

# Automated vehicles: safety principles statement

## Introduction

Thank you for responding to this call for evidence on preparing a statement of safety principles for automated vehicles.

Closing date is 1 September 2025.

### View all questions

This survey provides questions based on user choice, an [overview of the questions is available \[opens in a new window\]](#). All survey questions are optional unless stated otherwise.

### Print or save a copy of your application

When you get to the end of this questionnaire, you will be offered the chance either to print or to save a copy of your application for your records. This option appears after you press 'Submit your response'. All questions are optional unless marked otherwise.

### Save and continue option

You have an option to 'save and continue' your response at any time. If you do that you will be sent a link by email to allow you to continue your response where you left off.

It's very important that you enter your correct email address if you choose to save and continue. If you make a mistake in the email address you won't receive the link you need to complete your response.

### Accessibility statement

Read our [accessibility statement for SmartSurvey forms \[opens in a new window\]](#).

### Data protection regulations

The Department for Transport (DfT) is carrying out this call for evidence on preparing a statement of safety principles for automated vehicles.

View our [DfT online form and survey privacy notice \[opens in a new window\]](#) for more information on how your personal data is processed in relation to this survey.

Additionally we are asking for your:

- current residential location in order to consider in analysing your response since driving standards and perceptions of road safety may vary in different countries
- views and evidence towards the affect that automated vehicles could have with groups of protected characteristics, for your insight into these areas

Although we are not asking for sensitive personal data, any that is provided in response to this consultation will be processed under article 9.2.g, substantial public interest, with reference to the Data Protection Act Schedule 1 Part 2 Section 8 for the purpose of equality of opportunity or treatment.

Do not include personal information in your responses unless specifically requested.

## Your information

### 1. What is your name?

Anna Zee

### 2. What is your email address?

[anna.zee@bmf.co.uk](mailto:anna.zee@bmf.co.uk)

### 3. Are you responding on behalf of an organisation?

☒ Yes

☐ No (Go to 'Individual details')

## Organisation details

### 4. Your organisation's name is?

British Motorcyclists Federation  
This response is also on behalf of the National  
Motorcyclists Council (Contact Craig Carey-Clinch  
[craig@uknmc.org](mailto:craig@uknmc.org) )

### 5. Your organisation is best described as?

- ☐ Academia
- ☐ Disability group
- ☐ Emergency services and police
- ☐ Highway authority
- ☐ Insurance
- ☐ Legal
- ☐ Local government
- ☐ Local representative group
- ☐ Public sector
- ☐ Research, consultancy and professional organisation
- ☐ Trade body
- ☒ Safety and road user group
- ☐ Vehicle manufacturer
- ☐ Vehicle operator
- ☐ Vehicle supply chain
- ☐ Vehicle technology developer
- ☐ Another area:

## 6. Where is your organisation primarily located?

☒ UK

☐ Outside the UK

[Now go to 'Call for evidence']

## Individual details

## 7. Where do you live?

☒ UK

☐ Outside the UK

## Call for evidence

The [Automated Vehicles Act 2024 \[opens in a new window\]](#) has paved the way for the deployment of automated vehicles (AVs). These vehicles must be able to safely and legally drive themselves without a human needing to monitor or control the vehicle for at least part of their journey.

[Section 2 of the Automated Vehicles Act 2024 \[opens in a new window\]](#) requires the Secretary of State for Transport to prepare a statement of safety principles the purpose of which is to establish the safety expectations for self-driving vehicles.

Through this call for evidence we want to asking for your view on how:

- the safety principles may be used
- the safety standard may be described
- safety performance could be measured

Some questions ask about the development of the safety principles themselves while others ask how the safety principles may be used in practice.

[Full details are set out in the call for evidence documentation](#)

## Using the statement of safety principles

The statement of safety principles will be used in different ways across the safety framework established by the Automated Vehicles Act 2024. This includes when:

- authorisation authorities carry out authorisation checks (pre-deployment)
- regulators carry out in-use monitoring and regulatory compliance checks (post-deployment)
- undertaking annual assessments on the overall performance of self-driving vehicles

**8. In your view, are there any other uses for the safety principles that we have not identified?**



Yes



No (Go to 'Pre-deployment characterisation safety')



Don't know (Go to 'Pre-deployment characterisation safety')

## Other uses

### 9. In your view, what other uses might there be for the safety principles and why (provide evidence if possible)?

Comment:

They should be used by ADS/ADAS system builders during system development. There is however a risk that systems may be built to pass a specified test while failing to deal correctly with the generalised case, e.g. as happened with emissions testing.

In all cases, the needs of motorcyclists – the UK's most vulnerable road user group need to be taken into account.

[Attach additional documentation to your return]

## Pre-deployment characterisation

There are 2 processes before automated vehicles can be deployed on the roads which will consider whether the vehicle can safely drive itself on our roads. These are:

1. Vehicle type approval, where new vehicles, their systems and their components are checked to ensure they comply with relevant requirements.
2. Authorisation, which will consider whether automated vehicles can drive safely on our roads.

At pre-deployment the statement of safety principles can inform the requirements set at authorisation for the behaviours and performance expected of AVs.

Our call for evidence provides greater information on the use of the statement of safety principles in [pre-deployment \[opens in new window\]](#).

### **10. Do you agree or disagree with our characterisation of how the statement of safety principles might be used at pre-deployment?**

- ☐ Agree (Go to 'Pre-deployment characterisation safety')
- ☒ Disagree
- ☐ Neither agree nor disagree
- ☐ Don't know (Go to 'Pre-deployment characterisation safety')

## Pre-deployment characterisation reasoning

### 11. Why do you think this (providing evidence if possible)?

Comment:

The definition of the safety case is not strong enough. Where it says the safety case 'could include' it should say 'must include'. Similarly it is not enough to say 'expected to include', again the safety case 'must include' an assessment of risks etc.

It should be possible for the manufacturer to provide a thorough specification of system functionality in the safety case, what it can and can't do and in what circumstances. The primary evidence of competent driving must be provided by formal testing.

[Attach additional documentation to your return]

## Pre-deployment characterisation safety

At pre-deployment, one approach to assess how a vehicle performs against the safety standard may be to include a comparison to the performance of human drivers.

An alternative approach could be to use reference data sets to identify metrics on the typical performance of human drivers (for example, an aggregate analysis). These metrics could be used as a benchmark for supporting claims that the self-driving vehicle meets the safety standard set by the statement of safety principles.

**12. Do you agree or disagree with our characterisation of how the statement of safety principles might be used to inform pre-deployment safety requirements?**

- ☐ Agree (Go to 'Pre-deployment characterisation evidence')
- ☐ Disagree
- ☒ Neither agree nor disagree
- ☐ Don't know (Go to 'Pre-deployment characterisation evidence')

## Pre-deployment characterisation safety reasoning

### 13. Why do you think this (providing evidence if possible)?

Comment:

N/A

[Attach additional documentation to your return]

## Pre-deployment characterisation evidence

**14. What information do you think would need to be provided to the relevant authority pre-deployment to demonstrate consistency with the statement of safety principles?**

There needs to be proper consultation with road user groups affected – including motorcyclists – as part of the development of a suite of required information

**15. In your view what considerations should be taken into account when assessing at pre-deployment whether automated vehicles meet the expectations set by the statement of safety principles?**

The primary consideration must be the performance of the vehicle in testing. This must demonstrate that the vehicle exhibits appropriate behaviour in all test scenarios. Tests should also cover basics such as correct identification of other road users – including motorcyclists - in both expected and unexpected locations, road signs, varying light conditions, various weather conditions etc.

If a comparison with human drivers and riders is required then put a DVSA driving examiner in the car for a test drive to assess capability.

## Post-deployment characterisation

The in-use regulation scheme will consider the ongoing safety performance of automated vehicles. As part of the in-use regulatory scheme consideration should be given as to whether automated vehicles continuously meet the safety standards set by the statement of safety principles.

There is also a duty to investigate relevant incidents that may indicate that an automated vehicle is no longer operating legally or safely and act where necessary.

A range of data might be used to support these investigations and we are interested in exploring how both leading metrics (used to monitor safety risks caused by automated vehicles) and lagging metrics (measure outcomes after an event) should be used.

Additionally, [section 38 of the Automated Vehicle Act 2024 \[opens in a new window\]](#) requires the Secretary of State for Transport to arrange for the effective and proportionate monitoring and assessment of the general performance of authorised automated vehicles on roads and other public places in Great Britain.

More details can be found in the [post-deployment section \[opens in a new window\]](#) of our call for evidence document.

We are now asking for your views on how the statement of safety principles might be used after automated vehicles have been deployed on the roads.

### **16. Do you agree or disagree with our characterisation of how the statement of safety principles might be used at post-deployment?**

- ☐ Agree (Go to 'Post-development evidence')
- ☒ Disagree
- ☐ Neither agree nor disagree
- ☐ Don't know (Go to 'Post-development evidence')

## Post-deployment characterisation

### 17. Why do you think this (proving evidence if possible)?

Comment:

We feel that statutory inspectors should have a requirement to consider the SoSP.

Additionally, the consultation states: 'Other incidents may also be found to have been unavoidable, exceeding what could be reasonably expected from a human driver providing the same safety standard set by the SoSP'. It is anticipated that if there is to be public acceptance of and confidence in autonomous vehicles, then the systems deployed will need to exceed the standard of human drivers, particularly when it comes to observation and identification of risks and where risks are likely to develop on the road ahead during a journey.

This is particularly important for vulnerable road users including motorcyclists, as deficiencies in human observation are a common causation factor in motorcycle related incidents where the car is at fault.

[Attach additional documentation to your return]

## Post-deployment evidence

**18. What information do you think would need to be provided to the authorities post-deployment to demonstrate consistency with the statement of safety principles?**

Each vehicle must be required to maintain an event log. Manufacturers must be required to keep records of any incidents/driving errors/near misses etc. whether or not they result in collisions. Such records must be made available for inspection on request by the appropriate authorities

**19. In your view what considerations should be taken into account when assessing at post-deployment whether automated vehicles meet the expectations set by the statement of safety principles?**

Post deployment scenarios will likely involve incidents on the road, with each individual incident being different and involving different scenarios. Careful review will need to take place involving individuals and organisations with the appropriate expertise. The findings of such reviews need to be backed with a statutory duty for any conclusions and actionable recommendations from the findings to be implemented.

## Careful and competent driving

The Automated Vehicle Act 2024 says

“The principles must be framed with a view to securing that –  
(a) authorised automated vehicles will achieve a level of safety equivalent to, or higher than, that of careful and competent human drivers; and  
(b) road safety in Great Britain will be better as a result of the use of authorised automated vehicles on roads than it would otherwise be.”

This sets the statutory minimum level of safety that the statement of safety principles should aim to achieve as being ‘equivalent to careful and competent human drivers’.

We are now asking you about current driving performance.

More detail is set out in the [setting the safety standard section \[open in new window\]](#) of the call for evidence.

### **20. Provide any evidence you are aware of on the current performance of human drivers?**

Comment:

We would recommend you consult organisations such as IAM RoadSmart for further detail

[Attach additional documentation to your return]

### **21. In your view, does human driving performance improve with competence?**

☒

Yes

☐

No

☐

Don't know (Go to ‘Careful and competent human driving considerations’)

## Careful and competent human driving reasoning

### 22. Why do you think this (providing evidence if possible)?

Comment:

Improvements in human driving come from their personal development of operational competence, with this effect significantly enhanced though post test driver and rider training.

[Attach additional documentation to your return]

## Careful and competent human driving considerations

Our call for evidence document sets out some considerations regarding careful and competent human driving.

For example, a careful driver will:

- be unimpaired and pay attention to the driving task (for example, they are not under the influence of alcohol/drugs and are not distracted by screens or passengers)
- adhere to traffic rules
- use a cautious driving style, which they adapt to the prevailing conditions

The competence of a driver will vary depending on experience and level of training. Some differences in the competence of human drivers are in their:

- ability to anticipate actions by other road users, identify potential hazards, assess the associated risks and plan accordingly
- ability to safely handle a wider range of scenarios and apply expertise to new situations not previously encountered
- familiarity with their vehicle, its limitations and legal restrictions
- level of vehicle control under adverse driving conditions and during vehicle systems and component failures

Full details of the considerations regarding [careful and competent driving \[opens in a new window\]](#) are in our call for evidence documentation.

We are now asking you about what you think makes a human driver careful and competent. Your answer could cover capabilities, behaviours and outcomes.

### **23. In your view what characterises careful and competent human driving and why (providing evidence if possible)?**

Comment:

There are a number of published studies on this, but we would recommend you consult organisations such as IAM RoadSmart for further detail.

[Attach additional documentation to your return]

## Careful and competent automated driving

As we develop the statement of safety principles, we believe that consideration must be given to the expectations for human drivers and road users, and how the behaviours of automated vehicles may differ.

Machines are different from humans. We should expect some instances where the capabilities exhibited by an automated vehicle when executing elements of the driving task may look and feel different to a human. For example, automated vehicles may react to objects beyond the line of sight of a human driver. However, while their actions may differ, it would be unacceptable if this resulted in worse road safety outcomes overall.

The call for evidence document sets out some considerations relating to [careful and competent automated driving \[opens in a new window\]](#).

### **24. Do you agree or disagree with the considerations we have outlined in thinking about careful and competent automated driving?**

- ☐ Yes to all of the considerations (Go to 'Assessing human and automated careful and competent driving')
- ☒ Yes to the majority of the considerations
- ☐ No to the majority of the considerations
- ☐ No to all the considerations
- ☐ Don't know (Go to 'Assessing human and automated careful and competent driving')

## Careful and competent automated driving reasoning

**25. Which consideration do you disagree with and why (providing evidence if possible)?**

Comment:

So that the considerations outlined in the consultation can be refined further, we would urge you to consult further with road safety organisations specialising in driver and rider improvement.

[Attach additional documentation to your return]

## Assessing human and automated careful and competent driving

**26. In your view, how might the assessment of careful and competent driving differ between human drivers and automated vehicles?**

There is a difference in consistency of behaviour between human and automated driving. A careful and competent human driver can generally be expected to exhibit appropriate behaviour in almost all instances of a scenario; lapses from appropriate behaviour may occur in any scenario.

An AV can be expected to exhibit consistent behaviour in that in a given scenario it can be expected to behave in the same way every time. That can mean appropriate behaviour every time or inappropriate behaviour every time.

The assessment of careful and competent automated driving should take this difference into account.

The benefits of consistent good behaviour in automated driving must not be compromised by equally consistent bad behaviour.

## Standard setting

The Automated Vehicle Act 2024 sets the statutory minimum level of safety that the statement of safety principles should aim to achieve as being 'equivalent to careful and competent human drivers'.

The concept of careful and competent human drivers is well established in international regulations, and is anticipated to be included as a general reference in the UNECE's draft automated driving systems regulation.

In previous consultations on automated driving by the Law Commission of England and Wales and the Scottish Law Commission, some respondents felt that this standard was too low. However, others noted that setting the standard too high could suppress the introduction of the technology, delaying the potential road safety benefits

We want to explore the impacts of framing the statement of safety principles at equivalent to, and higher than that of careful and competent human drivers. When thinking about careful and competent drivers, you may wish to consider capabilities, behaviours and outcomes.

More information can be found in our [achieving a safety level better than careful and competent human drivers section \[opens in a new window\]](#) of the call for evidence document.

### **27. In your view, what are the implications of setting a safety standard equivalent to careful and competent human drivers?**

The implication of automated driving being of a standard equivalent to a careful and competent human driver is that it would make some difference to overall road safety because at least it would not be adding careless incompetent drivers to the road. However this assumes that all AVs are careful and competent in all scenarios which is not necessarily the case. Otherwise the only real benefit of automated driving would be to enable people otherwise unqualified to do so to use a car.

From a motorcyclist's perspective it means that an automated vehicle is no better than a human driver at seeing motorcyclists. The evidence so far from current Advanced Driver Assistance Systems is that it would probably be worse. (See the position paper attached to this response.)

**28. In your view what characterises a standard higher than careful and competent human driving (providing evidence if possible)?**

Comment:

We would urge you to consult further with road safety organisations specialising in driver and rider improvement.

[Attach additional documentation to your return]

**29. In your view, what are the implications of setting a higher safety standard than careful and competent human drivers?**

If an AV can behave correctly in a given scenario then it always will and this would reduce harm even if it is no better than a human driver. Improving that performance will further reduce harm.

On the other hand if an AV does not behave correctly then it can also be expected always to do so, increasing the possibility of harm to others. This can be mitigated by ensuring that AV behaviour is tested in as many scenarios as possible, widening the scope of testing.

Proof that AVs have been tested thoroughly will help with public acceptance of automated driving, especially among vulnerable road users including motorcyclists

## Impact of automated vehicles on road users

In setting our safety standard, we must consider the overall population's safety while travelling in or in the vicinity of automated vehicles. We believe the overall improvement in road safety should not come at the expense to safety of any groups of road users, such as cyclists, pedestrians, horse riders, and motorcyclists.

We are therefore asking questions to understand the likely impacts of automated vehicles on other road users.

More information can be found in the [securing an improvement in road safety section \[opens in a new window\]](#) of the call for evidence.

**30. In your view what evidence should be used to assess the safety impact that automated vehicles will have on other road users through the hierarchy of road users (providing specific evidence to support your response)?**

Comment:

We would urge you to consult further with road safety organisations specialising in driver and rider improvement.

It is essential to remember that motorcyclists are part of the hierarchy of road users, as the UK's most vulnerable road user.

Our view is that motorcycles should be regarded as being top of this hierarchy given that they combine speed with dynamic positioning on the road, making them sometimes harder to detect and therefore more vulnerable.

[Attach additional documentation to your return]

We are now asking about groups with protected characteristics and the effect of automated vehicles. The protected characteristics are:

- age
- disability
- gender reassignment
- marriage and civil partnership
- pregnancy and maternity

- race
- religion or belief
- sex and sexual orientation

Do not provide any personal information relating to yourself or another identifiable person.

**31. What evidence are you aware of about the safety impact that automated vehicles will have on groups with protected characteristics?**

Comment:

We do not hold data related to these protected characteristics.

[Attach additional documentation to your return]

## Equality and fairness safety principle

The previous 2023 to 2024 government committed during the passage of the Automated Vehicles Act 2024 that the statement of safety principles would be designed to include a safety principle relating to equality and fairness.

We are now asking you about including an equality and fairness safety principle. We intend to apply an equality and fairness safety principle to the outcomes between different groups of road users, for example, cyclists and pedestrians.

### **32. Do you agree or disagree that an equality and fairness safety principle should be included within the statement of safety principles?**

- ☒ Agree (Go to 'Scope of equality and fairness safety principle')
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Don't know (Go to 'Measuring equality and fairness safety principle')

## Equality and fairness safety principle reasoning

### 33. Why do you think this (providing evidence if you can)?

Comment:

It can be expected that machine learning will be employed to realise automated driving; this can be biased. For example see this report of a paper from 2022: <https://dl.acm.org/doi/10.1145/3560905.3568433>.

If equality and fairness safety principles are included in the SoSP then it follows that the automated systems must be tested against them.

[Attach additional documentation to your return]

## Scope of equality and fairness safety principle

**34. Do you agree or disagree that an equality and fairness safety principle should focus on all road users?**

☒

Agree

☐

Disagree

☐

Neither agree nor disagree

☐

Don't know (Go to 'Measuring equality and fairness safety principle')

## Scope of the equality and fairness safety principle: reasoning

### 35. Why do you think this (providing evidence if possible)?

Comment:

It would hardly be fair and equitable to apply it to only some road users. Indeed failing to apply it to all road users – including motorcyclists, will increase risks to those excluded.

[Attach additional documentation to your return]

## Measuring equality and fairness safety principle

**36. In your view, what metrics, if any, should be considered to support monitoring and evaluation of performance against an equality and fairness safety principle?**

The needs of motorcyclists must be considered within the range of metrics adopted.

Areas to include:

Collision rates per distance travelled, disaggregated by road user type – including motorcycles

Near-miss frequency, including data from sudden braking, or evasive manoeuvres triggered by vulnerable road users – including motorcyclists

Detection reliability rates for motorcycles across varied conditions (urban/rural, day/night, weather)

Response times from detection to evasive action when encountering motorcycles and other vulnerable road users

Junction and lane-change performance, particularly in relation to motorcycle visibility in blind spots and especially junctions and bends.

## Measuring performance under the general monitoring duty

The Automated Vehicle Act 2024 sets out a requirement for the Secretary of State for Transport to put in place effective and proportionate arrangements to monitor and assess the general safety performance of authorised automated vehicles. This includes monitoring and assessing the extent to which performance is consistent with the statement of safety principles.

A range of approaches could be taken to monitor and assess whether the safety standard set by the statement of safety principles is being met, including:

- identifying and monitoring substantial safety outcomes, such as the number of collisions involving automated vehicles or the number of people killed or seriously injured
- monitoring broader measures of safety risk, such as the number of times automated vehicles breach traffic rules

More detail is available in the [measuring performance under the general monitoring duty section \[opens in a new window\]](#) of the call for evidence documentation.

### **37. In your view, what outcomes should be considered for the monitoring and evaluation of performance against the statement of safety principles?**

All cases of injury involving an AV should be investigated to determine causes. This should include consideration of whether or not something in the behaviour of the AV might be a contributing factor even if it is not the direct cause of the incident.

A regular assessment of logged incidents in AVs should be made in order to identify patterns of behaviour which could be improved.

### **38. In your view, what sources of information could be used to monitor and evaluate performance of these outcomes?**

All the regular incident reporting (e.g. STATS19) plus the downloaded records from individual AVs.

## Comparing human and automated driving

We want to explore what evidence could exist on human drivers' performance and how this could be used to make comparisons with automated vehicles' performance.

More information is set out the [making comparisons to the performance of human drivers section \[opens in a new window\]](#) in our call for evidence documentation.

### **39. In your view, what evidence sources could be used to compare the safety performance of human drivers and automated vehicles?**

We would urge you to consult further with road safety organisations specialising in driver and rider improvement

### **40. In your view, what metrics comparing the safety performance of human drivers and automated vehicles should be annually reported on by the Secretary of State?**

All collision statistics (with or without injury) for AVs can be compared with the same statistics for human drivers. Ideally near-miss incidents should be compared too but the data is not usually available for human drivers.

## Other principles for consideration

The previous 2023 to 2024 administration identified several principles that might be included within the statement of safety principles. The policy scoping notes for the introduction of the Automated Vehicle Bill to the House of Lords details these principles.

We believe 3 of these previously identified principles should be considered as enablers of the safety expectations that the statement of safety principles will establish and are therefore better placed within other areas of the regulatory regime. These 3 principles are:

- the ability to drive without human monitoring of the vehicle or road environment or without human control
- cyber resilience
- explainability

More details can be found in our [other principles for consideration section \[opens in a new window\]](#) in the call for evidence documentation.

### 41. Do you agree or disagree with our proposed approach to these potential principles?

☐ Agree

☐ Disagree

☒ Don't know (Go to 'Other principles to include')

## Other principles for consideration reasoning

**42. Why do you think this (providing evidence if possible)?**

Comment:

[Attach additional documentation to your return]

## Other principles to include

**43. In your view, are there any other principles you think should be included within the statement of safety principles?**

- ☐ Yes
- ☐ No (Go to 'Other evidence on safety expectations')
- ☒ Don't know (Go to 'Other evidence on safety expectations')

## Other principles to include

**44. What other principles do you think should be included and why (providing evidence if possible)?**

Comment:

[Attach additional documentation to your return]

## Other evidence on safety expectations

**45. Provide any further evidence you wish to submit for consideration on what safety expectations should be set for the deployment of automated vehicles.**

Comment:

The SoSP must also be applied to ADAS.

The SoSP must contain robust, enforceable safety principles that explicitly recognise the unique situations faced by motorcyclists. With clear technical requirements, routine safety checks, transparent data reporting, and a focus on fairness.

If this is recognised and accepted, the UK has an opportunity to lead in automated driving innovation while safeguarding its most vulnerable road users.

We support the detailed recommendations made by the Motor Cycle Industry Association in their own response to this consultation.

This response form will be accompanied by a copy of the BMF/NCM paper which addresses our approach to the adoption of automated driving. It can also be found via this [link](#). The paper includes material not provided in this response.

[Attach additional documentation to your return]

## Final comments

### 46. Any other comments?

There appear to be a number of discrepancies between the consultation document, the response form and the online survey with respect to the numbering of the questions. This has not been helpful.