Motorcycle Industry Association (MCIA) submission

Automated vehicles: statement of safety principles consultation – 9th September 2026

About MCIA

MCIA is the trade association for 'L-Category' vehicles, which include powered two, three, and light four-wheeled vehicles (i.e., mopeds, motorcycles, tricycles, and quadricycles). Members include manufacturers of whole vehicles, accessories and components and those providing associated services to the industry.

With a mission to promote and protect the industry, MCIA works tirelessly to advance the growth, safety, and sustainability of L-Category vehicles. MCIA plays a vital role in shaping policies and regulations that impact the industry, working closely with Government bodies and other relevant stakeholders to ensure the potential of our vehicles is fully harnessed.

MCIA also actively promotes motorcycle safety, aiming to enhance awareness and education among users and the public. Through campaigns, initiatives, and partnerships, MCIA strives to reduce accidents, improve rider skills, and advocate for the implementation of effective safety measures.

Executive Summary

1. MCIA supports the safe and responsible introduction of automated vehicles (AVs) where they deliver genuine improvements in road safety. AVs will operate in mixed traffic alongside motorcycles and mopeds. Their ability to detect PTWs, maintain awareness of their position and likely movement, account appropriately for uncertainty and respond safely will therefore have direct consequences for rider safety.

2. MCIA supports the inclusion of the ten proposed principles and welcomes the explicit reference to motorcyclists within Principle 7. However, the principles remain high-level and should be strengthened through measurable requirements addressing the particular characteristics, behaviours and vulnerabilities of PTWs.

3. MCIA agrees that the SoSP should guide the Secretary of State when considering whether a vehicle satisfies the self-driving test. The SoSP also has an important statutory role in the ongoing monitoring of authorised AVs. It should therefore provide a consistent reference point across authorisation, annual fleet monitoring, incident investigation, enforcement and proportionate reassessment.

4. MCIA does not agree that equivalence with a careful and competent human driver should be treated as the complete safety standard. MCIA accepts equivalence as the statutory minimum threshold, particularly given the value of international harmonisation, but authorisation should additionally require evidence that the vehicle is expected to contribute to an overall improvement in road safety and will

not cause a material or disproportionate increase in exposure-adjusted risk for any identifiable road-user group, including PTW users.

5. MCIA supports the inclusion of Principles 6 and 7 but does not consider that their current wording provides sufficient protection for PTW users. In particular, the requirement to be “considerate” around road users who are most at risk is too subjective; the principles do not expressly require reliable detection or continued awareness of PTWs; and they do not require safety performance to be assessed separately for different road-user groups, with proper account taken of exposure.

6. The SoSP should be supported by assessment guidance requiring representative PTW-specific scenarios. These should include filtering, junction and roundabout movements, lane changes and merging, PTWs approaching from the rear or side, partial occlusion, variable lane positioning, use of permitted bus lanes, poor road surfaces, adverse weather and reduced visibility.

7. The monitoring framework should capture collisions, low-severity impacts, near misses, critical conflicts, evasive manoeuvres, perception failures, unsafe lane changes and fallback events involving PTWs. Results should be disaggregated by road-user type, adjusted for exposure where practicable, and distinguish simple involvement from incidents in which the automated driving system contributed to the risk.

8. Requirements for evidential traceability and for the recording and retention of safety-relevant information should be reflected more clearly in the SoSP or its supporting guidance. An AV should generate and retain sufficient information to demonstrate compliance, supporting effective investigation and enable correction action, without requiring public disclosure of commercially sensitive source code.

9. With these amendments, the SoSP can provide a credible foundation for AV authorisation while protecting those road users who face the most serious consequences when systems fail.

Purpose of the Statement of Safety Principles

10. MCIA agrees, with qualifications, that the principal purpose of the SoSP should be to provide guidance to the Secretary of State when considering whether a vehicle satisfies the self-driving test.

11. The SoSP should provide clear and consistent guidance when determining whether an AV is capable of travelling autonomously, safely and legally. A central statement is necessary to ensure that authorisation decisions are based on common safety expectations rather than inconsistent or vehicle-specific interpretations.

12. The SoSP has two related statutory functions: supporting decisions on whether a vehicle meets the self-driving test at authorisation and supporting the ongoing monitoring of the safety performance of authorised AVs. Its application should therefore provide continuity between the evidence used to demonstrate safety before deployment and the performance expected and monitored once vehicles are operating on public roads.

13. The SoSP should therefore provide a common reference point across:
    - Evidence generated through type approval and pre-deployment assessment;
    - The self-driving test and authorisation;
    - Annual monitoring of fleet performance;
    - Investigation of collisions, near misses and unsafe behaviour;
    - Decisions on regulatory restriction, sanctions or corrective action;
    - Proportionate reassessment following significant software or hardware changes; and
    - Suspension or withdrawal of authorisation where safety standards are no longer met.

14. Using a consistent reference point across the regulatory lifecycle would help to maintain continuity between the behaviours demonstrated at authorisation and the performance expected after deployment.

15. The SoSP should also be sufficiently precise to allow regulators, manufacturers, automated driving system developers and road users to understand the evidence that will be required. Broad principles will only provide effective guidance if they are supported by detailed assessment protocols, technical standards and representative scenario-based testing requirements.

The Careful and Competent Safety Standard

16. MCIA disagrees that equivalence with a careful and competent human driver should be treated as the complete safety standard, although it accepts equivalence as the statutory minimum threshold.

17. The Automated Vehicles Act requires the SoSP to be framed with a view to securing two related outcomes: that authorised AVs achieve a level of safety equivalent to or higher than that of careful and competent human drivers, and that road safety in Great Britain is better as a result of their use.

18. Equivalence should therefore be regarded as the minimum threshold for authorisation rather than the overall safety ambition for AVs. An AV should not be authorised merely because it is expected to reproduce the performance of a careful and competent human driver if the wider evidence does not demonstrate that its deployment will contribute to improved road safety.

19. AVs are being introduced partly on the basis that they can avoid many of the limitations associated with human driving. They do not become tired, distracted or impaired and may be capable of monitoring their surroundings continuously. A standard that seeks only to reproduce careful human driving risks underusing those potential capabilities.

20. There is also a particular difficulty in applying an aggregate standard to road users who face greater consequences in the event of a collision. An automated fleet could perform better than human drivers overall while performing less safely in particular interactions with PTWs. A substantial reduction in car-to-car collisions could statistically outweigh a smaller increase in incidents involving PTWs, despite the much greater likelihood of serious injury to a PTW user.

21. The safety standard should therefore require AVs to achieve at least the safety level of a careful and competent human driver, demonstrate that they are expected to improve road safety overall, and not cause a material or disproportionate increase in exposure-adjusted risk for any identifiable road-user group, including PTW users.

22. Performance should be assessed both at fleet level and by road-user group, using an appropriately matched human-driver baseline. Where evidence is limited by low exposure or small sample sizes, the assessment should report that uncertainty rather than relying on aggregate results that may conceal poorer performance involving PTWs.

Using Behaviours as the Basis of the Principles

23. MCIA agrees with using behaviours as the basis for developing the principles within the SoSP. Behaviour-based principles are an appropriate foundation because they describe how an AV should operate in the real road environment. They are also capable of being assessed through a combination of simulation, closed-track testing and real-world evidence.

24. A behavioural approach is particularly relevant to interactions with PTWs. Safety cannot be assessed simply by establishing whether the AV detects that another object is present. It must also be determined whether the system:
    - Recognises and, where necessary for safe interaction, correctly classifies the road user;
    - Maintains an adequate representation of the road user's position and likely movement, including during temporary obstruction;
    - Accounts appropriately for uncertainty in classification, position or predicted movement;
    - Understands the road user's relationship to surrounding traffic;
    - Predicts possible behaviours;
    - Selects an appropriate speed and road position;

- Maintains sufficient longitudinal and lateral separation; and
- Responds safely if the situation changes or the road user behaves differently from the system's initial prediction.

25. However, behaviours should not be used in isolation from system capabilities and safety outcomes. A high-level statement that a vehicle should "interact safely" is insufficient unless the authorisation process explains how that behaviour will be demonstrated and measured.

26. Each principle should therefore be supported by:
    - Clearly defined assessment criteria;
    - Relevant and realistic test scenarios;
    - Measurable performance indicators;
    - Evidence requirements;
    - Minimum acceptable performance thresholds; and
    - Ongoing monitoring capable of confirming that the behaviour continues after deployment.

27. Collisions and casualties will remain important measures, but they are lagging indicators and may take considerable time to produce statistically meaningful results. Leading indicators, including near misses, time-to-collision, post-encroachment time, minimum separation, evasive manoeuvres and perception failures, should therefore supplement outcome data. These measures should be interpreted in the context of exposure, operating conditions and the number of relevant interactions, rather than as unadjusted event totals.

Identified Behaviours

28. MCIA agrees that the identified behaviours – vehicle control, hazard anticipation, perception and reaction, obeying traffic rules, interaction with other road users, and adaptability to road conditions – are the correct broad categories, but they are not sufficiently comprehensive or detailed in their present form.

29. The identified behaviours capture essential elements of safe driving and provide a logical structure for the SoSP. Each is relevant to PTW safety. In particular:
    - Vehicle control is essential because abrupt braking or lateral movement can create significant risks for nearby PTW users;
    - Anticipation and perception are critical because PTWs have a smaller visual profile and may approach from positions not occupied by conventional passenger vehicles;
    - Compliance with traffic rules must include proper recognition of filtering and PTW use of bus lanes where appropriate;
    - Safe interaction requires automated systems to understand the distinctive movement and vulnerability of PTWs; and

- Adaptability to road conditions must take account of the fact that PTW users may change speed or road position to avoid surface defects or other hazards.

30. The categories should nevertheless be supplemented by more specific behavioural and system capabilities.

Missing Behaviours

31. MCIA considers that the following should be included more explicitly.

32. **Reliable detection and continuous awareness**: detection alone is insufficient. AVs must reliably detect PTWs and maintain an adequate representation of their position and likely movement throughout an interaction, including during temporary occlusion by another vehicle or road feature. Where a PTW cannot be directly observed, the system should account for the uncertainty in its driving strategy, preserve an appropriate safety margin and avoid assuming that the PTW will reappear only in the position initially predicted.

33. **Prediction of mode-specific behaviour**: the system should predict the behaviour of PTWs on the basis of how those vehicles lawfully and ordinarily use the road, rather than treating them as scaled-down cars. This includes understanding that PTW users may:
    - Filter through slow-moving traffic or stationary traffic;
    - Occupy different lateral positions within a lane;
    - Approach from the rear or side of another vehicle;
    - Accelerate more rapidly than surrounding traffic;
    - Reposition to improve visibility;
    - Use a permitted bus lane; or
    - Alter speed or position to avoid poor road surfaces.

34. **Safe gap acceptance and lateral interaction**: the principles should expressly address decisions involving:
    - Emerging from junctions;
    - Turning across the path of another vehicle;
    - Changing lanes;
    - Merging;
    - Overtaking;
    - Entering and leaving roundabouts; and
    - Opening or closing space around a filtering rider.

35. Many serious PTW collisions arise from failures to see a rider or correctly judge speed and distance. Safe gap acceptance should therefore be treated as a core automated-driving behaviour.

36. **Maintaining safe separation**: AVs should maintain safe and proportionate longitudinal and lateral separation from vulnerable road users. This should include avoiding lane positioning that unnecessarily narrows the available space for a PTW.

37. **Recognition of system faults and degraded performance**: the vehicle should detect faults or degraded capability affecting sensors, perception, classification or decision-making and respond safely. It should not continue to operate autonomously where its ability to identify or respond to vulnerable road users is compromised.

38. **Collision avoidance and harm minimisation**: the vehicle should select responses that avoid a collision wherever reasonably possible and minimise the likely severity of harm where a collision cannot be avoided. This is particularly important for PTW users and other vulnerable road users, for whom even relatively low-speed or low-force contact can have serious consequences.

Protection for all road users

39. MCIA disagrees that the proposed principles on improving road safety for all and interacting safely with other road users provides sufficient protection for all road users.

40. Principles six and seven establish the correct intention: AVs should improve road safety for all and interact safely with those most at risk. MCIA particularly welcomes the express reference to motorcyclists within Principle seven. However, the current wording does not translate that intention into a sufficiently clear or measurable standard. There are four principal weaknesses:

    a. First, the phrase “being considerate around” vulnerable road users is too subjective. It does not establish what the vehicle must be capable of doing and cannot readily be translated into an authorisation test.
    b. Second, the principles do not expressly require reliable detection, classification, tracking or prediction; these capabilities are prerequisites for safe interaction with PTWs.
    c. Third, the principles do not require safety performance to be assessed separately for different road-use groups. An overall improvement in safety should not be permitted to conceal an increase in risk to riders.
    d. Fourth, the principles do not identify the real-world scenarios in which safe interaction must be demonstrated.

41. The principles should instead establish that AVs must:
    - Reliably detect road users and maintain sufficient awareness of their position and likely movement;
    - Account for uncertainty, temporary occlusion and the distinctive characteristics of different road-user groups;

- Recognise and respond safely to lawful and reasonably foreseeable PTW behaviour;
- Maintain safe and proportionate longitudinal and lateral separation;
- Avoid transferring disproportionate risk onto PTW users or other groups facing greater consequences in the event of a collision;
- Demonstrate safe performance in representative mixed-traffic scenarios; and
- Be monitored using data disaggregated by road-user group and adjusted for exposure where practicable

The Individual Principles

Principle 1: Self-driving vehicles should use the road in accordance with traffic laws and the Highway Code

42. MCIA agrees with the inclusion of this principle. Compliance with traffic law and the Highway Code is a fundamental requirement. The principle should expressly encompass the hierarchy of road users and the provisions relating to road users requiring extra care, junctions, overtaking, safe passing distances and PTW filtering.

43. Automated systems must recognise that filtering, dynamic lane positioning and use of an authorised bus lane are ordinary aspects of PTW use. These behaviours should not be treated as inherently abnormal or non-compliant, although the system must remain capable of responding appropriately where any road user behaves unlawfully or unexpectedly.

44. MCIA proposes the following amendment:
    - Self-driving vehicles should use the road in accordance with traffic laws and the Highway Code, including the hierarchy of road users and the provisions relating to road users requiring extra care.

45. The explanatory text should state:
    - This includes recognising and responding safely to the lawful and reasonably foreseeable behaviours of different road-user groups, including PTW filtering, dynamic road positioning and use of permitted road space.

Principle 2: Self-driving vehicles should maintain control over the vehicle at all times

46. MCIA agrees with this principle. Maintaining control must include control over speed, braking, acceleration, direction and lateral road position. Smooth and stable operation is particularly important around PTW use because abrupt braking, acceleration or lateral movement may force a rider to take emergency action or may destabilise the rider.

47. MCIA proposes that the explanatory text be amended to state:
    - This includes performing the driving task smoothly, safely and in a stable manner during both ordinary and unexpected conditions, and avoiding unnecessarily abrupt braking, acceleration or movements that could create additional risk for nearby road users.

48. The need to avoid abrupt movement should not prevent decisive emergency action where this is necessary to avoid a collision or minimise greater harm.

Principle 3: Self-driving vehicles should predict, detect and respond to hazards proactively

49. MCIA agrees with the inclusion of this principle, subject to textual amendment. Other road users should not be characterised only as hazards. The principle should distinguish between recognising and maintaining awareness of other road users and identifying hazards within the wider road environment.

50. MCIA proposes the following title:
    - Self-driving vehicles should detect and appropriately classify other road users and hazards, maintain awareness of their position and likely movement, and respond proactively.

51. The explanatory text should state:
    - This includes reliably detecting and, where necessary for safe interaction, classifying other road users; maintaining an adequate representation of their position and likely movement, including during temporary occlusion; identifying existing or emerging hazards; and taking safe, timely and contextually appropriate action to avoid or minimise harm. Where uncertainty remains, the vehicle should adopt an appropriately precautionary driving strategy and maintain sufficient safety margins.

52. For PTWs, assessment should include the representative scenarios identified in paragraph 104, including filtering, partial occlusion, blind-spot interactions, junction and roundabout movements, et al.

53. A momentary initial detection is not sufficient if the system subsequently loses awareness of the PTW. Where direct observation is temporarily interrupted, the vehicle must account for the PTW's possible position and movement, reflect uncertainty in its driving strategy and avoid undertaking a manoeuvre unless it can do so safely.

Principle 4: Self-driving vehicles should adapt driving to road and weather conditions

54. MCIA agrees. The principle should recognise not only how road and weather conditions affect the AV, but also how they affect the behaviour of surrounding road users.

55. PTW users may alter their speed or position to avoid a number of hazards – such as potholes, loose debris, ice, etc. These movements may be necessary for safety and should not be interpreted by the automated system as irrational or unpredictable behaviour.

56. MCIA proposes the following addition:
    - The vehicle should also anticipate that road and weather conditions may cause other road users, particularly PTW users, to change speed, direction or road position and should maintain sufficient safety margins to accommodate those movements.

Principle 5: Self-driving vehicles should behave in a predictable manner

57. MCIA agrees. Predictability is particularly important for PTW users, who may be positioned alongside or close to an AV and must be able to understand its likely movement.

58. The explanatory text should include:
    - Signalling with sufficient notice;
    - Maintaining a stable and comprehensible road position;
    - Avoiding unnecessarily abrupt lane changes;
    - Avoiding ambiguous movement at junctions;
    - Avoiding unnecessary encroachment into space being used by a PTW; and
    - Responding consistently to common mixed-traffic situations.

59. MCIA proposes the following amendment:
    - This includes behaving in a way that other road users can reasonably understand, communicating intentions clearly and with sufficient notice, and avoiding sudden or ambiguous movements that could create risk for others.

60. MCIA also recognises that road users frequently interpret subtle vehicle movements and other cues when assessing another vehicle's intentions. Where an AV uses its driving behaviour or any external interface to communicate intent, that communication should be clear and intuitive and should not create ambiguity or encourage another road users to make an unsafe assumption about the AV's intended action.

Principle 6: Self-driving vehicles should improve road safety in Great Britain for all

61. MCIA agrees with the inclusion of this principle but considers that its wording and supporting assessment framework must be strengthened. An overall improvement in road safety must not be achieved by transferring disproportionate risk onto a smaller or more vulnerable road-user group.

62. The phrase “seeking to minimise risk” is weaker than is appropriate for a central safety principle. Similarly, “avoiding any disproportionate increase” does not explain how changes in risk will be identified, measured or distinguished between different road-user groups.

63. MCIA proposes the following wording:
    - Self-driving vehicles should improve road safety in Great Britain for all. This includes minimising risk to occupants and other road users and ensuring that authorised operation does not cause or transfer a disproportionate increase in risk to any road-user group. Where a safety risk arises, the vehicle should act to avoid a collision and minimise the potential for harm.

64. This principle should operate at two levels:
    - At authorisation, the safety case should demonstrate that the vehicle is expected to improve road safety overall and will not cause a material or disproportionate increase in risk to any identifiable road-user group within its authorised operating conditions; and
    - Following deployment, in-use monitoring should determine whether that expectation is being achieved in practice and enable regulatory intervention where poorer performance is identified.

65. Performance should be reported separately for PTW users, cyclists, pedestrians, equestrians, occupants of other vehicles and other identifiable groups facing distinctive risks. Exposure must also be considered. A low absolute number of incidents involving PTWs may reflect their smaller share of traffic or a limited number of interactions with AVs rather than safe system performance. Where the evidence base is small, the resulting uncertainty should be reported transparently.

Principle 7: Self-driving vehicles should interact safely with all road users, particularly vulnerable road users

66. MCIA agrees strongly with the inclusion of this principle but does not consider that the current explanatory wording provides a sufficiently clear or measurable safety requirement.

67. This is the principle of greatest direct relevance to PTW users. MCIA welcomes the explicit inclusion of motorcyclists. However, the requirement to be “considerate” does not define what the vehicle must be capable of doing or provide a sufficient basis for authorisation testing.

68. MCIA proposes the following wording:

- Self-driving vehicles should interact safely with all road users, particularly those most at risk in the event of a collision.

69. The explanatory text should state:
    - This includes reliably detecting road users and maintaining appropriate awareness of their position and likely movement; responding safely to their lawful and reasonably foreseeable behaviour; accounting for uncertainty or temporary occlusion; and maintaining safe and proportionate separation. Assessment should expressly include pedestrians, cyclists, PTW users, equestrians, children, older adults and disabled people.

70. Assessment of this principle should include mandatory PTW-specific scenarios rather than relying solely on general vulnerable-road-user testing. The scenarios should reflect the variety of PTW sizes, profiles and behaviours encountered on British roads.

Principle 8: Self-driving vehicles should interact safely with emergency services

71. MCIA agrees. The principle should encompass emergency-service PTW vehicles as well as larger emergency vehicles. The AV must be capable of:
    - Detecting emergency vehicles of all sizes;
    - Recognising emergency lighting and audible warnings;
    - Responding appropriately without moving unexpectedly into the path of a PTW; and
    - Creating space safely where required.

72. MCIA proposes the following addition to the explanatory text:
    - This includes recognising and responding safely to emergency-service vehicles of different types and sizes, including emergency PTWs, and to signals or instructions given by emergency personnel.

Principle 9: Self-driving vehicles should only operate autonomously within the limits under which they are specifically designed to function

73. MCIA agrees with the inclusion of this principle. The limits of authorised operation must include the system's demonstrated ability to interact safely with PTWs and other road users within the relevant operational design domain.

74. Where a system has not demonstrated that it can operate safely in a particular mixed-traffic scenario, the relevant condition should be excluded from its authorised operation or addressed through an appropriate operating restriction. An AV should not be authorised to undertake manoeuvres in circumstances where lawful PTW filtering is reasonably foreseeable unless its ability to identify and respond safely to filtering riders has been validated.

75. The explanatory text should make clear that the vehicle must:
    - Recognise when environmental or operational conditions approach or exceed its authorised capabilities;
    - Identify degradation affecting sensors, software or other safety-critical systems;
    - Account for uncertainty and avoid transferring the resulting risk to nearby road users;
    - Implement an appropriate fallback or minimal-risk response where safe autonomous performance cannot be assured; and
    - Avoid continuing the affected manoeuvre or journey in self-driving mode until the relevant conditions for safe operation have been restored.

76. Significant changes to software, sensors or other perception-related hardware should trigger proportionate revalidation where they could affect the vehicle's ability to detect, predict or respond safely to PTWs.

Principle 10: Self-driving vehicles should be designed to take account of the specificities of the territory where they will operate

77. MCIA strongly agrees with the inclusion of this principle. Evidence from overseas operations may be informative but cannot automatically demonstrate safe performance on British roads. Road layouts, traffic composition, rules, infrastructure, weather and road-user behaviours may differ significantly.

78. The current wording refers to data being representative of GB "drivers". This is too narrow. The relevant evidence must be representative of the full road environment and the range of road users with whom AVs will interact.

79. MCIA proposes the following wording:
    - Self-driving vehicles should be designed, tested and validated to take account of the specific characteristics of the territory in which they will operate.

80. The explanatory note should state:
    - Where safety is assessed through comparisons with human road users or through data derived from road use, the evidence should be representative of comparable locations, road layouts, traffic composition, environmental conditions and lawful road-user behaviours within Great Britain.

81. For PTWs, GB-specific assessment should include:
    - Filtering through stationary and slow-moving traffic;
    - PTW use of permitted bus lanes;
    - Complex junctions and roundabouts;
    - Urban and rural roads;
    - Narrow lanes and constrained road space;
    - Vehicles approaching from rear and side positions;
    - Poor surfaces and temporary road layouts;

- Adverse weather; and
- Night-time and low-visibility conditions.

82. Development, training, verification and validation evidence should contain sufficient representation of L-Category vehicles to demonstrate reliable performance across different sizes, configurations and visual profiles. This should include mopeds, scooters, motorcycles, powered three-wheelers and quadricycles. The safety case should demonstrate that under-representation of these vehicles has not resulted in poorer detection, classification or prediction performance.

Areas Excluded from the Principles

83. MCIA considers that evidential traceability, recordability and structured learning from incidents should be reflected in the SoSP or its supporting authorisation guidance.

84. MCIA recognises that detailed provisions concerning cyber security, software updates, incident investigation and the responsibilities of regulated entities may appropriately sit within other parts of the AV framework. However, complete exclusion from the SoSP risks creating a Statement that describes the desired behaviour without ensuring that the behaviour can be evidenced, understood and maintained.

85. The Secretary of State cannot make a well-founded authorisation decision unless the available evidence demonstrates how the system responded in representative safety-critical scenarios and why that response was consistent with the SoSP.

86. Following a collision, near miss or other safety-critical event, investigators must be able to determine:
    - What the system detected;
    - Whether awareness of their position and movement was maintained;
    - What behaviour the system predicted and what uncertainty remained;
    - What manoeuvre options were available;
    - When the system decided to act; and
    - The basis on which the response was selected

87. This does not require public disclosure of commercially sensitive source code or explanation of every internal computational process. It requires sufficient safety-relevant information to demonstrate compliance, reconstruct safety-critical events and support effective investigation.

88. MCIA proposes the following additional principle:
    - Self-driving vehicles should generate and retain sufficient safety-relevant information to demonstrate compliance with the Statement of Safety Principles, support incident investigation and enable corrective action.

89. If the Government does not consider this suitable as a standalone principle, it should at minimum be included as an explicit requirement in the supporting authorisation, data and monitoring framework.

90. Learning from incidents and near misses should also be recognised. Where an unsafe pattern is identified in one vehicle or operation, relevant learning should be considered across other vehicles using the same or materially similar automated driving system. This does not mean that AVs should make uncontrolled changes to their own behaviour. Any resulting changes must be governed, validated and traceable.

91. In relation to cyber security, MCIA accepts that detailed cyber-security requirements should sit within the wider regulatory framework. However, the integrity of safety-critical perception, decision-making and control systems is a prerequisite for satisfying the self-driving test.

92. Rather than treating cyber security as part of the vehicle's operational design domain, the wider framework should require a suspected compromise affecting safety-critical functions to trigger an appropriate safe response, preservation and reporting of relevant information, and prevention of further self-driving operation until system integrity can be assured. The SoSP or its supporting guidance should cross-refer clearly to that requirement.

Costs

93. The policy appraisal should consider both the direct cost of meeting robust safety requirements and the potentially much greater societal cost arising from principles that fail to provide adequate protection.

94. Direct industry costs may include developing representative testing scenarios, collecting and validating PTW data, conducting simulation and controlled real-world trials, retaining safety-relevant information, monitoring in-use performance and revalidating safety-critical system changes. MCIA members may also incur costs through providing representative vehicles, technical data and specialist expertise to support the development of assessment methods. These should be regarded as legitimate and proportionate costs of demonstrating that an AV is safe to operate without human monitoring.

95. Costs to Government and regulators may include developing assessment capability, recruiting specialist expertise, collecting and auditing data, investigating incidents and maintaining effective in-use oversight. The appraisal should also consider the societal costs arising from inadequate requirements, including fatalities and serious injuries, NHS and social-care costs, emergency-service and collision-investigation costs, insurance claims, increased premiums, congestion and disruption.

96. These consequences are not distributed equally. PTW users have limited physical protection, meaning that an impact considered minor from the perspective of a larger vehicle may have severe consequences for a rider. The appraisal should therefore consider the severity and distribution of harm, rather than relying only on the total number of incidents.

97. The appraisal should also consider the wider mobility implications if concern about AV safety discourages the use of PTWs. These may include effects on congestion, affordable mobility, commuting, urban logistics and the ability of different transport modes to operate together safely.

Benefits

98. A robust SoSP could improve road safety, support responsible innovation and deliver wider economic, societal and transport-system benefits.

99. Automated systems may reduce collisions associated with failures to detect PTWs, misjudgements of speed or distance, unsafe junction emergence, turning across a rider's path, unsafe lane changes, failures to check blind spots, distraction, fatigue and impairment.

100. The benefits should include reductions not only in collisions and casualties but also in near misses and other situations requiring riders to take evasive action. Reducing the frequency of these interactions would improve both objective safety outcomes and riders' confidence in sharing the road with AVs.

101. Potential economic and societal benefits include lower healthcare and emergency-service costs, fewer insurance claims, reduced congestion and disruption following collisions, fewer days lost to injury, reduced vehicle and infrastructure damage, improved evidence for road-safety interventions and more rapid identification of systemic risks.

102. Clear principles and consistent evidence requirements can support innovation by giving developers greater certainty about the standards they must meet. A credible safety framework can also strengthen public acceptance of AVs and the UK's reputation for responsible deployment.

103. For the PTW sector, safer interaction with AVs could reduce collision exposure, support confidence in L-Category mobility and help ensure that new technologies complement existing space-efficient modes rather than displacing or endangering them.

Other Comments

104. The SoSP should be accompanied by assessment guidance identifying the scenarios through which compliance will be demonstrated. Mandatory scenarios should include:
- A PTW filtering between stationary or slow-moving traffic;
- A PTW approaching alongside an AV;
- A PTW approaching from the rear during a lane change;
- A PTW positioned within or moving through a blind-spot;
- An AV emerging from a junction into a rider's path;
- An AV turning across a PTW;
- Interactions at roundabouts;
- A PTW partially obscured by a larger vehicle;
- A PTW user changing position to avoid a road-surface defect;
- A PTW using a permitted bus lane;
- PTWs of different sizes and profiles;
- Operation in rain, darkness, glare and other reduced-visibility conditions; and
- Low-speed contact or conflict that may not create significant deceleration in the AV.

105. Testing should include a proportionate combination of simulation, closed-track testing and controlled real-world trials subject to appropriate safeguards. Simulation has an important role in testing rare, dangerous and highly variable scenarios, but should not be treated as a complete substitute for physical validation and representative mixed-traffic evidence.

106. Independent assurance should form an important part of this assessment process. Safety-critical claims concerning an AV's ability to detect and interact safely with different road users should not rely solely on evidence or interpretation provided by the developer. The authorisation framework should provide for proportionate independent scrutiny of the evidence used to demonstrate compliance with the SoSP, particularly where performance concerns road users who face greater consequences in the event of system failure.

107. The SoSP's effectiveness will depend heavily on the monitoring framework developed alongside it. The Secretary of State is required to report annually on the general performance of the authorised automated fleet, but meaningful assessment will require consistent definitions, reporting thresholds, exposure measures and data-quality requirements.

108. The monitoring framework should capture:
- Collisions involving PTWs, including severity and whether the ADS contributed to the event where this has been determined;
- Low-severity impacts;
- Near misses and critical conflicts meeting clearly defined reporting thresholds;
- Harsh braking or evasive steering;
- Unsafe merging, lane-change and junction interactions;

- Failed, delayed or incorrect detection or classification;
- Loss of tracking or significant uncertainty concerning a PTW's position;
- Minimum longitudinal and lateral separation;
- Time-to-collision and post-encroachment time;
- Safety-driver interventions during trials;
- Fallback or minimal-risk responses following authorisation;
- Complaints or reports made by PTW users; and
- Incidents in which another road user was forced to take evasive action.

109. Each record should include relevant contextual information, including:
- Road type and location;
- Traffic conditions;
- Weather and lighting;
- The type of PTW interaction or conflict;
- Whether filtering or another PTW-specific behaviour was involved;
- The vehicle's operational design domain;
- Automated driving system and software version;
- Relevant sensor status and calibration information;
- The AV's detection, prediction and response;
- Any material uncertainty identified by the system; and
- Whether the ADS was found to have contributed to the incident, where this has been determined.

110. Data should be disaggregated between PTWs and other road users. Aggregated vulnerable-road-user data may conceal important differences in system performance. Results should be adjusted for exposure where practicable, using measures such as AV mileage within the relevant operating conditions and, where feasible, the number of PTW interactions or conflict opportunities. Comparisons should use an appropriately matched human-driver baseline and should report uncertainty where small sample sizes prevent firm conclusions.

111. Regulators should have access to the detailed information necessary to assess compliance and investigate safety concerns. Fleet-level safety data should be independently audited and published in an accessible form. Legitimate commercial interests can be protected through proportionate aggregation or anonymisation, but commercial confidentiality should not prevent regulators or the public from assessing material safety risks.

112. AVs must be capable of recording collisions involving low-mass vehicles. A system that relies solely on a high deceleration threshold may fail to identify side contact or lower-force impacts involving a PTW. Authorisation should therefore require evidence that collisions can be detected through an appropriate combination of sensors and system information rather than through vehicle deceleration alone.

113. Authorisation should not be treated as a one-time assessment. AVs may change through software updates, sensor replacement, maintenance and operational learning. Safety-relevant changes capable of affecting perception, prediction or response should trigger proportionate revalidation. Regulators should also be able to require reassessment where monitoring identifies repeated detection failures, recurring near misses, unsafe interactions at particular locations, poorer exposure-adjusted performance involving a specific road-user group or deterioration following a system update.

114. Where an automated system presents an immediate or recurring risk to PTW users, regulators must be able to impose operating restrictions, require corrective action or suspend authorisation.

115. Assessment and investigation bodies should have access to expertise in PTW behaviour and collision causation. Lawful PTW behaviour must not be misinterpreted because it differs from conventional passenger-vehicle movement.

116. Government and regulators should also maintain structured engagement with PTW manufacturers, PTW representative groups, road-safety organisations and other relevant stakeholders as detailed authorisation and monitoring requirements are developed.

Conclusion

117. MCIA supports innovation in automated-driving technologies where it contributes to genuine improvements in road safety and mobility. AVs have the potential to address common causes of collisions involving PTWs, including failures of observation, unsafe junction movements and poorly executed lane movements.

118. Those benefits cannot be assumed. They must be demonstrated through robust testing, transparent evidence and ongoing monitoring. The draft SoSP represents a positive step, particularly through its express recognition of motorcyclists and its commitment to improving road safety without disproportionately increasing risk to any group. However, the current principles remain too broad to provide adequate assurance for PTW users.

119. The final Statement and its supporting framework should:
- Expressly include PTWs;
- Require reliable detection and continued awareness of road users, including appropriate treatment of uncertainty and temporary occlusion;
- Recognise lawful and reasonably foreseeable PTW behaviours;
- Require safe and proportionate longitudinal and lateral separation;
- Prevent aggregate safety improvements from concealing a material or disproportionate increase in exposure-adjusted risk to PTW users;

- Require representative PTW-specific testing in realistic British road conditions;
- Support detailed, disaggregated and independently scrutinised collision and near-miss monitoring;
- Provide for evidential traceability, recordability and structured learning from incidents; and
- Remain relevant throughout authorisation, annual fleet monitoring and in-use regulation.

120. AVs should only be authorised where there is clear evidence that they can operate safely alongside PTWs within their proposed operating conditions. Where that evidence is absent, operating conditions should be restricted or deployment should not proceed until the relevant shortcomings have been addressed.