PACTS

Parliamentary Advisory Council for Transport Safety

BRIEFING: January 2022

VACCINE FOR VEHICLES: Preventing death and injury on UK roads

SUMMARY

Vehicle safety measures are one of the most successful ways to reduce road casualties, and Britain has been at the leading edge for many years. A new, game-changing package of technology and regulation is now available – a vaccine for vehicles. Experts calculate that it has the potential to surpass even the casualty savings achieved by seat belts, with an estimated saving of around 1,762 deaths and 15,612 serious injuries producing a value of prevention of approximately £7 billion. The government must now act.

Since 2010 the long-term reduction in UK road death and injury has stalled, and its international ranking as a lead road safety performer has slipped. This package of 15 measures which applies to new cars, vans, buses, coaches, and heavy goods vehicles, would kick-start a new decade of danger, reducing deaths and serious injuries in crashes. The package includes advanced emergency braking which detects pedestrians and cyclists, improved direct vision for truck drivers, and a range of technologies to assist drivers in complying with the rules of the road as well as providing protection for those both inside and outside the vehicle in the event of a crash. The measures particularly help avoid serious and fatal crashes and injuries and improve safety for vulnerable road users. They come at minimal cost to the taxpayer or consumer and are supported by the UK automotive sector. The technologies are also important to the UK's ambitions for connected and automated vehicles and transport decarbonisation. This package is being implemented in the European Union (EU) and Northern Ireland from July 2022[1]. The measures are consistent with the vehicle safety recommendations of the Global Plan for the United Nations Decade of Action for Road Safety – 2021-2030, endorsed by the UK government.[2]

> Whole Vehicle Type Approval is the process by which it is certified by the relevant approval authorities that new vehicles are compliant with the relevant safety standards. Great Britain has left the EU WVTA process and will now carry its own national type of approval for new vehicles.
>
> *Vehicle type-approval from 1 January 2021 - GOV.UK (www.gov.uk)*

The Department for Transport (DfT) held a consultation – *Future of transport regulatory review: modernising vehicle standards* (closed 22 November 2021). PACTS submitted detailed proposals.[3] This would lead to a new national whole vehicle type approval scheme for Great Britain, which is necessary now that the UK has left the EU.

PACTS calls on the UK Government to seize this opportunity. It should reaffirm its commitment to best practice in vehicle safety standards and demonstrate this by including all 15 measures in the new GB national type-approval scheme.

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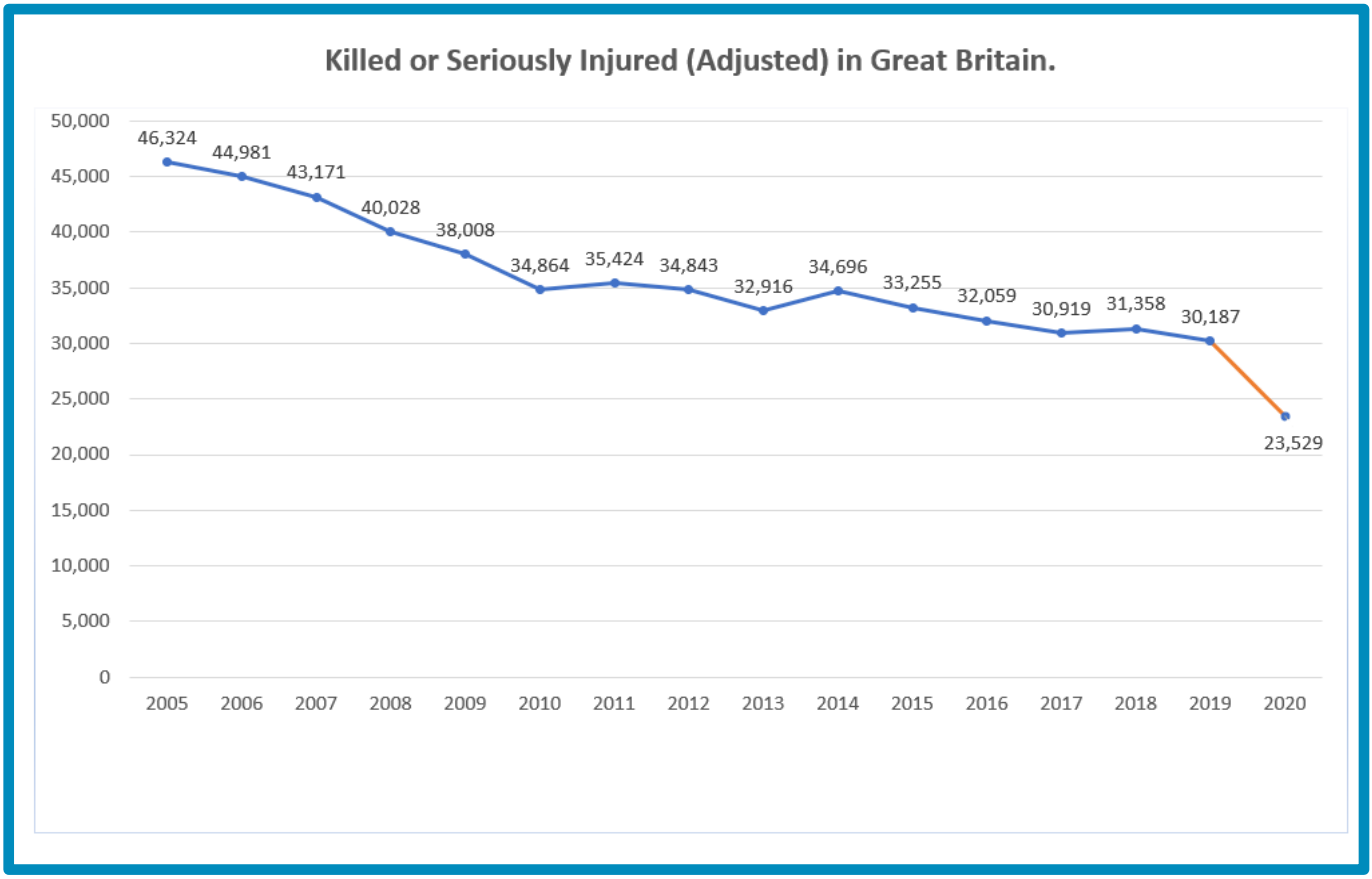
[1] Safety in the automotive sector (europa.eu)
[2] Global Plan for the Decade of Action for Road Safety 2021-2030 (who.int) (See page 13 and Box 3)
[3] Modernising vehicle standards - PACTS response to DfT consultation - PACTS

UK ROAD SAFETY PROGRESS HAS STALLED

In the decade 2010-2019, an average of 33,052 people were killed or seriously injured in road crashes on GB roads – outcomes that were largely preventable. Little progress has been made since 2010. The DfT acknowledges this "plateau".



Only four countries in Europe made less progress than the UK in reducing road deaths over the decade 2010-2020.[4] While 2020 saw a decrease in casualties, the DfT concluded it was related to reduced road traffic in response to the COVID-19 pandemic.[5] Now traffic levels have returned to around pre-pandemic levels, and casualties are likely to do so too.

Although the UK has one of the lowest levels of road deaths relative to its population, this annual number of deaths and life-changing injuries is no longer seen as morally defensible. Many UK highways authorities. Including National Highways and Transport for London have now adopted Vision Zero.

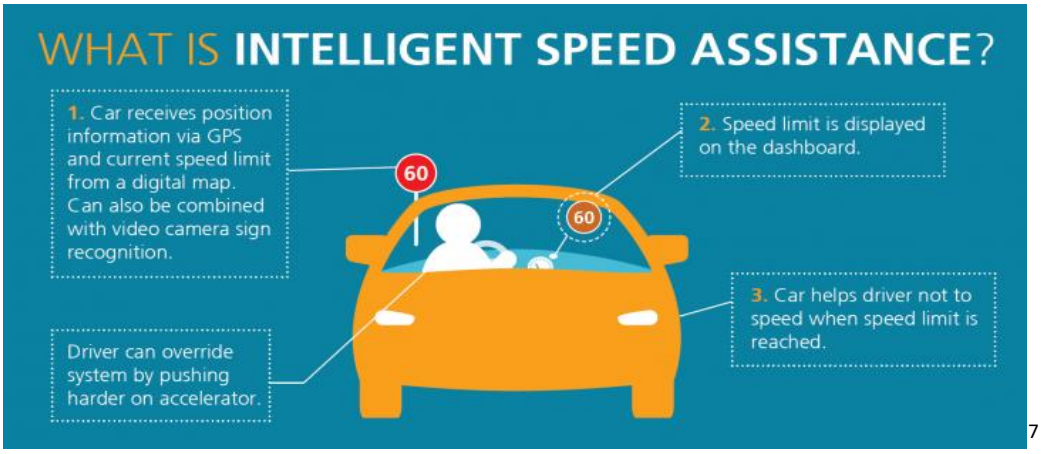
[4] UK Road Safety progress since 2010 ranks as one of the worst in Europe - PACTS

[5] DfT, Reported Road casualties Great Britain, 2020. Published September 2021 (Adjusted injury data)

THATCHAM

Fitting Intelligent Speed Assistance (ISA) on every new vehicle as standard could eventually prevent a fifth of road deaths.

Excessive and inappropriate speed is a major contributory factor in crash causation and injury severity in all countries. One of the 15 measures in the EU revised General Safety Regulation is intelligent speed assistance (ISA). ISA systems alert the motorist if they exceed the speed limit and encourage compliance. They do not automatically prevent speeding unless the driver selects a mandatory system. ISA systems will be required in new cars sold in the EU and in Northern Ireland from July 2022.



[7]

Research in Sweden, the Netherlands, and the United Kingdom, showed that motorists drive more slowly when using an ISA system, even if it can be turned off. The UK trials of ISA showed that motorists become more favourable to compliance with the speed limits once they experience ISA. The EU-approved assisting ISA system will be overridable, meaning the driver will be able to ignore it by firmly pushing the accelerator pedal. As an alternative to the assisting version, manufacturers can fit a version that will beep and display a warning if the motorist goes beyond the speed limit. Many UK manufacturers already provide purchasers with the option of an ISA system that is very close to that being required by the EU.

Since 2009, Euro NCAP has been testing manual speed limiters and in 2018 ISA systems became a requirement of the five-star Euro NCAP safety rating. ISA systems were installed in 75% of vehicles that Euro NCAP evaluated that year. It is now fitted as standard on many new cars. Making it a requirement means that all vehicle purchasers will benefit from the option of protection afforded by ISA.[8]

Assessments in 2015 and 2018 showed accuracy levels above 90%; these will have improved now, almost certainly.[9] ISA provides vehicle owners with various financial benefits, such as increased fuel or battery efficiency, lower vehicle operating costs, reductions in insurance costs and less risk of speeding penalties.

[7] Infographic by ETSC - MEPs urged to prevent weakening of Intelligent Speed Assistance requirements | ETSC
[8] Intelligent_Speed_Assistance_FAQs_2013.pdf (etsc.eu)
[9] Intelligent Speed Assistance a smart move for road safety | Thatcham Research

A study for the European Commission found the other public benefits, including reduced CO2 emissions and encouraging walking and cycling due to increased perceived safety.[10]

ISA is seen as the most effective in-vehicle system for reducing speeding and improving driver and passenger safety. Wide area 20mph speed limits are being introduced extensively in towns, and nationally in Wales from 2023. ISA is seen as crucial to make these effective where physical traffic calming is not installed. In June 2015, Transport for London (TfL) began testing an after-market ISA system on buses serving two routes in London. ISA was particularly effective when travelling through 20mph zones - helping to ensure other vehicles in the area adhered to the limit. All buses fitted with ISA remained within the speed limit 97-99% of the time.[11] TfL intends to have ISA fitted to most of the bus fleet as older vehicles are replaced. Around 16 per cent of the fleet has it now.[12] TfL is trialling ISA in other vehicles (vans, LGVs etc) in its fleet.

UK research over the last 20 years has shown vehicle safety to be the single most important means of preventing and mitigating serious injury in motor vehicle crashes and the most efficient means of reducing deaths and serious injuries in road crashes.[13] [14]

This has been achieved by a combination of essential vehicle safety regulation which is continually updated in line with technical progress, consumer information [particularly use of the European New Car Assessment Programme (Euro NCAP) safety ratings] and industry innovation. Government can also help improve vehicle safety and emissions globally; it is an international challenge that requires a harmonised policy approach.

AN INTEGRATED PACKAGE OF NEW SAFETY MEASURES

The UK should implement a new integrated package of 15 vehicle safety measures

An integrated package of 15 measures (Appendix A) has been developed by UK vehicle safety research, working with partners in the EU to revise the General Safety and Pedestrian Safety Regulations. The UK government was fully involved and supportive. These measures will be implemented for new vehicles across the EU and Northern Ireland from July 2022. It provides the benchmark for international harmonisation for cars, vans, and heavy goods vehicles in the short term. The UK Government now needs to grasp the opportunity and adopt this package in its new type of approval arrangements. This will allow

[10] https://ec.europa.eu/transport/road_safety/statistics-and-analysis/statistics-and-analysis-archive/esafety/intelligent-speed-adaptation-isa_en

[11] Successful trials prove effectiveness of speed limiting technology on buses - Transport for London (tfl.gov.uk)

[12] https://tfl.gov.uk/corporate/transparency/freedom-of-information/foi-request-detail?referenceId=FOI-1087-2021

[13] Cuerden, R., Lloyd, L., Wallbank, C., & Seidl, M. (2015). The potential for vehicle safety standards to prevent road deaths and injuries in Brazil. Crowthorne: Transport Research Laboratory.

[14] Stigson et al. (2011) Use of car crashes resulting in injuries to identify system weaknesses.

a substantial, efficient, and cost-effective contribution to preventing death and serious injury on our roads which cannot be achieved by market forces alone.

Benefits of the new safety regulations

TRL calculated, on behalf of the EC, that adopting the revised General Safety and Pedestrian Safety Regulations will result in 25,000 fewer deaths and 145,000 fewer serious injuries in the EU over 16 years to 2037, with a benefit-cost ratio of 1.27.[15,16] TRL described the package as the most important safety measure since the introduction of the mandatory seat belt use, some 40 years ago. It is important to note that the benefits were calculated for the package as a whole and cannot be disaggregated as the measures work in synergy.

At the request of PACTS, TRL has estimated the savings for the UK.[17] Assuming GB adopts the complete package, the total savings will be approximately:

- Fatalities prevented: 1,762
- Serious Casualties prevented: 15,612

This casualty reduction would give economic benefits of approximately **£7 billion**.

This was calculated over a 16-year time frame but given the UK's decarbonisation targets there is now the opportunity to achieve these reductions over a significantly shorter timescale as the fleet is electrified and the purchase of low-carbon vehicles is promoted.

It is also worth noting that GB has significantly more crashes involving vulnerable road users (pedestrians 26% compared to EU 21%) and therefore it is likely that the package of measures that work as a system will be more effective in GB than in the EU. The adoption of ISA, AEB for all other road users, truck direct vision standards, car and light van improved pedestrian protection are examples of measures that will have a proportionally greater benefit in GB than the rest of the EU, because of the EU crash typology upon which the baseline benefits are based on.

MAINTAINING THE UK'S POSITION AT THE FOREFRONT OF VEHICLE SAFETY

For many years Britain has been at the forefront of vehicle safety standards development. The new national type-approval scheme must commit to the continuing adoption of best practice vehicle safety standards, now being implemented at the European level, so that Britain can maintain its leadership role and competitiveness.

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[15] Cost-effectiveness analysis of policy options for the mandatory implementation of different sets of vehicle safety measures - Publications Office of the EU (europa.eu)

[16] Safety policy making in a 'Smarter World' (etsc.eu)

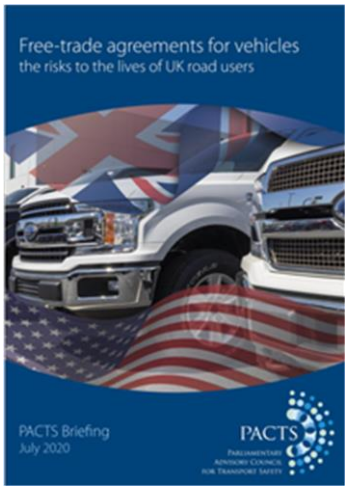
[17] Calculation by Richard Cuerden, Academy Director, TRL. This is a high-level calculation and there are several complex factors. However, in the absence of one from the government, it appears to be the best available.

Arrangements for a new national type-approval scheme for vehicle standards were the subject of a recent DfT consultation. PACTS responded, urging the adoption of best practice regulation.[18] These present an opportunity for Britain to maintain its leadership in international vehicle safety and develop technologies vital to Connected and Autonomous Vehicle Systems (CAVs).

Local deviations from harmonised international regulations for series type-approval, such as those developed at the UN level, tend to increase complexity for industry, increase consumer costs and decrease consumer choice. This is because unique certification for a relatively small proportion of global vehicle sales either adds costs or discourages manufacturers from making affected products available in that market.

Not adopting standards at least equal to those of the General Safety Regulation revisions will put the UK industry at a competitive disadvantage. Most British-built vehicle exports (the SMMT says 55%) are to the EU, so many vehicles developed and built in the UK will have to be designed to comply with GSR; imports from non-EU regions, which are not designed to comply with GSR, could therefore be brought into the UK market at a lower price, disadvantaging UK industry.

The UK should also proactively encourage global harmonisation of these standards through its engagement in the UN World Forum for Harmonisation of Vehicle Regulations. This is especially important for the Group of Twenty leading industrialised countries which account for approximately 90% of global vehicle production. Levelling up vehicle standards worldwide is a key component of the Global Plan for the UN Decade of Action 2021-2030 (which aims to halve road deaths and injuries by 2030) but will also help establish a level playing field for the automotive industry and generate economies of scale that benefit the consumer by making best available safety technologies even more affordable.



PACTS is seeking to ensure that future international trade deals do not result in lower safety standards for vehicles in the UK – whether home-produced or imported.

UK pedestrians must not become the "chlorinated chickens" in automotive free trade deals.

[18] PACTS-submission-to-Future-of-transport-regulatory-review-modernising-vehicle-standards-2.pdf

Proactive regulatory vehicle safety initiatives will help the UK industry to remain a competitive leader in safety and environmental regulation and standards.

This relates particularly to the challenges of simultaneously developing zero carbon and safe vehicles, supporting the transition to CAVs. The advanced driver assistance technologies highlighted above, now in many vehicles on the road and legislated for elsewhere, will be key to realising the UK vision for CAVs.

The UK has led the world in the field of vehicle safety over several decades, including crash testing and establishing the Euro NCAP. The Future of Transport Regulatory Review is a critical opportunity for the UK government to place the UK, UK road users and UK industry at the forefront once again. It is entirely consistent with the Government's wide policies on Global Britain, levelling up, building back better and greener, net-zero carbon and more. PACTS urges the government to seize the opportunity.

FURTHER MEASURES

Britain could use its regulatory independence and demonstrate global leadership with three further measures:

- Government Buying Standards for Transport require new car purchases by the central government to have a minimum Euro NCAP 5* safety rating.[19] This should be extended to local authorities and the NHS.
- Mandate Direct Vision Standards for UK HGVs from 2024. These help HGV drivers to see pedestrians and cyclists. They already apply in London[20] and will apply in the EU from 2026.
- Mandate anti-lock braking systems (ABS) for new powered two-wheelers over 50cc or capable of speeds above 30 mph. This would add little cost and would reduce motorcyclist casualties. Currently, ABS is required only for motorcycles above 125cc.

[19] Government Buying Standards for transport 2017 - GOV.UK (www.gov.uk)
[20] Direct Vision Standard and HGV Safety Permit - Transport for London (tfl.gov.uk)

#STOP
THE
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APPENDIX - A

The measures	Fitment date for new EU vehicle types[21]
1. **Advanced Emergency Braking** • protecting vehicle occupants in i) HGVs and buses ii) cars and vans • protecting pedestrians and cyclists for cars and vans	July 2022 (all types) July 2024
2. **Emergency Stop Signal** for cars, vans, HGVs, and buses	July 2022
3. **Lane Departure Warning and Lane Keeping Assist** helping drivers to avoid inadvertently leaving the carriageway for i) cars and vans and ii) HGVs and buses	July 2022 (all types) July 2022
4. **Intelligent Speed Assistance** supporting lawful driving for cars, vans, HGVs, and buses – the critical cost-benefit measure, underpinning the entire vehicle safety package with the best practice supportive option being the most critical safety element.	July 2022
5. **Driver Drowsiness and Attention Monitoring** to help drivers keep alert for cars, vans, HGVs, and buses	July 2022
6. **Distraction Recognition and Driver Readiness Monitoring** for Automated Driving to help drivers keep focussed on cars, vans, HGVs, and buses	July 2024
7. **Event Data Recorders (EDR)** so key lessons can be learned, and future crashes and injuries prevented for cars, vans, HGVs, and buses	July 2024
8. **Reversing Safety** providing cameras or detection systems to assist drivers of all vehicles for cars, vans, HGVs, and buses	July 2022
9. **Direct Vision** to improve the sighting of vulnerable road users in the HGV and bus driving positions	January 2026 (See note below)[22]
10. **Pedestrian and Cyclist detection and warning systems** on the side of HGVs and buses to alert drivers of the presence of vulnerable road users	July 2022
11. **Alcohol interlock installation facilitation** for cars, vans, HGVs, and buses, which can be used in certain contexts to prevent driving with excess alcohol	July 2022
12. **Improved car and light van protection** for pedestrians and cyclists in the event of a crash	July 2024
13. **Improved frontal impact occupant protection** which does not disadvantage women and older people for cars and vans	July 2022
14. **Improved side impact protection** in crashes with rigid objects for cars and vans	July 2022
15. **Tyre pressure monitoring** for i) cars ii) vans, trucks, and buses	July 2022 July 2024

[21] Official Journal. Regulation (EU) 2019/2144 of the European Parliament and of the Council, 27 November 2019; These are the dates for new vehicle types, and the dates for existing types are typically 2 years after the dates for new types.

[22] The implementation date for Direct Vision to improve the sighting of vulnerable road users in the HGV and bus driving positions (currently 2026) should be brought forward to 2024, given the successful implementation in TfL requirements.

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