of the investigation is not satisfactory. By comparison, only a tiny fraction of road traffic lights even have detection of lights passed at danger, and there is no industry standard process to investigate the small proportion of incidents which are detected.

This lack of safety culture and toleration of a continual high death rate is unacceptable, when we have much safer modes of transport available. This lack of concern extends to the regulatory environment where the base threshold for any cost reduction measure appears to merely be that they should do no more than maintain the current poor safety standard.

There has been research into the introduction of 'nose-cones' that would reduce fatalities to vulnerable road users by up to 12 deaths per year (impact assessment 2010: para 3.4.7). It has to be asked why this is not being pursued with the same vigour as the proposed cost reduction measures.

Safety: Reporting and Risk assessment

It is welcome that the accident and fatality rate for LST in the trial has been below the general accident rates for HGV. There **must** be a commitment to determine the key elements driving this improvement – maintain them for LST, and then roll the same out to all HGV operations – i.e. move road transport in the direction of having an ingrained safety culture instead of being focussed exclusively on economics with safety being treated merely as 'red tape'.

To this end we very much support the proposed risk control measures outlined thus :-

d. Before allowing an LST to operate a fresh route, the operator will be required to undertake a risk assessment of the route the LST will take to ensure the route proposed is appropriate for an LST to follow;
e. Operators will be required to retain a record of all risk assessments undertaken prior to LSTs undertaking journeys for up to five years and will be required if requested to do so by the police, DVSA, OTC or traffic commissioner to provide the records or records of risk assessments undertaken;
f. Operators will be required to put in place a system where drivers are able to provide feedback (either before or after a journey has been undertaken) where they believe it is not appropriate for the LST to operate on the route proposed/followed. It will be a requirement that a record of this feedback and response provided by the operator is kept on record for five years;
g. Operators will be required to undertake an appropriate level of compliance monitoring to ensure LSTs are being operated on the routes set and to take appropriate action where deviations are identified. It will be a requirement that a written record of compliance checks undertaken, the outcome of such checks and the outcome of any action taken is kept for five years.

The trial research has not identified which of these elements are the key drivers behind the safer operation of LST. It is important to identify the key elements and replicate these across all HGV operations in order to 'level-up' all HGV operations to the safety level experienced during the LST trial.

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Safety: Construction and use: Drawbar trailers

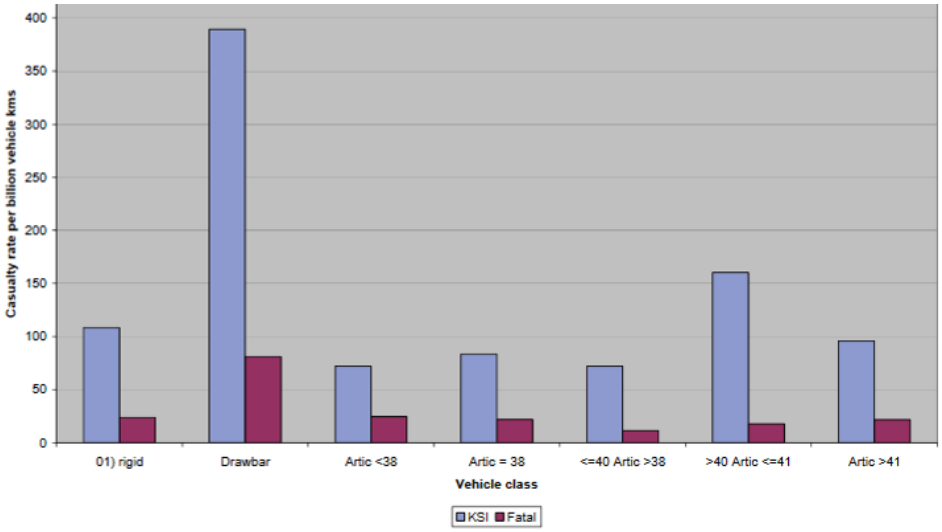
The 2008 research identified that drawbar trailers present a disproportionate safety risk, and within all drawbar trailers 'full trailers present particularly high risks'.

Full trailer – trailer has an articulated coupling:

Centre axle drawbar trailer

(2008 p150)

"*Firstly, it can be seen that the casualty rate in accidents involving* ***drawbar combinations*** *for both fatal and Killed and Seriously Injured (KSI) casualties is* ***more than three times that of most other vehicle categories****. Some additional caution must be applied to results for drawbar combinations because both the accident and exposure samples are based on small data sets ..... Despite this concern,* ***the data clearly suggest that drawbar combinations are less safe than either rigid vehicles or tractor semi-trailer combinations and this is consistent with the other research citing existing drawbar combinations as some of the least stable in terms of rearward amplification"***



The mechanism for this increased safety risk is well-understood.

(2008 p101) *"It was already known at the time of selection that dynamic stability was one of the concerns with longer vehicles, and that rearward amplification was a particularly important aspect."*

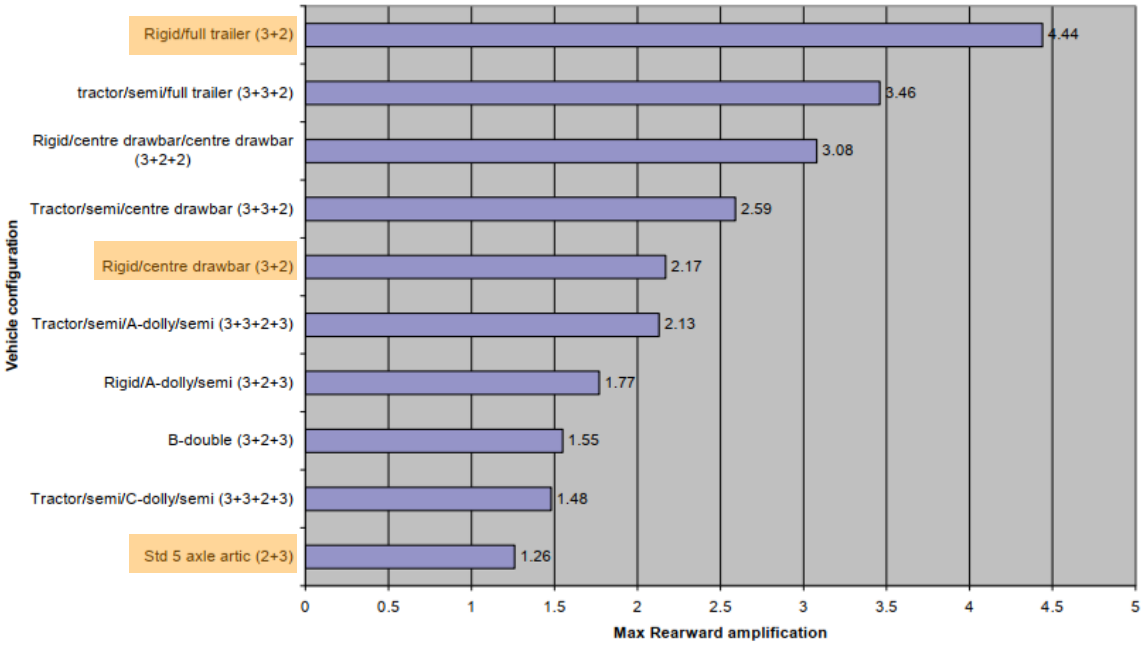


Figure 25. Rearward amplification factors for different vehicle types (based on data extra from Aurell, 2003)

"It can be seen that the least stable vehicle in terms of rearward amplification is actually legally permissible under current UK regulations, a rigid vehicle towing a twin axle "full" trailer, …… ***A full trailer is one with a steered axle at the front and one or two fixed axles at the rear rather than fixed axles in the centre of the trailer****. However, the use of drawbar trailers is very low in the UK at approximately 2% of truck tonne-kilometres. Although there is no objective data available, it is perceived that within this 2%, centre axle drawbar trailers are considerably more popular than full trailers,* ***suggesting that the use of full trailers is likely to represent less than 1% of UK road tonne-kms."***

"Combinations involving centre axle drawbar trailers were more stable than those involving full trailers but still less stable than those involving semi-trailers*. Therefore, these were viewed slightly less favourably than semi-trailers but more favourably than full trailers from a safety point of view."*

Further discussion of rearward amplification p130 (B.4.2)
Impact of rearward amplification on fatal accident rates p145
Correlation of rearward amplification vs casualty rate p155

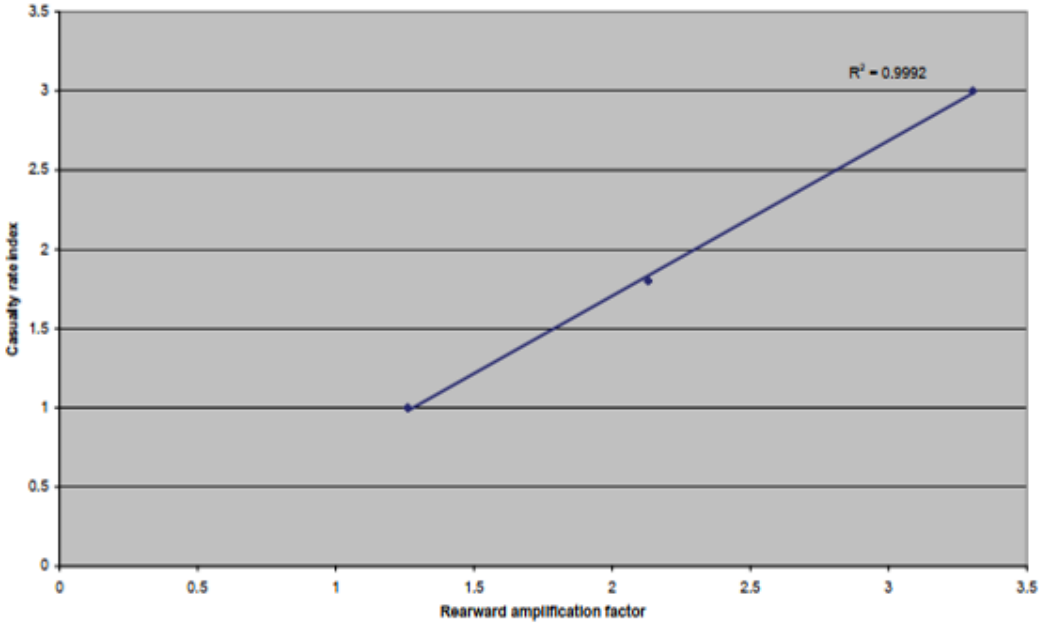


Figure 75. Correlation of rearward amplification and casualty rate

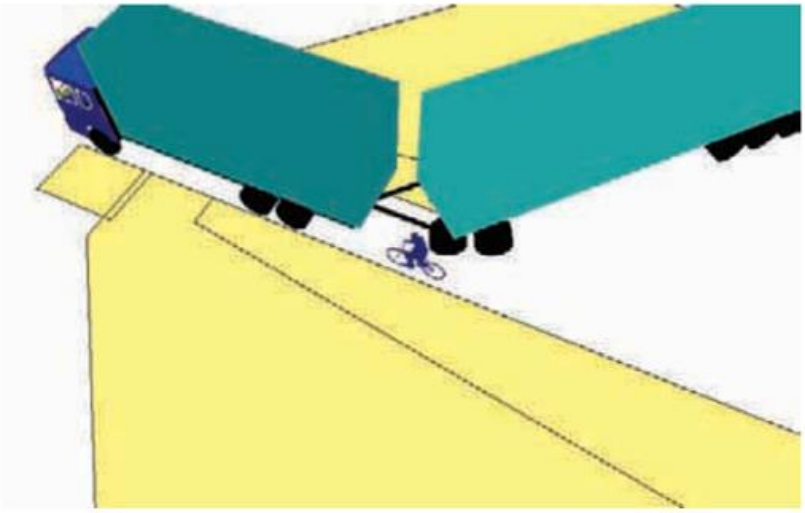


Figure 38: Configuration as Figure 37, with bicycle in potential danger area

Full trailers present an additional risk to cyclists, as illustrated on (2008 p114)

The proposed LST offers the same load length as a drawbar trailer combination in a more easily utilised single trailer format.

Given the clearly identified safety risks with drawbar ‘full trailers’, **we could only support the LST proposal if ‘full trailers’ were prohibited in the same timescale as LST are introduced**.

The number of vehicles effected would - as identified above - be low, but it would eliminate a high-risk category of vehicle.

Consideration should also be given for introducing a longer timescale for the elimination of ‘centre axle’ drawbar trailers, which could be achieved with a first step of prohibiting the registration of most new trailers of this type.

There is one specific exception to this general case which is car transporters. In this case what is technically a drawbar trailer is a safer option than the semi-trailer variant. Picture below

Aside from car transporters there are relatively few of these drawbar trailer vehicles in the UK fleet, but they present an easily eliminated additional risk.

Safety: Construction and use: Tall semi-trailers

The 2010 impact assessment has further detail on the interaction between vehicle height and stability in cross winds.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/3820/report.pdf

(ia:2010) 3.2.8
“For example, a height limit of around 4.6m would allow 18.55m vehicles to have approximately the same high speed stability performance as a 16.5m vehicle at 4.9m height”

Given that ‘double-deck’ trailers which are largely unique to the UK, already offer considerably larger load areas than even a rigid + drawbar combination, and that taller vehicles have lower stability, it does not seem prudent to offer the option of a both ‘long and tall’ trailer.

The choice should be either **long or tall**, not both.

This would prevent the additional roll-over risk presented by a long and tall trailer. We should not be introducing new vehicle types that are merely as hazardous as existing vehicles. At the point of introducing a new vehicle type the opportunity to improve safety by reducing height should be taken, given that the new longer vehicle offers additional load space.

A 4m height limit on LST would open up the possibility of a future reciprocal regulatory arrangement with the EU based on modular equivalence, where a 4m height vehicle is assured of pan-EU movement without operators having to re-invest in different height vehicles.

A 4m height limit would also reduce the probability of bridge strikes occurring.

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Safety: Bridge strikes

The 3 most hit bridges in 2019 were:-

Location	Annual strikes	Height
Watling Street, Hinckley	25	4.6m
Bromford Road, Sandwell & Dudley	24	4.4m
St John's Street, Lichfield City	23	4.2m

These three sites alone comprise 4% of the bridge strikes in Britain. While they are below the standard of 5.03m (16'6"), there are not excessively below it, with particularly the Watling Street bridge being predominately agency drivers hauling double-deck trailers.

Only recently have road haulage operators been required to pay any delay compensation costs due to TOC from NR when a bridge strike occurs, but even these payments do not come close to monetising the cost of a bridge strike on an intensively used rail line. The 'ripple' effects of knock-on delays from a single incident can be huge, delaying many other services, leaving trains and crew out of position with services not fully recovering until the next day; this disruption has both direct and indirect costs.

The recent DfT transport decarbonisation plan makes a clear and bold statement in the ministerial forward that:

"Public transport and active travel will be the natural first choice for our daily activities"

In order to fulfil this objective and hit net-zero by 2050 by allowing people to rely on public transport we must offer the highest levels of reliability. The damage to public confidence from not being able to get to/from work by train once every two weeks is immense. Whilst anecdotal, we are aware of people who have attempted to use these routes and reverted to driving because of the unreliability caused by bridge strikes. The damage to public confidence and resulting revenue loss and increased emissions is considerable and not currently monetised.

This is another reason why – when introducing a new vehicle type that offers a further competitive advantage to road – we should take reasonable steps to reduce the harm done by road haulage to public transport, and since the stated benefit of a LST is a longer single deck platform the capability of both long and tall appears unnecessary.

Limiting the height of LST to 4m would reduce the potential harm caused by road haulage to the public transport rail network.

Experience shows that no matter how large a sign is put up, drivers still hit bridges. The ubiquity of 'sat-nav' means that drivers are more conditioned to follow audible instructions. Coupling this with the lack of a formal regulatory height limit for UK road vehicles, the considerable harm they cause to the rail network, and the ubiquity and low cost of sat-nav equipment we believe there is a strong case for operators being required to have a system present in any vehicle over 4m in height that provides an audible warning when a bridge lower than the height of the vehicle is being approached.

This allows the road equivalent of the warnings that pilots get aka "Terrain-pull up" or in this case "Warning – Low Bridge". Many suppliers have this type of 'truck' sat-nav system available in the £100-200 range; the incremental cost over and above a car sat-nav is marginal for the harm prevented.

Advocating for the use of HGV specific sat-nav equipment is contained in some local authority transport plans (primarily for weight limit enforcement rather than bridge strikes)

e.g. https://www.warwickshire.gov.uk/ltp3 p84

"Although there are at least four makes of satellite navigation systems on the market that are specifically for heavy goods vehicles, there is no current legal requirement for them to be used. All the indications suggest that many drivers rely on standard equipment and this can often lead to the use of inappropriate or restricted routes. ***This is a national problem and the County Council will endeavour to work with other local authorities, the freight industry, satellite navigation and mapping companies and the Department for Transport to support the use of dedicated commercial vehicle satellite navigation units****."*

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Safety: Tail-swing and cut-in

We concur with the observation in the executive summary :
"Kick-out and tail swing of the LST has been raised as an area of concern, and is recognised as a potential safety risk"

We also note that there are considerable anomalies in driver training. If you have a manual car licence, then you can pass your HGV test in an automatic rigid + drawbar goods vehicle, and then jump straight into a manual 18-speed articulated goods vehicle. This handles and has completely different tail-swing and cut-in behaviour to the rigid + drawbar combination, in addition to the extra distraction of having a complex gearbox to deal with.

This is promoted by training schools as a much easier route to gain qualifications.
https://www.wallaceschool.co.uk/courses/hgv/drawbars-are-easier
https://www.wallaceschool.co.uk/courses/hgv/why-is-learning-with-an-automatic-lgv-hgv-so-much-easier-than-a-manual-vehicle

The 2008 research found: p109 B.1.4 Out-swing
"It was found that the out-swing varied from 0.08m for the fixed axle trailer up to 0.68m for a trailer equipped with a pivotal bogie. In general, it was found that all trailer steering axle systems increased the amount of tailswing on the entry to a corner and the pivotal bogie systems showed the greatest increase."

"However, those that use steering axles to achieve the swept path requirements are likely to have greater outswings ***unless the steered axles are positioned such that the rear overhang is very low****."*

Table 49: Out-swing performance

	Australian test	AutoTrack simulation of Australian test	Out-swing in 96/53/EC
Tractor / semi-trailer (6 axles) – max length 16.5m	9-333 mm**	278 mm	<800mm
Tractor / 16m semi trailer (fixed axles) – max length 18.75m	9-333 mm**	846 mm	1160mm

The 2010 impact assessment noted **Tailswing** p12-13

Fixed axle
Tail swing would be increased by approximately 215% for a 17.8m vehicle and by approximately 400% for an 18.55m vehicle.

Medium tech: Existing (passive) self steer
existing steer axle technology was to be used. Such vehicles would increase tailswing by approximately 350% (in a "drive in" manoeuvre)

High tech:
*Vehicles would need to be fitted with a new generation of active trailer steering systems…. **However, tailswing could be almost eliminated and cut-in could be reduced**, thus substantially improving low speed manoeuvrability in comparison with existing 16.5m vehicles*

Given all these factors it does not seem prudent to introduce multiple different LST behaviours, and that a single tail-swing + cut-in behaviour should be established so that drivers have a consistent expectation of vehicle behaviour – and in particular reducing cut-in would reduce the potential for harm to pedestrians and cyclists (the 'high tech' option).

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Safety: Driver training

The proposal suggests somewhat informal one-off training to operate an LST.

It also suggests purely reactive re-training in the event of an incident.
(impact assessment para 35)
*"Operators would also be **expected**, where a driver of a LST is involved in an incident to **consider** whether both the driver involved in the incident and all other drivers entitled to operate LSTs should undertake further training **or** be provided with information about the incident to minimise the risk of the incident happening again."*

There is only an expectation, not a requirement, and even that expectation is only to consider either training or merely incident report distribution.

Purely reactive training will not raise a dead pedestrian or cyclist from their grave. In both the air and rail sectors there is continual and on-going assessment of the competency of operating personnel.

The haulage industry already complains of a driver recruitment problem. Making LST training a specific additional component of CPC would 'add value' to the qualification, justifying additional pay for the enhanced skill set. Given that there is already a requirement within the CPC to have on-going training this would seem to be a simple alteration to add an LST specific component which would improve regulation and also achieve improved overall industry outcomes by demonstrably improving the skill base.

https://www.gov.uk/driver-cpc-training
"You must do 35 hours of periodic training every 5 years to keep your Driver Certificate of Professional Competence (CPC) to drive a lorry, bus or coach."

The 'heavier' regulation option proposal suggests
"Require drivers to undertake approved LST CPC training before their DCPC is renewed in order to retain entitled to operate LSTs"
For the above reasons we consider this an **essential component of regulation**, and not at all 'heavy'.

Safety: Nose-cones

The 2010 impact assessment detailed research into nose-cones (safer aerodynamic fronts) and their potential to reduce deaths by up to 12 people per year (of vulnerable road users)
(ia 2010: para 3.4.7).
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/3820/report.pdf

Given the renewed drive to encourage people to engage in active travel, this intervention should be pursued with equal vigour to the proposed LST which largely results in cost reductions to the haulage industry and increased socialised costs. There needs in our view to be a better balance between the largely privatised benefits and the socialised costs than the current proposal.

Safety: Sea crossings

Consideration should be given to requiring all road vehicles in either Channel Tunnel or on any ferry to travel with less than ¼ tank of fuel.

While it has been somewhat mitigated by the HGV road user levy we note…
https://www.abtslogistics.co.uk/green-logistics-resources/1fbb59ff-3e5a-4011-a41e-18deb8c07fcd_Internalisation%20report%20(final).pdf
"Hardly any of the externalities imposed by foreign-registered vehicles running on Britain's roads are currently internalised because their operators avoid high UK fuel duties by purchased almost all their fuel in other countries."

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Safety: Recommendations

With the following amendments we could agree to the proposal whilst still maintaining that both emissions and safety can have far greater improvements made by increasing modal shift to rail.

1) Require drivers to undertake approved LST CPC training before their DCPC is renewed in order to retain entitled to operate LSTs (which is one element from the 'heavy' regulation option).

2) Defining and only approving one type of LST tail-swing + cut-in handling characteristic, and it would seem prudent for that to be one that minimises cut-in.

3) Limiting maximum height of LST to 4m.

4) Require the operator of any vehicle over 4m in height (or capable of hauling a trailer over 4m high) to have present in the vehicle a 'sat-nav' system that will both avoid height and weight restricted routes and give an audible warning if they are driven down.

5) Prohibition of drawbar "full trailers" in the same timescale as the introduction of LST.

6) Preventing new registration of drawbar "centre axle" trailers with a view to gradually phasing them out. (with the exception of car transporters).

7) To consider if a single qualification covering both Rigid + Drawbar trailer and Tractor + Semi-trailer is still appropriate given the dramatically different cut-in and tail-swing behaviours of the two vehicle types. A single qualification covering these two vehicle types may have been a EU driven requirement which we are no longer constrained by.

8) To identify the key elements of the risk assessment and control process that drive the safe results achieved in the LST trial and commit to replicating those across all HGV operations. Due to their impact on the public transport network – vehicles more than 4m tall would be a candidate first group to extend this practice to.

9) To ensure that safety-related data is collected and reported on in a manner which allows LST to be identified and analysed separate to other types of HGV.

10) To commit to implementing nose-cones designed to improve safety for vulnerable road users on (at least) new HGV within the next 5 years.

We consider these to be a pragmatic and reasonable set of safety improving proposals which strike a better balance between reducing industry costs and improving public safety than the current regulatory approach where the majority of benefit accrues to the private sector.

Conclusions

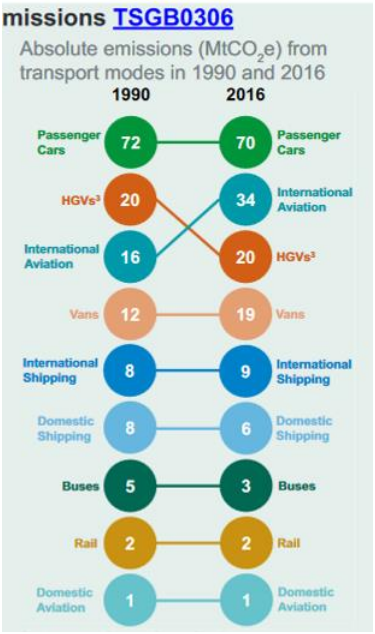
The overriding strategic aim of this policy is:
"The objective of this policy is to facilitate more efficient and environmentally beneficial freight transport."

Even with its current traction power mix rail freight emits 76% less CO_2 than road haulage (per tonne payload), and this will further improve as electrification increases. https://www.raildeliverygroup.com/files/Publications/consultations/2018-03_rdg_response_nic_future_of_freight.pdf (page 3 para 1.B)

The recently published TDNS lays out an achievable roadmap for rail to reach net zero by 2050 using established mature technology. https://www.networkrail.co.uk/running-the-railway/long-term-planning/

Because rail has a 'safety first' culture, similar to commercial air travel, it is 10x safer for passengers than using a private car. https://www.gov.uk/government/statistical-data-sets/tsgb08-traffic-accidents-and-casualties

Across all inland freight modes the largest emission and safety improvements can be achieved by driving modal shift from road to rail. A 25% modal shift to rail from HGV+LGV would reduce UK transport emissions by 4.5% (even with the current rail freight traction energy mix)



(figure right DfT Transport Statistics 2018)
Shifting ¼ HGV & Van usage (39 $MtCO_2e$) to rail – even without further decarbonisation of rail (carbon intensity 1/4 of road), saves ≈7.3 $MtCO_2e$

Putting these factors together, we believe that the best social and environmental outcome, offering the highest prospect of achieving net-zero by 2050, is through a substantial shift of freight from road (and air) to rail.

While the LST policy may appear to offer a small 'quick win', we should exercise caution that it does not harm our ability to achieve this longer-term goal. If LST are to be introduced it must be balanced by taking steps to reduce the harm which road freight causes via both deaths and casualties, and its negative impact on other more sustainable transport systems – via both damage to rail infrastructure, and the loss of confidence which delays and cancellations cause.

Rail offers demonstrably better environmental and safety performance leading to better outcomes for society, which should be encouraged.