

The Chartered Institution of Highways and Transportation (CIHT) response to automated vehicles: statement of safety principles consultation

The Chartered Institution of Highways and Transportation (CIHT) is a charity, learned society and membership body, with over 10,000 members across 12 UK regions and several international groups. CIHT represents and qualifies professionals who plan, design, build, manage, maintain and operate transport and infrastructure.

Question: do you agree or disagree with the purpose of the SoSP being to provide guidance to the Secretary of State in considering the self-driving test?

Agree

Question: why do you think this, and, if relevant, what alternatives would you prefer?

The principles provide a high-level set of guidelines to inform Secretary of State decision making. We believe that AV policy needs to be objective, rather than technology-led, guided by appropriate and proportionate levels of regulation and must be taken forward within the context of a wider multi-modal, integrated transport strategy aligned with economic, social and environmental goals. We therefore welcome work to develop a wider, more comprehensive safety framework alongside the SoSP.
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CIHT believes that the regulatory framework for Automated Vehicles (AVs) should begin by considering the consequences of taking no action, before examining vehicle class (e.g., freight) and vehicle type (e.g., size). This approach allows policymakers to understand the potential unintended consequences of a laissez-faire adoption of AVs.

It is imperative that the wider regulatory framework establishes robust safety measures and ensures that automated vehicles (AVs) enhance, not undermine, the sustainable transport hierarchy. Safety should be considered alongside accessibility, decarbonisation, public health, and the creation of people-centred places. AV deployment should support, rather than compete with, public transport. There remains a significant risk that AV-enabled ride-hailing and private vehicle services increase traffic volumes and draw trips away from public transport and active travel.
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We note that the statement of safety principles does not make explicitly clear how the Secretary of State will monitor safety performance, only that a report setting out the conclusions from the monitoring and assessment will be published each year. One approach we have previously suggested is Digital Commentary Driving to monitor AV safety performance on every mile driven. This is a technique that involves the continuous collection of data from an AV on its perceptions, decisions,

reactions and feedback whilst driving. This adopts a standardised format for AV data collection to enable analysis of AV safety performance in a manner analogous to “commentary driving” (a technique used to train and assess human drivers in which they verbalise relevant information in the driving scene).

We believe more details could be provided on the process involved and how the Secretary of State will apply the principles to make the safety assessment.

Question: Do you agree or disagree with the safety standard for automated vehicles being set at equivalent to careful and competent human drivers?

Disagree

Question: why do you think this, and, if relevant, what alternatives would you prefer?

AVs should be better than a careful and competent driver: AVs must demonstrate a significant reduction in fatalities and serious injuries, not just parity with careful and competent drivers.

As noted in this consultation, The AV Act 2024 identifies the safety outcome that authorised automated vehicles will achieve a level of safety equivalent to or higher than, that of careful and competent drivers.

AV policy needs to be objective, rather than technology-led, guided by appropriate and proportionate levels of regulation. Although a higher safety standard may well result in requirements being placed on developers in addition to those specified internationally, this should not deter ambitious safety standards.

Public acceptance depends on perceived as well as actual safety. The safety principles should establish a high safety threshold aligned with Vision Zero, prioritise vulnerable road users, ensure clear accountability, and make sure the benefits of AVs are accessible to all communities rather than only early adopters.

Question: Do you agree or disagree with using behaviours as the basis for developing the principles within the statement of safety principles?

Agree

Question: why do you think this, and, if relevant, what alternatives would you prefer?

We welcome that public perceptions of safety have formed part of the thinking around using behaviours as the basis for developing the principles. Public acceptance depends on perceived as well as actual safety. AVs remove familiar

human cues such as eye contact or gestures, which may make pedestrians and cyclists feel less secure.

All vehicle models by all manufacturers should operate in consistent, intuitively understandable ways in their operating environment, to avoid confusion for other road users in the same space.

Although not included in the safety principles, we suggest that somewhere in the regulatory framework there should be processes to ensure that developers assess impacts on perceived safety across genders, ages and abilities, and design AV behaviour to minimise intimidation. AV behaviour could evolve dependent on conditions, even without OTA (over the air) updates; as such, there will need to be clarity over how the software can be validated as safe and certified and what machine learning is “allowed” within that certification.

However, one potential issue with using behaviours as the basis for the SoSP is that it focusses largely on the safety performance of individual AVs but neglects the system-level impacts on the transport network. Safety should not be assessed solely at the vehicle level but also in terms of network-wide outcomes, including impacts on traffic volumes, exposure to risk, congestion, and overall transport system performance. An AV could be technically safe in isolation whilst still contributing to adverse transport outcomes through induced demand or increased vehicle kilometres travelled.

Question: do you agree or disagree with the identified behaviours of:

- **vehicle control**
- **hazard anticipation, perception and reaction**
- **obeying traffic rules**
- **interaction with other road users**
- **adaptability to road conditions**

Agree

Question: why do you think this?

The behaviours identified align with the legal expectations of licensed drivers.

Question: in your view, if any, what behaviours do you think are missing and why?

We suggest that Principle 7 should be strengthened to say that AV behaviour must prioritise vulnerable road users (pedestrians, cyclists, micromobility and moped and motorcycle users) in line with the Highway Code. Current language that AVs

should 'interact safely' and 'be considerate' around vulnerable road users is not strong enough.

AVs should be able to use sourced data to navigate away from a crash scenario which is unavoidable in some cases with human drivers.

Question: do you agree or disagree that the proposed principles on improving road safety for all and interacting safely with other road users provide sufficient protection for all road users?

Disagree

Question: why do you think this, and, if relevant, what alternatives would you prefer?

While we welcome the drafted principles – which align with safety concerns we have previously raised and in particular, calls for continuous monitoring of safety performance, a prioritisation of vulnerable road users in line with the Highway Code and ensuring that automated vehicles behave in a way other road users understand – as stated, in answers to previous questions, there are some areas which do not go far enough.

As suggested in our answer to the previous question, Principle 7 should be strengthened to say that AV behaviour must prioritise vulnerable road users (pedestrians, cyclists, micromobility and moped and motorcycle users) in line with the Highway Code. Current language that AVs should 'interact safely' and 'be considerate' around vulnerable road users is not strong enough.

CIHT believes that the deployment of automated vehicles must complement, not dilute, the sustainable transport hierarchy as reflected in the updated Highway Code. AV technology should be introduced in a way that enhances - rather than competes with - sustainable mobility choices, supports modal shift, and reinforces wider government objectives on decarbonisation, accessible streets, health, and inclusive travel.

We would also like to emphasise that the safety case for AVs must account for system-level impacts. Even if individual AVs are safer, unregulated proliferation - particularly of zero-occupancy vehicles - could increase traffic volumes, worsen congestion, and negatively affect safety, noise and public realm quality. Safety should not be assessed solely at the vehicle level but also in terms of network-wide outcomes, including impacts on traffic volumes, exposure to risk, congestion, and overall transport system performance. An AV could be technically safe in isolation whilst still contributing to adverse transport outcomes through induced demand or increased vehicle kilometres travelled. We therefore suggest that an additional principle be included that would allow decision making to take into account and manage induced traffic.

Question: Do you agree or disagree with the inclusion of Principle 1: self-driving vehicles should use the road in accordance with traffic laws and the Highway Code?

Agree

Question: Do you agree or disagree with the inclusion of Principle 2: self-driving vehicles should maintain control over the vehicle at all times?

Agree

Question: Do you agree or disagree with the inclusion of Principle 3: self-driving vehicles should predict, detect and respond to hazards proactively?

Agree

Question: Do you agree or disagree with the inclusion of Principle 4: self-driving vehicles should adapt driving to road and weather conditions?

Agree

Question: Do you agree or disagree with the inclusion of Principle 5: self-driving vehicles should behave in a predictable manner?

Agree

Question: Do you agree or disagree with the inclusion of Principle 6: self-driving vehicles should improve road safety in Great Britain for all?

Agree

Question: Do you agree or disagree with the inclusion of Principle 7: self-driving vehicles should interact safely with all road users, particularly those most at risk?

Agree

Question: Do you agree or disagree with the inclusion of Principle 8: self-driving vehicles should interact safely with emergency services?

Agree

Question: Do you agree or disagree with the inclusion of Principle 9: self-driving vehicles should only operate autonomously within the limits under which they are specifically designed to function?

Agree

Question: Do you agree or disagree with the inclusion of Principle 10: self-driving vehicles should be designed to take account of the specificities of the territory where they will operate?

Agree

Question: Do you have any comments, including textual amendments, on Principle 1?

No comments

Question: Do you have any comments, including textual amendments, on Principle 2?

No comments

Question: Do you have any comments, including textual amendments, on Principle 3?

We highlight that there is a need to better understand the on-road behaviour of AVs on roads during carriageway narrowing, where two vehicles cannot pass simultaneously - there is at present limited evidence as to whether AVs will simply take priority where signed, versus the human drivers' tendency to assessing other vehicles' position and progress to infer the driver's likely behaviour. We also suggest understanding of AV behaviour when markings are superseded and both markings are visible following the alteration is needed. We suggest that these behaviours should be reviewed in the Secretary of State's safety performance monitoring report and could form an important part of how AVs behave in a careful and competent manner.

There are numerous challenging environments that will be critical to public confidence and safe deployment, including temporary traffic management, school streets, shared spaces, informal pedestrian movement, rural roads with limited markings, flooding events, and heavily pedestrianised urban environments which AVs need to be able to operate in safely.

Question: Do you have any comments, including textual amendments, on Principle 4?

We highlight that there is a need to better understand the on-road behaviour of AVs on roads at night in wet weather when road markings are more difficult to see and suggest that this is something reviewed in the Secretary of State's safety performance monitoring report. AVs should be capable with dealing with those conditions successfully.

We also highlight the increasingly unpredictable nature of weather conditions, which AVs must be able to adapt to and navigate safely. Very heavy rainfall and flooding, high winds, extreme heat and roadside fires, heavy snow and ice may all be conditions which AVs will have to deal with as extreme weather incidents impact the road network.

Question: Do you have any comments, including textual amendments, on Principle 5?

No comments

Question: Do you have any comments, including textual amendments, on Principle 6?

We highlight that this principle references occupant safety - we would like to emphasise the importance of personal security for occupants, particularly in relation to ride hailing services. Users may feel vulnerable if they cannot verify the destination, alter the route, or request to exit promptly. Clear standards are needed for in-journey interaction, voice command capability, journey confirmation and emergency exit protocols, including design considerations informed by the safety needs of women and other groups disproportionately affected by harassment. CIHT recommend that careful consideration is given before AVs are used to transport children (especially those with special educational needs) and vulnerable adults.

Question: Do you have any comments, including textual amendments, on Principle 7?

As stated previously, we suggest that Principle 7 should be strengthened to say that AV behaviour must prioritise vulnerable road users (pedestrians, cyclists, micromobility and moped and motorcycle users) in line with the Highway Code. Current language that AVs should 'interact safely' and 'be considerate' around vulnerable road users is not strong enough.

We highlight the need for AVs to recognise vulnerable road users in both urban and rural settings. For example, AVs operating in rural environments may encounter horses, horse drawn carriages and agricultural vehicles. In urban environments AVs are likely to encounter various types of bikes such as cargo bikes and tandem bikes. AVs need to be equipped to recognise all types of vulnerable road users.

Vulnerable road users have a variety of different needs which AVs must recognise to prioritise their safety. For example, many older people have some degree of hearing loss and /or loss of visual acuity. Their ability to interact with silent vehicles is very limited. In addition, we know that anxiety (for example of being knocked over/falling) often drives disabled and older people to limit their mobility and potentially lose their independence with significant economic and social consequences.

Question: Do you have any comments, including textual amendments, on Principle 8?

No comments

Question: Do you have any comments, including textual amendments, on Principle 9?

No comments

Question: Do you have any comments, including textual amendments, on Principle 10?

AV adoption should be able to handle road infrastructure as it is, i.e. in a worn and imperfect state, rather than rely on perfect markings and surfaces (which public agencies will struggle to afford given existing resources). Across UK Local authorities, there are variable images and independent road geometries which differ from Design Manual for Roads and Bridges and Manual for Streets. AVs need to be able to detect objects and events to minimise risks and hazards.

AVs must be integrated into existing street environments without compromising established design principles that prioritise pedestrian and cyclist safety. The Automated Vehicles Act (2024) requires vehicles to adapt to current road conditions, rather than prompting redesigns that could disadvantage vulnerable users. AVs introduction into the sustainable transport hierarchy should enhance, not detract from, inclusive and sustainable mobility

There is a need to consider the state of infrastructure readiness and adaptation at different levels of AV adoption. This is an area of research, exploring questions such as: "Are current roads ready for highly automated driving?". The emerging regulatory ecosystem at a European level - Infrastructure Support Levels for Automated Driving (ISAD) - would be worth considering when developing this area further in the UK.

In the short term, roads and streets will continue to assume human-driven vehicles (physical signs, markings, traffic lights etc.) when they are designed. In the longer-term, the use of AVs may increase significantly.

Traffic control devices can be increasingly digitised (this has major implications for road design, capacity management and operations). Regulatory Digitalisation (i.e. Digital TROs) are just as important as “physical” digitalisation such as digital mapping.

Road environments regularly experience temporary modification and traffic management as a result of street and road works. AVs must be able to recognise these changes in the road environment. Research conducted by CIHT has found that street works and road works are often delivered with poor and inconsistent signage, limited communication, inaccessible, unclear route diversions and can result in road surface degradation. AVs must be able to respond to unexpected road layout and traffic management modifications such as these safely.

Question: in your view, should any currently excluded areas be included in the statement of safety principles?

Yes

Question: which areas should be included? Why do you think they should be included?

It is important that safety principles address:

- cybersecurity risks and resilience of digital networks
- passenger safety: For ride-hailing AVs, the framework must consider personal security. Users may feel vulnerable if they cannot verify the destination, alter the route, or request to exit promptly. Clear standards are needed for in-journey interaction, voice command capability, journey confirmation and emergency exit protocols, including design considerations informed by the safety needs of women and other groups disproportionately affected by harassment. CIHT recommend that careful consideration is given before AVs are used to transport children (especially those with special educational needs) and vulnerable adults. We recommend that driver shields be mandatory for ride-hailing AVs.

Question: In your view, what costs should be taken into consideration when assessing the impact of the statement of safety principles?

Potential costs, which regulation such seek to mitigate are:

- AV deployments undermine active travel through increased traffic volume, kerbside pressure, or reduced public realm quality.
- AVs generate car-based convenience trips that displace public transport or active travel trips.
- AV travel makes longer journeys easier or cheaper, risking encouraging trip lengthening and reducing local living, which runs counter to sustainable planning and place-based policy objectives.
- AV deployment could lead to measures such as increased guard railing or restricted pedestrian access, which would undermine the

street user hierarchy and recent progress in accessibility and public realm. AVs introduction into the sustainable transport hierarchy should enhance, not detract from, inclusive and sustainable mobility.

Question: In your view, what benefits should be taken into consideration when assessing the impact of the statement of safety principles?

Introducing AVs onto UK roads offers potential positive benefits, but to maximise the benefits the risks need to be proportionately regulated for a wide range of risks and practical challenges. AVs can promote mobility benefits for rural areas and disabled users, avoiding concentration of AV benefits among wealthier and urban demographics. This should include people unable to drive for other reasons (not just those who are disabled but also medical reasons for example following traumatic brain injury; stroke or cardiac events, or neurological conditions such as epilepsy). It is important to make sure the transition is as smooth as possible, inclusive and leaves no one behind.

AV technology has significant potential in freight, public transport, trams, service vehicles and maintenance operations. AV deployment could also help to address long standing issues such as first-mile/last-mile connectivity, rural accessibility, demand-responsive transport.

AV deployment should explicitly support wider social objectives, including reducing isolation in rural and peri-urban communities. AVs should operate as first- and last-mile connectors to public transport hubs, complementing existing services. Operators should be required to demonstrate how services will reinforce public transport networks and deliver measurable social value.

We need to ensure AV benefits reach rural and disadvantaged communities and users with mobility, visual or neurological conditions affecting access to transport.

Question: do you have any other comments?

We believe there is insufficient recognition of the role that local authorities and transport authorities will need to play in AV deployment. The draft focuses primarily on the Secretary of State and national regulation, but local highway authorities will be responsible for managing many of the operational consequences. It would be helpful for the Department for Transport to provide clarity regarding local authority involvement in deployment decisions, operational design domains, and ongoing monitoring arrangements.

We would also like to raise the issue on data connectivity and navigation. Both are systems with blind spots, errors and in particular with GPS. The system is not publicly owned and there is a reliance on another State to maintain and provide a level of accuracy. Positional inaccuracies could be critical in dense urban areas and complex junctions. In some urban situations and remote rural areas there will

be limited or no access to mobile data that the vehicle may rely on. In both cases we would require fail safe systems.