LONDONASSEMBLY

July 2026

Transport Committee

This document contains the written evidence received by the Committee in response to its Call for Evidence, which formed part of its investigation into Autonomous Passenger Vehicles in London.

Calls for Evidence are open to anyone to respond to. In May 2026 the Committee published a number of questions related to its investigation, which can be found on page two. The Call for Evidence was open from 22 May 2026 to 26 June 2026.

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Addison Lee Response
London Assembly Transport Committee Call for Evidence
Automated Passenger Vehicles in London

Executive Summary

Addison Lee welcomes the opportunity to contribute to the London Assembly Transport Committee's inquiry into automated passenger vehicles (APVs) in London.

As one of London's largest private hire (PH) operators, with more than 50 years of experience operating transport services in the capital, Addison Lee has a strong interest in how APVs are introduced and integrated into London's transport system.

Addison Lee is currently the only major PH operator in London to hold a fully accredited five-year operator licence issued by TfL, reflecting our long-standing commitment to safety, compliance and operational excellence.

Through our parent company, ComfortDelGro, Addison Lee can draw on practical lessons from markets where automated mobility is already being tested and deployed in operational passenger transport settings, providing valuable insight into the importance of phased deployment, route validation, fleet support infrastructure and close public-sector coordination.

London has an opportunity to become a global leader in safe, passenger-centred APV deployment if it combines innovation with operational discipline.

Our response focuses on six overarching recommendations:

1. Safety must remain the overriding consideration

APVs should only be permitted to scale once operators have demonstrated that systems can operate safely and reliably in London's complex road environment.

The Mayor, TfL and Government should adopt an evidence-led approach in which deployment expands progressively as safety performance is demonstrated, with decisions informed by evidence from testing, pilots and operational deployments.

2. Operational capability should be given equal weight to vehicle technology

Successful deployment depends on a wider operational ecosystem including capabilities such as fleet management, vehicle maintenance, charging infrastructure, customer support, operational control centres, safeguarding arrangements and incident response capability.

The ability to operate passenger services safely and reliably should therefore be regarded as an important component of deployment readiness. This reflects the Government's APS framework, which requires applicants to demonstrate operational competence, good financial standing, operational planning and deployment safety arrangements before services are permitted to operate.

3. London should adopt structured, evidence-led pilot programmes

Experience from Singapore and China demonstrate the value of gradual deployment models, using structured testing, designated operating environments and phased expansion to build operational evidence and public confidence before widening deployment.

We recommend that Government, TfL and operators adopt pilot programmes with clear objectives, measurable outcomes and transparent evaluation criteria. Expansion should be linked

to demonstrated operational capability and safety performance rather than predetermined timescales.

4. Future licensing and permit allocation should support a competitive market

As APS develop, the Mayor, TfL and Government should ensure that market access rewards demonstrable safety performance, operational readiness, passenger outcomes and responsible service integration.

Decisions on future licensing and permit allocation should recognise demonstrated operational capability, safety performance and service quality, whether delivered by established operators, new entrants, or partnerships between the two.

5. Competition and pricing should be monitored as the market develops

TfL and Government should monitor whether pricing practices undermine fair competition, service resilience, safety investment or long-term consumer choice, and consider proportionate interventions if clear evidence of market distortion emerges

6. Ongoing engagement and public confidence should be prioritised

Successful deployment will depend on public confidence and continual learning. TfL should establish a structured engagement process with operators throughout the pilot phase, recognising that successful deployment will depend on public confidence, continual learning and ongoing evaluation.

Full Response

1. How close are autonomous passenger vehicles to becoming a reality in London?

Commercial APS are already operating in several international markets. Through ComfortDelGro, one of the world's largest land transport groups, Addison Lee has been able to observe developments in these markets and gain insight into the practical realities of AV deployment.

One of the clearest lessons from those markets is that successful deployment depends not only on vehicle technology, but on operational capability, regulatory oversight, passenger safeguards, public confidence and the ability to manage transport services at scale.

London presents one of the most challenging operating environments of any major city. The capital's transport network is characterised by high levels of congestion, pedestrian activity, complex junctions, extensive cycling infrastructure, frequent roadworks, major events, airports, rail terminals and highly variable traffic conditions.

Addison Lee believes that APVs are likely to become an increasing reality in London over the coming years, but they should be introduced through a process of testing, piloting and gradual expansion rather than rapid city-wide deployment.

Experience internationally demonstrates the importance of well-designed pilot programmes. The lesson from Guangzhou, and from pilots elsewhere, is that programmes with clear timelines, defined success metrics and measurable outcomes are more likely to generate useful evidence, inform future regulation and build public confidence. Any London pilot deployments should therefore have clear objectives, transparent evaluation criteria and a defined pathway for scaling, adapting or concluding the service.

Addison Lee supports the Government's approach of requiring operators to satisfy regulatory requirements relating to safety, operational capability, safeguarding and accessibility before APS are permitted to scale. We also support the principle that no-user-in-charge operations should only be permitted where regulators and local authorities are satisfied that the necessary safety standards have been achieved.

2. **How will autonomous passenger vehicles navigate London's complicated road network?**

London is one of the most complex urban transport environments in the world. For APS to operate successfully in this environment, vehicle technology will need to be supported by sophisticated operational systems and robust oversight.

Automated systems must demonstrate that they can operate safely around vulnerable road users, including cyclists, pedestrians, motorcyclists and disabled road users. They must also be capable of responding appropriately to temporary road layouts, emergency service activity, major incidents, unexpected road closures, public events and demonstrations, military processions, mounted police and ceremonial activity, and the wide variety of behaviours exhibited by road users in a large city.

International experience demonstrates the value of an evidence-led approach. In China, AV deployment has been supported by designated operating zones that progressively expand only after safety performance and operational readiness have been demonstrated. Operators have been able to gather substantial real-world mileage across a range of urban conditions before expanding their operating areas. Similarly, Singapore's deployment model relies heavily on route-specific validation and carefully controlled operating environments before services are permitted to expand.

London should adopt a similarly evidence-led approach. Operators should be required to demonstrate not only that vehicles can drive autonomously, but also that they can operate safely and reliably across different environments, weather conditions, traffic conditions and service scenarios. This should include evidence from deployment in London-specific environments such as airports, major rail stations, dense city-centre locations, high-cycle corridors, temporary traffic management schemes and areas affected by significant roadworks.

Critically, APS require a wider operational ecosystem. This includes control centres, fleet management systems, vehicle maintenance programmes, charging infrastructure, customer support functions, incident response procedures and recovery operations.

This is an area where experienced passenger transport operators can play an important role. Having operated in London for more than 50 years, Addison Lee has extensive experience managing large vehicle fleets in one of the world's most complex transport environments.

AV deployment will require both advanced technology capability and mature passenger-transport operations. The strongest models are likely to combine ADS expertise with operators that understand fleet service delivery, passenger support, compliance, safeguarding and local transport integration.

We recommend that TfL and Government place equal emphasis on operational capability and vehicle technology when assessing readiness for deployment. Successful APS will depend not only on how vehicles perform, but on the organisations responsible for operating them.

3. What impact would the introduction of autonomous passenger vehicles have in London?

a. The Mayor's Transport Strategy targets, including traffic reduction and increases in walking, wheeling, cycling and public transport

The impact of APVs on the Mayor's Transport Strategy will depend on how services are deployed, regulated and integrated into London's wider transport system.

The Mayor's Transport Strategy includes ambitions to reduce traffic levels by 10-15% and ensure that 80% of journeys are made by walking, cycling or public transport by 2041. APVs could support these objectives by improving access to public transport, strengthening first-and-last-mile connections, and improving mobility in locations where transport options are currently limited.

At the same time, there are legitimate concerns about additional vehicle mileage, for example. Experience internationally demonstrates that these outcomes are influenced by operating models and regulatory frameworks rather than the technology itself.

For this reason, operators should be expected to provide a comprehensive operational plan. We support the Government's requirement for applicants to set out the transport need the service is intended to address, how vehicles will be managed between journeys, how the service will integrate with existing transport provision and how impacts on congestion and kerbside space will be managed.

A particularly important issue will be vehicle utilisation. Government guidance already highlights the importance of understanding what vehicles will do between passenger journeys. In a city where road space is constrained, operators should demonstrate how periods of lower demand will be managed and how unnecessary vehicle movements will be minimised.

This may include using depot facilities for charging, cleaning, software updates, maintenance and vehicle inspections. Such arrangements can help minimise unnecessary vehicle mileage, reduce pressure on kerbside space and support London's wider congestion objectives.

The experience of Singapore is instructive. Automated services have largely been introduced to support broader transport objectives, including improving local connectivity and strengthening links to public transport. Similar opportunities may exist in London around transport hubs, airports, rail stations and areas where access to transport is more limited.

Given the pace at which both the technology and regulatory framework are evolving, ongoing engagement between operators and TfL will be important. Pilot deployments should not be viewed as a one-off approval process but as an opportunity for continual learning, monitoring and refinement as operational experience develops.

We recommend that TfL establishes a structured engagement process with operators throughout the pilot phase to support evidence gathering, identify operational challenges and inform future policy development.

The Mayor and TfL should also ensure that the development of APS supports a competitive and sustainable market. As deployment expands, policymakers should consider not only how services contribute to transport objectives, but also how market structures affect competition, consumer choice and long-term resilience.

b. Safety and the public purpose of London's roads

Public safety must remain the overriding consideration in any deployment of APVs. AV technology has the potential to contribute positively to road safety. Human error remains a significant contributor to road traffic collisions and there is a reasonable expectation that automated systems may reduce some categories of incidents over time.

However, London should not assume safety benefits in advance of evidence. Safety claims should be supported by operational performance data gathered through testing and deployment in environments that are relevant to London.

Public confidence remains a significant challenge for the introduction of AVs. Survey evidence suggests many Londoners remain cautious about travelling in driverless vehicles, reinforcing the importance of transparency, clear safety reporting and visible regulatory oversight.

Operators should be required to report incidents, near misses and safety-related events in a consistent manner. Regulators should have access to sufficient information to identify emerging trends and intervene where necessary. Equally important is the ability to learn from incidents and ensure that lessons are shared across the sector.

We recommend that TfL and Government maintain transparent reporting requirements for APS pilots and ensure that safety data is shared in a way that supports public confidence and regulatory learning.

c. **Children, older and disabled people**
d. **Accessibility and passenger safeguarding**

APS have the potential to improve mobility for some users, particularly older people and some disabled passengers. As a long-established operator serving older and disabled passengers across London, Addison Lee's experience is that accessibility is not solely a vehicle design issue. It also depends on booking systems, customer support, communications, operational procedures and the availability of assistance when things go wrong.

The first generation of APVs may not offer the same level of accessibility that currently exists in specialist transport services. Where early APV services cannot meet the full range of accessibility needs, deployment should be limited to use cases where appropriate alternatives, assistance arrangements and clear passenger information are available.

Government guidance already places significant emphasis on accessibility and safeguarding. Operators are expected to demonstrate how services will support older and disabled passengers, how safeguarding risks will be managed and how passenger assistance will be provided.

We welcome the Government's decision to establish the Automated Passenger Services Accessibility Advisory Panel and agree that accessibility requirements should continue to evolve as practical deployment experience is gained.

We also support the Government's approach to requiring safety drivers carrying passengers during the pilot phase to be subject to the same vetting standards as taxi and private hire drivers.

Safeguarding considerations will be particularly important in no-user-in-charge operations. Passengers must have confidence that support is available when required and that operators have robust procedures in place to respond to incidents.

The Committee may also wish to consider whether there should be restrictions on unaccompanied minors using APS during the early stages of deployment. Human drivers currently play an important safeguarding role, particularly where concerns arise regarding a child's welfare, vulnerability or ability to complete a journey safely.

While APS may, in time, offer opportunities to improve independent mobility for some younger users, Addison Lee considers that operators should have the ability to apply age-related safeguards for unaccompanied travel, particularly during the early stages of deployment.

We recommend that Government and TfL ensure that safeguarding requirements remain under review as APS develop. Any age-related policies should be risk-based and proportionate, supported by booking controls, verified accounts, remote support, escalation procedures and clear parental consent mechanisms where appropriate.

e. Cybersecurity

The UK regulatory framework already places significant emphasis on cybersecurity obligations for operators and vehicle systems. We support this approach. Operators should be expected to demonstrate compliance with recognised cybersecurity standards and maintain robust arrangements for monitoring, reporting and responding to cyber incidents.

Accountability should be clearly allocated across the deployment chain, with each party responsible for the risks it controls. Operators should be expected to demonstrate robust governance, assurance and escalation arrangements for third-party technology.

f. Londoners' transport choices and public transport ridership

APS have the potential to complement public transport. However, this will depend on deployment choices and regulatory decisions. There may be opportunities to improve connectivity in areas or at times where public transport provision is weaker. First-and-last-mile connections are an obvious example. Experience from Singapore demonstrates how automated services can be deployed to support broader transport objectives rather than operating in isolation.

We encourage policymakers to focus on integration rather than competition. Deployment models that support the wider transport network are likely to deliver greater public value than models focused solely on point-to-point substitution.

London is likely to attract some of the world's largest AV developers and operators. While this investment should be welcomed, policymakers should ensure that market structures continue to support competition, innovation and consumer choice over the long term. A successful market should reward operational excellence, service quality and safety performance.

We recommend that the Mayor, TfL and Government monitor how APS affect market competition, consumer choice and wider transport outcomes as deployments expand.

g. London's taxi and private hire industry, particularly jobs

Addison Lee recognises that many drivers will have concerns about the long-term implications of autonomous technology. Based on international experience and current technology readiness, we believe any transition is likely to take place over an extended period rather than through rapid displacement of existing services. Initial deployments are expected to be limited in scale, geographically constrained and subject to significant regulatory oversight.

The Government has also recognised that early pilot deployments are unlikely to have significant employment impacts given their limited scale. The pilot phase should nevertheless be used to develop a better understanding of how workforce requirements may evolve over time.

Passenger transport services also involve far more than driving. Fleet supervision, customer support, vehicle maintenance, charging operations, compliance, operational control centres and incident management are all essential parts of delivering transport services safely and reliably.

As automated services develop, demand for these functions is likely to increase. New roles are likely to emerge in areas such as fleet supervision, remote operations, maintenance, charging infrastructure, customer support and compliance.

The transition should also recognise the contribution of the existing taxi and PH sector. London's transport network has been supported for decades by professional drivers and operators with extensive knowledge of the city and its transport needs. The introduction of APS should seek to build on that expertise.

We recommend that Government, TfL and industry work together to understand how workforce requirements may evolve and ensure that the transition to APS supports both innovation and long-term sector sustainability.

4. **What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles, and what powers should they be seeking to regulate the sector?**

The first priority should be public safety. Operators should be required to demonstrate clearly how services will operate safely, how incidents will be managed and how passengers will be protected. Safety performance should be monitored continuously, and expansion should be linked to demonstrated operational performance.

We recommend that TfL and Government maintain an evidence-led approach to deployment, with expansion linked to demonstrated safety performance and operational capability rather than predetermined timelines.

The second priority should be operational readiness. APS should not be assessed solely on the capability of vehicle technology. Operators should also be able to demonstrate robust arrangements for fleet management, maintenance, charging, customer support, safeguarding, incident response and regulatory compliance.

The Government's APS guidance rightly places significant emphasis on operational competence, financial standing and organisational capability. In Addison Lee's view, these considerations are likely to be as important as vehicle technology in determining whether a service can operate safely and reliably in a complex urban environment such as London. TfL should therefore place significant weight on the operational capability and track record of prospective operators, particularly their experience operating passenger transport services safely and compliantly in London.

London is one of the world's most complex transport markets. Experience managing fleets, responding to disruption, maintaining service standards, supporting passengers and operating within London's regulatory framework should be recognised as a valuable capability as APS develop.

We recommend that TfL and the Mayor engage with Government at an early stage to shape future licensing and permit allocation frameworks for APS. Where future licensing or permit allocation decisions are required, assessment should recognise relevant operational capability, including passenger safeguarding, incident response, fleet operations and regulatory compliance, whether delivered by established operators, new entrants, or partnerships between the two.

TfL should also consider how market access develops as APS mature. London should avoid a situation in which access to the market is determined primarily by factors unrelated to operational performance, safety and service quality.

The third priority should be transparency. Operators should provide regulators with appropriate information relating to safety, accessibility, operational performance and service delivery. Transparent reporting will help build public confidence and support evidence-based policymaking.

The Committee may also wish to consider whether additional market safeguards could be required as the sector develops. We recommend that the Committee encourages TfL and Government to monitor whether pricing practices undermine fair competition, service resilience, safety investment or long-term consumer choice, and consider proportionate interventions if clear evidence of market distortion emerges.

The fourth priority should be accessibility and safeguarding. Operators should demonstrate clearly how services will support older and disabled passengers and how safeguarding risks will be managed before services are permitted to scale.

We recommend that TfL establishes a formal operator engagement forum for APS pilots. Given the pace at which the technology and regulatory framework are evolving, ongoing dialogue between operators, regulators and local stakeholders will be critical to understanding operational challenges, sharing lessons and refining policy.

The APS framework already provides TfL with a significant role through its consent function and the wider consultation requirements built into the permitting scheme. The immediate priority should be ensuring that these powers are exercised effectively and supported by appropriate information sharing, transparency and operational reporting.

5. **What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?**

The most important lesson from international deployments is that successful rollout is typically gradual, evidence-led and closely supervised. Neither China nor Singapore has pursued immediate unrestricted deployment. Instead, both jurisdictions have expanded operations progressively as evidence has been gathered and confidence has developed.

China's experience demonstrates the value of designated operating areas, phased expansion and operational learning at scale. Authorities have used pilot zones to build evidence before widening operating domains and introducing more complex use cases.

Singapore offers a complementary lesson. Rather than focusing primarily on commercial deployment, Singapore has concentrated on specific transport use cases that support wider public transport objectives. Deployment has been accompanied by structured testing, route-specific validation, public engagement and strong regulatory oversight.

Drawing on international experience, Addison Lee recommends that the Committee encourages the Mayor, TfL and Government to:

- **Adopt a phased, evidence-led approach to deployment**, with expansion linked to demonstrated safety and operational performance rather than predetermined timelines.
- **Establish clear objectives, timelines and evaluation criteria for pilot programmes**, ensuring that deployments generate evidence, inform future regulation and provide a clear basis for decisions on scaling, adapting or concluding services.
- **Place equal emphasis on operational capability and vehicle technology when assessing deployment readiness**, recognising the importance of fleet management,

maintenance, charging infrastructure, customer support, safeguarding and regulatory compliance.

- **Support a competitive and sustainable market for APS**, ensuring that market access rewards demonstrable safety performance, operational readiness, passenger outcomes and responsible service integration.
- **Maintain structured engagement between operators, regulators and local stakeholders throughout the pilot phase**, enabling continual learning, monitoring and policy refinement as operational experience develops.
- **Prioritise public confidence through transparency, reporting and visible regulatory oversight**, ensuring that safety performance, incidents and lessons learned are communicated clearly and consistently.
- **Monitor the impact of pricing practices and market concentration as the sector develops**, and consider additional safeguards where evidence emerges that competition, consumer choice or long-term market sustainability are being undermined.

Age UK London submission to the call for evidence: Autonomous Passenger Vehicles in London.
London Assembly Transport Committee, June 2026

About this submission.

In this submission we have only responded to question 3, as we felt that to be most appropriate based on our experience. Please note that Age UK London does not have a fully developed position on this topic. Instead, we have sought to share what older Londoners have told us, and to raise some considerations which we feel are important.

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3. What impact would the introduction of autonomous passenger vehicles have in London? We are particularly interested to hear about the impact on:

- **Safety and public purpose of London's roads**

Older Londoners are a priority group for the Vision Zero Action Plan. Increased frailty with age, including declining bone strength, means that although older pedestrians are proportionally less likely to be involved in traffic collisions, if they are, they are more likely to be seriously injured, with injuries that can take significantly longer time to heal. Declining levels of mobility with age can reduce the ability of some older pedestrians to 'get out of the way' before being hit by a vehicle.

We appreciate that there is no definitive evidence around accidents involving automated passenger vehicles compared to person drive vehicles, however, if there is a link, it should be noted that older people would be among those at greater risk because of the above reasons.

- **Children, older and disabled people**

A small number of older Londoners have contacted Age UK London to express concerns about the introduction of autonomous passenger vehicles. The key themes were, worries that the introduction of automated passenger vehicles would lead to a reduction in vehicles, particularly taxis, taxis that are part of the London Taxicard service, and Dial-a-Ride buses, which are driven by people.

This is usually due to accessibility concerns because the driver is regarded as a source of additional and necessary support. This support can include but is not limited to; helping people step-up into (or step from) vehicles; helping with shopping bags or other items so that people have greater balance and are less likely to fall; and in the case of Dial-a-Ride, a vital 'door-to-door' service for people with frailty, mobility or other impairments that require support from their front door (including to get on and off a vehicle.

Digital exclusion: Other themes covered in responses received included a lack of trust in the service; and concerns that they would be excluded from the service due to digital exclusion (e.g. not have a smartphone or being able to use a booking app).

A lack of trust:

One older Londoner told us that they lacked trust in the service:

“The idea of putting my life in the hands of an invisible driver sends shivers up my spine! I've just returned from the USA where I spotted some of these in town. The large black structure on the roof is the giveaway; but it is very frightening to 'see' what isn't there - the driver.

I really don't see why the idea is being promoted. So many of these AI driven ideas involve real humans losing their jobs. Great possibilities for accidents and injuries, the breakdown of the mechanics of the system when the car loses the 'signal' etc. … why not stick with real taxis with drivers, giving people a way of earning a living?”

In the months before commercial operations begin in London, we believe the development approach should be evidence based and the needs and contributions of older people should be meaningfully included in design, roll out, regulation and communication to the public.

We emphasise the need for clear public communications as part of the roll out to reduce potential anxiety and increase confidence in the service for both users and non-users.

- **Accessibility and passenger safeguarding**

Concerns around accessibility focused on the impact on existing accessible options for Londoners (reductions to these), but also that the automated passenger vehicles would not be accessible because there was no driver to provide support. Further information about this has is covered elsewhere in this submission.

- **Cybersecurity**

One older Londoner told us that:

“I would be nervous that it might get hacked, GPS interfered with, or if there's a fault.”

- **Londoners’ transport choices and risk to public transport ridership numbers**

As mentioned above, older Londoners expressed to Age UK London concerns about the impact on mainstream transport options (reduction in taxis driven by people) and assisted transport options, such as a decline in Dial-a-Ride.

An older Londoner with a visual and hearing impairment told us:

“I would never want to travel in a private hire automated vehicle. There would be millions of older people, perhaps with walking aids, who would require some assistance or even just an elbow of a human being driver to be taken to the vehicle and then assistance at the destination i.e. door-to-door. For those people who are older and with disabilities, the emphasis should be on the increasing number of older people and their needs and for continuing provision well into the future and beyond of door-to-door human being driver support for buses e.g. Dial-A-Ride and private hire vehicles.

Also, a significant number of older people may not be happy or comfortable with such a massive increase in technology e.g. apps just to book and travel in one of these driverless vehicles especially that many of them may have some cognitive decline to cope with this situation."

The following quote is from the same person, but received as part of separate correspondence:

"The private hire AVs should be an addition but the Comcab/Taxicard Addison Lee vehicles should at least be maintained at its present level so that vulnerable people, such as myself, do not become excluded and isolated from society and become like a 'prisoner' at home".

- **London's taxi and private hire industry, particularly jobs.**

Concerns from some older Londoners that contacted us focused on potentially lower numbers of human drivers in the future (private hire vehicles and taxis). Concerns related to a decline on accessibility support but there was also concern about the impact on jobs.

One older Londoner told us:

"Don't like the idea of them. A real taxi driver has the Knowledge of streets and shortest journeys and can react quickly to the unforeseen. Also, he can help with luggage or if someone has a disability. It is taking work away from them when we need jobs more than ever."

26th June 2026

John McGeachy, Campaigns Manager, Age UK London
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Formal Submission to the London Assembly Transport Committee: Call for Evidence on Autonomous Passenger Vehicles

Submitter: App Drivers’ and Couriers’ Union (ADCU)
Date: June 10th, 2026

Committee Inquiry into Autonomous Passenger Vehicles

Executive Summary

The App Drivers' and Couriers' Union (ADCU) represents private hire drivers and couriers across the UK, including thousands working in London.

ADCU is not opposed to technological innovation. However, we are concerned that the current approach to autonomous passenger vehicle (APV) deployment prioritises commercial interests over public safety, democratic accountability, accessibility, and the livelihoods of transport workers.

London is home to approximately 106,000 licensed private hire drivers. Any transition towards autonomous transport services must include meaningful public consultation, robust safety oversight, and a legally enforceable Just Transition for workers whose livelihoods may be affected.

We believe autonomous passenger vehicles should not be deployed at scale in London until their safety has been independently demonstrated, their impact on congestion and accessibility properly assessed, and adequate protections for workers and the public put in place.

What role should the Mayor and TfL play?

The Mayor and TfL should play a central role in regulating and overseeing autonomous passenger vehicles in London.

While permits are issued through national frameworks, London faces unique transport, safety and accessibility challenges. TfL should therefore require:

- Independent London-specific safety assessments.

- Full public transparency regarding incidents and near misses.
- Accessibility standards that meet the needs of disabled passengers.
- Assessment of impacts on congestion, public transport and air quality.
- Economic impact assessments on drivers and transport workers.
- Meaningful consultation with trade unions, disability groups and local communities.

TfL should also retain powers to suspend or restrict operations where safety or public interest concerns arise.

Are autonomous passenger vehicles compatible with the Mayor's Transport Strategy?

Only if strict conditions are met.

The Mayor's Transport Strategy prioritises reducing car dependency, cutting congestion, improving air quality, increasing accessibility, and supporting a safe and professional transport system.

Autonomous vehicles could undermine these objectives if they increase vehicle numbers, generate empty journeys, displace public transport use, or weaken accountability for safety.

Compatibility with the Mayor's Transport Strategy therefore requires:

- No net increase in traffic volumes.
- Demonstrable safety improvements.
- Strong accessibility obligations.
- Protection of public transport.
- A Just Transition for affected workers.

Without these safeguards, autonomous vehicle deployment risks conflicting with London's wider transport and environmental goals.

What are the principal risks?

ADCU believes the main risks are:

Safety

London's roads are among the most complex urban environments in the world. Autonomous systems must demonstrate their ability to safely navigate interactions with pedestrians, cyclists, emergency services, roadworks and unpredictable events.

Employment

Large-scale deployment could significantly affect the livelihoods of private hire drivers and other transport workers. At present, there are no credible plans to manage this transition fairly.

Congestion and Environmental Impact

Evidence from other cities suggests autonomous fleets can increase vehicle miles travelled through repositioning and empty journeys, potentially worsening congestion and environmental impacts.

Accountability

Questions remain regarding legal liability, transparency and public access to safety data when autonomous systems fail.

These risks can only be mitigated through robust regulation, independent oversight and clear accountability mechanisms.

To what extent are autonomous vehicles accessible to all Londoners?

At present, accessibility remains largely unproven.

Many disabled passengers require services that go beyond simply providing a vehicle. Assistance with boarding, wheelchair access, luggage, navigation and communication can be essential.

Any autonomous passenger vehicle service operating in London should be required to provide:

- Wheelchair-accessible vehicles at meaningful scale.
- Reliable service across all boroughs.
- Human assistance when required.
- Transparent reporting on accessibility performance.

Accessibility must be treated as a precondition for deployment, not an afterthought.

What do Londoners think about autonomous passenger vehicles?

There is currently limited large-scale polling on Londoners' attitudes towards autonomous passenger vehicles.

However, ADCU's engagement with residents suggests significant concerns exist.

Following the incident involving a Wayve autonomous vehicle entering a police cordon in Harlesden, ADCU worked alongside Brent Green Party to organise a community protest and public engagement event. Conversations with local residents revealed concerns about:

- Road safety.
- The use of what many viewed as unproven technology.
- Job losses among professional drivers.
- Increased congestion and pollution.
- Lack of public consultation.

Many residents expressed concern that decisions regarding autonomous vehicle trials are being made without sufficient democratic oversight or community involvement.

While some Londoners may see potential benefits from autonomous technologies, public confidence should not be assumed and must be earned through transparency, consultation and evidence.

What lessons can London learn from trials elsewhere?

International experience suggests several key lessons:

- Safety claims require independent verification.
- Clear legal accountability is essential.
- Uncontrolled fleet growth can increase congestion.
- Accessibility requirements must be built in from the outset.
- Public trust depends on transparency.
- Workers require protection during technological transitions.

London should learn from these experiences and adopt a precautionary approach rather than rushing deployment.

ADCU Recommendations

ADCU recommends that the London Assembly Transport Committee call on the Mayor and TfL to:

1. **Pause any expansion of autonomous passenger vehicle trials** until independent London-specific safety assessments, public consultations, and economic impact assessments have been completed.
2. **Require full transparency from operators**, including public reporting of collisions, near misses, system failures, disengagements, service coverage, and vehicle miles travelled.
3. **Establish clear legal accountability** so that responsibility for incidents involving autonomous vehicles cannot be obscured between operators, software developers, and technology suppliers.
4. **Protect London's transport network from increased congestion** by introducing strict controls on fleet size, empty vehicle movements, and vehicle oversupply.
5. **Make accessibility a mandatory condition of operation**, including enforceable standards for wheelchair-accessible vehicles, service availability, and support for disabled passengers.
6. **Commission a full assessment of the impact on employment**, including the likely consequences for private hire drivers, taxi drivers, and other transport workers.
7. **Develop a legally enforceable Just Transition framework**, in partnership with trade unions and worker representatives, including retraining opportunities, income protection measures, and pathways into alternative employment.
8. **Ensure meaningful public and stakeholder engagement** before any large-scale deployment, including consultation with local communities, trade unions, disability organisations, passenger groups, and London boroughs.
9. **Retain strong local oversight by TfL and the Mayor**, ensuring that autonomous vehicle operators are subject to London's transport, safety, accessibility, and consumer protection standards.

ADCU believes these measures are essential to ensure that innovation serves the public interest, protects workers and passengers, and supports London's wider transport, environmental, and social objectives.

Conclusion

Autonomous passenger vehicles have the potential to transform urban transport, but they also present significant risks.

ADCU believes London should adopt a safety-first, people-first approach. Any deployment of autonomous passenger vehicles should be subject to rigorous independent testing, strong local regulation, full public transparency and meaningful democratic oversight.

Most importantly, London must ensure that workers are not expected to bear the costs of technological change alone. Any transition towards autonomous transport must include a binding Just Transition framework that protects livelihoods, provides retraining opportunities and ensures that the benefits of innovation are shared fairly.

Innovation should serve Londoners, not simply technology companies.

ADCU
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June 2026
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[Ref No. AV004, Bolt]

Bolt Submission: Call for Evidence on Autonomous Passenger Vehicles in London

Executive Summary

Bolt welcomes the opportunity to respond to this Call for Evidence on autonomous passenger vehicles in London. As an operator licensing almost 100,000 drivers across the UK, we believe autonomous technology can deliver real benefits for the capital when deployed responsibly: reduced private car ownership, improved vehicle utilisation, modal shift towards more efficient transport, and better accessibility for passengers in the nighttime economy and underserved areas.

Our central position is that autonomous deployment in London must be earned through demonstrated safety and accountability. We support a licensing regime built on rigorous, evidence-based authorisation, with operators required to prove the safety, security and accessibility of their systems in London's specific conditions before any pilot proceeds. Standards should be set at the level the public rightly expects of a service operating on London's roads, and applied consistently to all operators. We expect deployment to be gradual, with safety drivers and user-in-charge models more common in the near term, and new roles emerging across the sector even as driverless technology matures.

We recommend that the Mayor and TfL establish clear, published minimum requirements for pilots, require structured evidence of safety and suitability before authorisation, and coordinate closely with the national framework led by DfT to avoid duplication and inconsistency. We support TfL seeking proportionate consenting powers covering operating areas, fleet sizes, data sharing, accessibility, safeguarding, emergency-services coordination and a public register of authorised vehicles.

3. What impact would the introduction of autonomous passenger vehicles have in London? We are particularly interested to hear about the impact on: a. **The Mayor's Transport Strategy targets, for traffic reduction, and increases in walking, wheeling, cycling and public transport** b. **Safety and public purpose of London's roads** c. **Children, older and disabled people** d. **Accessibility and passenger safeguarding** e. **Cybersecurity** f. **Londoners' transport choices and risk to public transport ridership numbers** g. **London's taxi and private hire industry, particularly jobs.**
Impacts on the Mayor's Transport Strategy – traffic reduction and increases in walking, wheeling, cycling and public transport

The impact of autonomous passenger vehicles on the Mayor's Transport Strategy targets will depend significantly on how the technology is deployed and regulated. If AVs are deployed primarily as shared or pooled services integrated within the existing PHV ecosystem, they have the potential to reduce private car ownership, improve vehicle utilisation and support modal shift towards more efficient forms of transport. Route optimisation enabled by AV technology could also reduce unnecessary vehicle movements and associated congestion.

Impacts on accessibility and passenger safeguarding

AV deployment can also increase the accessibility of taxi services for passengers in the nighttime economy and for those in underserved areas.

AVs may be particularly attractive for operators during peak demand periods, overnight operations, or in areas where driver supply is constrained (such as low-density neighbourhoods), offering improved fleet capability and utilisation. We also anticipate growth in fixed route shuttle services commissioned and supported by local authorities. These may include transport hubs to hospital routes, last-mile connections to rail stations, or circular services on business parks and university campuses.

Impacts on London's taxi and private hire industry and jobs

The introduction of autonomous passenger vehicles will have a significant impact on London's taxi and private hire industry, which currently supports tens of thousands of licensed drivers. Bolt recognises this directly: as an operator licensing almost 100,000 drivers across the UK.

Bolt's expectation is that full autonomous deployment will be gradual. In the near term, vehicles with a safety driver or user-in-charge will be more common than fully driverless operations, and even as driverless technology matures, new roles will emerge in the sector across a range of areas.

A transparent, open licensing regime – with clear safety standards that all operators must meet – is the most effective way to protect both passengers and workers, rather than a regulatory structure that might inadvertently restrict access to the AV market.

4. What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?

Bolt recommends the Mayor and TfL prioritise the following actions:

- **Establish clear engagement standards and minimum requirements for pilots:** TfL should develop transparent minimum requirements for operators wishing to pilot autonomous passenger services in London, covering ODD definition, geofencing parameters, remote operations capability, safety reporting requirements, cybersecurity standards and accessibility obligations. These requirements should be published openly so that all operators are clear about what is expected before they apply.

- **Require evidence-based authorisation, not just notification:** Operators should be required to demonstrate – through structured evidence – that their systems are safe and appropriate for the London environment before any pilot is permitted. This should include scenario-based validation evidence covering nominal, degraded and failure conditions, and specific assessment of performance in London's mixed urban traffic environment.
- **Coordinate closely with the national regulatory framework:** Bolt strongly supports national coordination led by DfT to reduce bureaucratic duplication and ensure that operators are not required to satisfy inconsistent or conflicting requirements from different local authorities. TfL should engage actively in the development of national standards while also ensuring that London's specific conditions are reflected in those standards. TfL should seek to avoid a situation where inconsistent local decision-making creates barriers to safe deployment or, conversely, allows operators to exploit regulatory gaps.

We believe the Mayor and TfL should seek key consenting powers to:

- Approve and condition operating areas for autonomous passenger services in London
- Monitor and approve fleet sizes to prevent disruption
- Require data sharing from operators in a standardised format to support monitoring, enforcement and transport planning
- Set and enforce accessibility standards for autonomous passenger services operating in London, consistent with and where appropriate exceeding national minimum requirements
- Impose safeguarding requirements consistent with those that apply to licensed PHV operators
- Coordinate information sharing with the Metropolitan Police, London Fire Brigade, London Ambulance Service and borough councils, ensuring all relevant parties are familiar with how autonomous vehicles operate, how to respond to incidents, and how to access vehicle safety systems
- Maintain a clear and accessible public register of authorised autonomous vehicles operating in London

BUSINESS LDN

BusinessLDN response to the London Assembly Transport Committee investigation: Autonomous Passenger Vehicles in London

Consultation Response

Response from: BusinessLDN, One Oliver's Yard, 55–71 City Road, London EC1Y 1HQ

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Date submitted: 26 June 2026

INTRODUCTION

1. BusinessLDN welcomes the opportunity to contribute to the London Assembly Transport Committee's investigation into autonomous passenger vehicles (AVs).

2. BusinessLDN is a business membership organisation with the mission to make London the best city in the world to do business, working with and for the whole UK. We work with the support of the capital's major businesses across sectors including housing, commercial property, finance, transport, infrastructure, professional services, ICT and education.

3. London has a long and proven track record of leading transport innovation. From the world's first underground railway to Oyster and contactless ticketing, the Congestion Charge and the Ultra Low Emission Zone, the capital has consistently demonstrated its ability to adopt and scale transformative technologies in ways that improve mobility, support growth and enhance quality of life.

4. AVs represent the next major evolution in urban mobility. They offer an opportunity for London to improve road safety outcomes, accelerate progress toward net zero transport, and strengthen the efficiency of the city's transport system. At the same time, they provide a platform for London to reinforce its position as a global leader in innovation, attract high-value investment, and help shape international standards for the safe and sustainable deployment of emerging technologies.

5. AVs also have the potential to improve the functioning of London's economy by strengthening first- and last-mile connectivity, improving access to employment and services, supporting shift workers and late-night travel, and increasing resilience during periods of transport disruption. As transport infrastructure, they can help employers, workers, customers and visitors move around the capital more efficiently.

6. While AVs are not a silver bullet for London's transport challenges, they are an inevitable and fast-developing part of the future mobility mix. The key question is therefore not whether they arrive, but how London chooses to embrace their deployment in a way that maximises public benefit.

7. London has a clear opportunity to demonstrate that it can move beyond discussing AI and frontier technologies to deploying them responsibly at scale. A clear, proportionate and predictable route to market will strengthen London's international competitiveness while maintaining the high standards of safety and regulation expected by Londoners.
8. In response to the Committee's questions, our views are set out below.

DETAILED COMMENTS

Who is responsible for licensing autonomous passenger vehicles in London and what role do the Mayor and TfL play?

10. The legislative framework for autonomous vehicles is set nationally via the Automated Vehicles Act 2024. In addition, the Automated Vehicles (Permits for Automated Passenger Services) Regulations 2026 came into force, creating a targeted legal framework that allows organisations to deploy commercial passenger services - such as robotaxis and automated shuttles - with or without a human safety driver

11. However, the Mayor and Transport for London (TfL) play a decisive role in shaping how autonomous passenger services operate in practice, including the issuing of permits and consenting powers.

12. As the capital's strategic transport authority, TfL already regulates taxis and private hire services, manages the road network, and oversees delivery of the Mayor's Transport Strategy (MTS). It is therefore well placed to ensure autonomous mobility strengthens, rather than fragments, London's integrated transport system.

13. BusinessLDN believes London should take a proactive, strategic approach to AV deployment. Rather than adapting reactively, TfL and the Mayor should actively shape the conditions under which autonomous services are introduced to ensure they deliver safer, more efficient and more inclusive mobility outcomes.

14. TfL should establish a clear framework ensuring autonomous services:
    - Support Vision Zero and strengthen road safety outcomes;
    - Contribute to the decarbonisation of London's transport system;
    - Integrate effectively with public transport, particularly first-and-last-mile journeys;
    - Reinforce, rather than undermine, mode-share targets in the MTS;
    - Make efficient use of constrained road space;
    - Meet robust and verifiable accessibility standards; and
    - Provide high-quality operational data to support monitoring of congestion, safety and network performance.

15. TfL should also establish a structured forum bringing together operators, boroughs, businesses, accessibility groups, emergency services, training providers and local communities to oversee deployment, identify operational issues and share evidence as services expand.

16. Businesses can contribute practical insight by identifying underserved travel patterns, supporting appropriate pick-up and drop-off locations, and helping shape workforce transition and skills development alongside operators and training providers.

17. This should be supported by clear assessment criteria, indicative decision-making timelines and outcome-based regulation that provides operators and investors with confidence while allowing innovation to develop.

18. The objective should be to actively design the conditions for success, ensuring autonomous mobility strengthens London's competitiveness while delivering tangible benefits for residents and businesses.

How close are commercial operators to deploying autonomous passenger vehicles for hire in London?

19. In London, limited trials are already underway, with further pilots expected to expand in the near term. The timing of fully commercial "robotaxi" deployment will depend on successful trial outcomes, national regulatory development, and approval from both UK Government and TfL.

20. London is unlikely to experience a rapid transformation in mobility. Instead, initial deployment will be phased, geographically targeted, and use-case specific. We support this staged approach as it allows innovation to be introduced safely and responsibly while building public trust over time. Cities that plan early and in a structured manner will be best placed to benefit as deployment accelerates globally.

21. While a phased approach is appropriate, prolonged uncertainty, fragmented decision-making or unnecessary restrictions risk deterring investment and encouraging operators to prioritise deployment in other international cities. London should aim to provide clarity as early as possible while maintaining robust safety oversight.

22. London should therefore be both cautious and ambitious: cautious in ensuring safety and governance, but ambitious in positioning itself as a leading global hub for autonomous mobility, AI-enabled transport systems and urban innovation.

Are autonomous passenger vehicles compatible with the Mayor's Transport Strategy?

23. Yes - provided they are deployed in a way that actively reinforces, rather than competes with, the objectives of the Mayor's Transport Strategy.

24. Properly integrated, AVs can strengthen London's transport system by:
    - Improving late-night and shift worker travel;
    - Supporting staff access to airports, hospitals, universities and hospitality venues;
    - Improving connectivity in outer London where public transport is less comprehensive; and
    - Reducing reliance on private car ownership.

25. AVs should be viewed as complementary to, not a substitute for, London's high-capacity public transport network. The Underground, buses and rail will remain the backbone of urban mobility.

26. International experience - particularly in cities such as San Francisco - demonstrates the value of integrating autonomous services with public transport, including linking ride-hailing journeys to rail and metro networks. London has an opportunity to build on and improve these models.

What are the principal risks associated with autonomous passenger vehicles in London, and can they be mitigated?

27. The principal risks relate to congestion, safety, public trust, accessibility and labour market transition. However, these are manageable through early and coordinated policy design.

28. Without appropriate controls, AVs could increase congestion through empty running, inefficient repositioning and clustering in high-demand areas. In a constrained road environment like London, this makes proactive management essential from the outset.

29. Safety considerations are central. While AVs have strong potential to reduce collisions caused by human error, they must be rigorously tested in complex urban environments. Public confidence will depend on transparency, accountability and consistently high safety standards.

30. At the same time, AV systems present a credible opportunity to significantly reduce road harm over time, particularly where human error is a contributing factor in collisions. For example, a Waymo-Swiss Re study in the United States found significantly lower rates of insurance claims for property damage and bodily injury when comparing Waymo's autonomous service with a geographically matched human-driver benchmark. [1] However, comparisons should be interpreted carefully because autonomous vehicles currently operate in more constrained conditions than human drivers.

31. Labour market impacts will also need careful management. While AVs may reduce demand in some driving roles, they will also create new opportunities in fleet operations, software systems, maintenance and remote supervision.

32. London's transition is therefore best managed as a phased evolution of the workforce rather than abrupt displacement. A hybrid model, where autonomous and human-driven services coexist, provides the most stable pathway for workers, operators and users. Evidence from the United States suggests this approach can also support driver utilisation and earnings.[2] In San Francisco and Los Angeles, where drivers compete against AV-only networks, driver utilisation and hourly earnings declined, with one autonomous vehicle estimated to undertake the work of around four drivers. By contrast, in hybrid markets such as Austin, Atlanta and Phoenix, where autonomous vehicles and drivers operate through the same platform, trip volumes have increased while driver earnings have remained broadly stable. While labour market impacts will differ between operators and markets, the experience to date suggests that hybrid deployment can support workforce transition while maintaining driver earnings during the early stages of adoption.

33. These risks can be mitigated through:
    - Strong controls on empty vehicle mileage;
    - Comprehensive data-sharing between operators and authorities;
    - Clear operational protocols for incidents and roadworks;
    - Effective kerbside and space management; and
    - Continuous monitoring of system-wide impacts.

34. As highlighted in BusinessLDN’s response to the Government’s consultation on Electric Vehicle Excise Duty (eVED), there is also a strong case for evolving more dynamic and integrated road pricing mechanisms to reflect congestion, demand and scarcity of road space more accurately.

To what extent are autonomous passenger vehicles accessible to all Londoners?

35. AVs present a major opportunity to expand accessibility and independence, particularly for disabled and older Londoners, but only if accessibility is embedded from the outset.

[1] Waymo, New Swiss Re Study: Waymo is safer than even the most advanced human-driven vehicles, December 2024

[2] Uber, Unlocking the Promise of Autonomy, 2026

36. London should work closely with operators, disability organisations and transport providers to ensure services are inclusive by design. Collaboration between Waymo and the Royal National Institute of Blind People demonstrates the potential of co-design approaches to deliver genuinely accessible autonomous mobility.

37. Accessibility is not limited to vehicle design. Human assistance will continue to be necessary for some users, reinforcing the importance of a hybrid transport ecosystem combining autonomous and staffed services.

38. There is also a risk that market-led deployment could concentrate services in higher-demand or wealthier areas. A clear policy framework will be required to ensure equitable access across inner and outer London, particularly to support access to employment, education and healthcare.

Are there any benefits that autonomous passenger vehicles could offer in London, and how likely are those benefits to be realised?

39. If deployed effectively, AVs could deliver significant benefits for London, including:
    - Improved road safety over time;
    - Greater accessibility and mobility choice;
    - Enhanced first-and-last-mile connectivity;
    - More efficient use of road space;
    - Progress toward net zero through electrified fleets; and
    - Economic gains through innovation, productivity and investment.

40. The London Growth Plan positions London as a global leader in AI, frontier technologies and the wider innovation economy. Autonomous vehicles (AVs) are a key part of this ecosystem, sitting at the intersection of AI, data, connectivity and advanced software. If London is serious about becoming a world-leading hub for frontier technologies, it cannot overlook one of their most significant real-world applications. Supporting AV deployment would stimulate investment across a much wider ecosystem than software alone, including fleet operations, vehicle maintenance, charging infrastructure, depots, roadside assistance, cyber security, engineering, customer support and local supply chains. These are precisely the kinds of high-value activities London should seek to attract as part of its wider growth strategy. These activities would support highly skilled employment, strengthen London's innovation ecosystem and create opportunities across local supply chains.

41. Other leading global cities are already moving from trials to commercial deployment. London should aim to remain among the cities setting the benchmark for responsible autonomous mobility rather than adopting approaches developed elsewhere.

42. A major proportion of road collisions are linked to human factors such as distraction, fatigue and impairment. AV systems offer the potential to reduce exposure to these risks through consistent rule adherence and continuous sensor-based awareness. However, these benefits are not automatic. They will depend on robust regulation, high-quality data, effective enforcement and integration with wider transport policy.

43. Many London businesses have ambitious net-zero commitments covering their operations, employee travel and vehicle fleets. Fully electric autonomous passenger services could provide

an additional low-emission mobility option for journeys that are less well served by public transport while supporting investment in charging infrastructure.

44. For employers, the benefits extend beyond transport itself. Better first- and last-mile connections, more reliable late-night travel and improved connectivity in outer London can widen labour markets, improve access to customers and increase resilience during planned and unplanned disruption to the transport network.

45. With the right conditions in place, London has a strong opportunity not only to realise the benefits of AVs but to set global standards for their safe and effective deployment.

What lessons can London learn from trials and deployments elsewhere?

46. Three key lessons have emerged from international deployments:
    - AVs work best when integrated into wider transport systems rather than operating in isolation.
    - Public trust is essential and must be built through transparency, accountability and clear safety standards; and
    - Cities must proactively manage impacts on congestion and road space from the outset.

47. London should build on these lessons while recognising its own unique operating environment.

What role should TfL and the Mayor play in the development and oversight of autonomous passenger vehicles?

48. TfL and the Mayor should play a clear leadership and system-shaping role. Rather than simply regulating after deployment, they should actively design the framework within which AVs operate. This should include:
    - Setting clear expectations for operators;
    - Ensuring alignment with the Mayor’s Transport Strategy;
    - Coordinating boroughs and stakeholders;
    - Establishing robust data-sharing frameworks;
    - Managing road space allocation; and
    - Monitoring system-wide impacts.

49. A proactive approach will ensure London remains both globally competitive and locally accountable in the development of autonomous mobility.

What do Londoners think about autonomous passenger vehicles?

50. Public attitudes remain cautious but are not fixed. International experience suggests confidence grows as people experience well-regulated services operating safely in real-world conditions. Polling nevertheless shows that safety and trust remain the principal barriers to acceptance. For example, in an October 2025 YouGov poll 79% of Britons say they trust driverless taxis “not very much” (35%) or “not at all” (44%), while 85% would choose a taxi with a human driver over a driverless one.[3] In a recent HPI survey, Londoners were the most trusting of self-driving technology of any UK region. However, 79% of Londoners still said they would not trust a driverless car or feel comfortable travelling in one, with only 21% saying they would.[4]

[3] YouGov, Do Britons trust driverless taxis and autonomous vehicles, October 2025

[4] HPI, Driverless Cars Research UK: Shifting Public Attitudes Towards Autonomous Vehicles, February 2025

51. Acceptance is strongly dependent on demonstrated safety performance and clear regulatory oversight. As such, trust will be built through transparency, consistent safety outcomes and clear accountability frameworks.

52. Londoners are likely to support AV deployment if it is affordable, safe and reliable. Public engagement must therefore be continuous and embedded throughout deployment.

CONCLUSION

53. BusinessLDN supports a credible route to the safe, accessible and fully electric deployment of autonomous passenger services in London. London businesses stand ready to work with the Mayor, TfL and operators to identify priority use cases, support successful deployment and help ensure autonomous mobility strengthens the capital's productivity, connectivity and global competitiveness.

54. The Mayor and TfL should now provide the clear, proportionate and predictable framework needed to realise these opportunities while maintaining London's high standards for safety, accessibility and public confidence.

55. London has repeatedly shown that it can lead the world in transport innovation. Autonomous passenger services present the next opportunity to do so.

[Ref No. AV006, California Bicycle Coalition]

The California Bicycle Coalition is responding to the Committee's question: "What lessons can London learn from trials and deployments elsewhere?"

CalBike is a statewide nonprofit advocacy organization dedicated to championing the safety of people bicycling, walking, and all vulnerable road users within our communities.

Our communities have lost best friends, children, spouses, neighbors, and have had their bodies and mobility permanently changed by traffic violence. We are united in our commitment to ensuring safer roads for vulnerable road users and the communities they reside in. Traffic violence is an epidemic in the United States, and serious injuries and fatalities disproportionately impact people bicycling and walking, especially in our most disadvantaged communities.

We view autonomous driving technology as a pivotal opportunity to improve roadways across California and nationwide, making them safer for all. Waymo's technology holds the potential to foster a safer roadway environment by eliminating human error and consistently adhering to traffic regulations, such as speed limits, which are too often ignored by human drivers. Waymo's autonomous vehicle technology will not speed to rush through a yellow light, will not be distracted at a stop sign, and does not text while driving.

Waymo has consistently demonstrated a strong commitment to collaborating with our community, considering our needs, and actively seeking feedback as its fleet expands in California. Waymo has shared valuable information on how its technology detects and interacts with our most vulnerable road users, including people walking and bicycling. This has included information about its anti-dooring and safe-exit features, dome communication indicating when a Waymo vehicle is yielding to other road users, and how its vehicles exercise due regard for safety when sharing the road.

While sensationalized collisions involving Waymo vehicles have been shared by the news media, their number pales in comparison to the everyday specter of human driver-caused collisions, which cause significant and avoidable injury and death. From CalBike's perspective, one lesson from California is that autonomous passenger vehicle deployment should be evaluated in relation to the real and ongoing harms of the existing transportation system, especially for people walking, bicycling, and using mobility devices.

Another lesson is that public trust requires sustained engagement with vulnerable road user communities. As autonomous passenger vehicle services expand, operators should be expected to share information, listen to community concerns, and seek feedback on what other road users need in order to safely share the road with this technology.

We believe that the secure and regulated deployment of autonomous vehicles can be compatible with broader goals to improve roadway safety and support communities where people can safely walk, bike, and use public transportation. Based on our experience in California, Waymo has shown a willingness to engage with safety advocates and vulnerable road user organizations in a serious and constructive way.

[Ref No. AV007, Centre for Connected and Autonomous Vehicles]

Centre for Connected and Autonomous Vehicles
Submission to the call for evidence into autonomous passenger vehicles in London

1. **How close are autonomous passenger vehicles to becoming a reality in London?**

A few developers are currently trialling automated vehicle technology in London, following public announcements of their intentions to launch commercial passenger services in London in 2026.

The Automated Passenger Services (APS) permitting scheme for pilot deployments opened to applications on 22 May this year. This is a targeted licensing route designed specifically for self-driving services, including services with a safety-driver of mature technologies on the path to removing them, on the basis that pre-existing licensing routes are predicated on having a human driver operating the vehicle.

The APS scheme is anticipated to facilitate small-scale pilots, allowing potential operators to test the viability of automated services in Great Britain (GB), in advance of full implementation of the Automated Vehicles Act 2024 (AV Act), scheduled for the second half of 2027.

The Driver and Vehicles Standards Agency (DVSA) is the permit granting body for this scheme and will assess information on the proposed service. DVSA will consult local licensing authorities, traffic authorities and emergency services it considers are likely to be substantially affected. For fully self-driving services, this will be accompanied by a rigorous vehicle safety assessment by the Vehicle Certification Agency (VCA). These safety assessments will test whether the vehicle is capable of driving itself without the need for human monitoring or control.

Local licensing authority or franchising body (“consenting authority”) consent is a key component of this scheme. If consent is refused by the consenting authority or authorities in whose area a service is proposed to operate, a permit cannot be granted. Local consenting authorities have a six-week period to give or refuse consent, although the government strongly encourages applicants to approach consenting authorities at the earliest opportunity. There is no requirement for authorities to engage with the process; however, if no response is received or if written reasons are not provided, consent is deemed to have been given.

In March, to support the self-driving vehicle pilot scheme, the government published non-statutory guidance on GOV.UK: https://www.gov.uk/government/publications/automated-passenger-service-permits-local-authority-and-transport-body-roles/automated-passenger-service-permits-local-authority-and-transport-body-roles.

The guidance offers information for prospective applicants, local authorities and transport bodies, and first responders and will be updated as needed.

2. **How will autonomous passenger vehicles navigate London's complicated road network?**

   The VCA is the UK's designated national authority for approving road vehicles. Under the self-driving vehicle pilot scheme, if there is no safety driver and a vehicle special order is applied for, the VCA will undertake an assessment of the Automated Driving System (ADS) fitted to the vehicles. The ADS is the software and hardware which provides the vehicle with self-driving capability. The ADS will have been trained to drive on roads in GB, (including, for example, compliance with road traffic rules).

   The VCA's assessment will be informed by key aspects of the draft UN-ECE ADS Regulation. This has been developed to ensure an internationally harmonised approach to ADS safety, and we expect it to be adopted later this month. This will include an assessment of the ADS safety case, an audit of the safety management system in place to support the ADS, and confirmatory testing.

   In addition, the DVSA will provide specialist support to assess the real-world driving performance of the ADS. The DVSA will also assess safety of the vehicle operator to ensure they can safely operate and maintain roadworthiness of the self-driving vehicle.

   To prepare for self-driving vehicle pilots, several organisations are already undertaking mapping activities and testing their technology on London's roads. This activity utilises the existing Code of Practice, with safety drivers behind the wheel.

3. **What impact would the introduction of autonomous passenger vehicles have in London? We are particularly interested to hear about the impact on:**
   • The Mayor's Transport Strategy targets, for traffic reduction, and increases in walking, wheeling, cycling and public transport
   • Safety and public purpose of London's roads
   • Children, older and disabled people
   • Accessibility and passenger safeguarding
   • Cybersecurity
   • Londoners' transport choices and risk to public transport ridership numbers
   • London's taxi and private hire industry, particularly jobs

   Safety

   The safe deployment of AVs could offer clear opportunities for improving road safety. Within the UK, around 9 in 10 collisions involve human error as a contributory factor. Unlike humans, AVs cannot get tired, distracted or drive under the influence of drugs or alcohol. Some early peer-reviewed evidence from the United States indicate that AVs can operate more safely than human drivers on average.

   The AV Act has paved the way to scale deployments beyond trials. It delivers one of the most comprehensive legal frameworks of its kind anywhere in the world for self-driving vehicles, with safety at its core. It sets out clear legal responsibilities, establishes a safety framework and creates the necessary powers to regulate this new industry.

   The safety assessment for pilots without a safety driver has been developed to align with the structure of our safety framework, including the safety assurance approach set out within the UN's draft ADS Regulation. This has been further bolstered with specific considerations to ensure the safety and security of fleet operators and passenger service providers.

Once APS are operating on our roads, they will be subject to ongoing performance monitoring. This will enable the DVSA and VCA to act quickly if safety concerns are raised, including withdrawing a Vehicle Special Order (VSO) or APS permit if necessary.

In addition to safety monitoring, wider monitoring and evaluation will also build greater understanding of aps by DfT, local transport authorities and the emergency services ahead of full AV Act implementation.

Safeguarding

In light of the Baroness Casey review on Group-based Child Sexual Exploitation and Abuse, and the government's priority to reduce violence against women and girls (VAWG), the Department is committed to ensuring that safeguarding remains a key priority for APS when pilots begin, as with other modes.

Under the legislative framework set out in the AV Act, any operator wishing to deploy APS will need to set out their safeguarding policies. The Department is also giving very careful thought to vetting procedures for those customer-facing staff in permitted deployments. This includes considering the conditions that should be attached to permits to ensure the right protections are in place from day one, such as enhanced DBS check requirements. The government will update its guidance for applicants, local authorities and transport bodies, and other partners as the pilots progress, ensuring learning is embedded throughout implementation.

The Department has also commissioned the National Centre for Social Research to undertake a project on best practice safeguarding research to support the piloting introduction of APS. This research project includes interviews with the transport third sector and industry, including, but not limited to, London centric transport bodies and operators, on existing safeguarding work to help DfT understand what safeguarding considerations there may be unique to AVs. The published research can be shared with the Committee when it is finalised at the end of the year.

DfT engagement

CCAV's Expert Advisory Panel (EAP) is an external advisory panel for the programme of work designed to implement the AV Act. It provides a sounding board for the Automated Vehicles Act implementation programme. Membership includes academics, user groups, accessibility experts (including members of the Department's Disabled Persons Transport Advisory Committee (DPTAC)), law enforcement, and highways authorities. Information on the EAP can be found on GOV.UK: https://www.gov.uk/government/groups/centre-for-connected-and-autonomous-vehicles-expert-advisory-panel

The **Automated Passenger Service Accessibility Advisory Panel (AAP)** is a new, non-statutory panel which is guiding the Department's development of policies and non-statutory guidance relating to the deployment of APS and helping to inform reporting requirements. The Panel includes external members with expertise on, and/or lived experiences of, accessibility considerations. Their role is advisory and non-binding on the Secretary of State as the permit granting authority. Membership comprises, but is not limited to, disability campaigners, mobility designers, social and behavioural researchers and academics. DPTAC also has representatives on the Panel. Information on the AAP can be found on GOV.UK: https://www.gov.uk/government/groups/centre-for-connected-and-autonomous-vehicles-accessibility-advisory-panel

CCAV recently launched the **First Responder Automated Vehicle Working Group (FRAVWG)**, which meets around every six weeks. FRAVWG works with several first responder organisations as well as front line officers and the Home Office. It is chaired by the interim CAV lead of the National Police Chiefs Council (NPCC).

Transport choice & impact on taxi & private hire industry & other services

The impacts will depend on how any service operates. However, the initial roll-out of APS is likely to be small-scale, with operators looking to understand potential routes to commercialisation. This means that impact on existing passenger services is likely to be limited.

APS will grow, complement and improve transport options, increasing the choices available to the public as part of an integrated transport network. Traditional driving roles will remain important, and many consumers will continue to seek human-driven services. These services can also open up new opportunities in fields like software, safety assurance, vehicle engineering, logistics, and customer service.

The Impact Assessment for the Automated Vehicles (Permits for Automated Passenger Services) Regulations 2026 illustrated the scale of the potential impact during pilots. It can be found online here: https://www.legislation.gov.uk/uksi/2026/439/impacts

To gather evidence and data we will implement a robust monitoring and evaluation plan should any pilot deployments be approved.

4. **What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?**

N/A

5. **What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?**

There are a number of developers providing APS in countries such as the US, China and Japan. In March 2026 Waymo, the leading operator in the US, announced that it provides an estimated 500,000 paid rides in a fleet of around 3,000 vehicles every week across ten US cities.

Learnings can be taken from these journeys, including on:

- road safety impacts, where Waymo has reported that data indicates its ADS, the “Waymo Driver”, is reducing traffic injuries and facilities in their operating areas. This could support the ‘Vision Zero’ target for 2041 to eliminate all deaths and serious injuries as set out in the Mayor’s Transport Strategy for London;

- providing more accessible and inclusive end-to-end journeys for disabled and older passengers in the future, supporting the good public transport experience aim, also in the Strategy;
- the safeguarding of passengers, particularly where any positive outcomes could contribute to government VAWG aims; and
- reliability, connectivity and affordability where any positive outcomes would support the London on the Move 2030 vision.

[Ref No. AV008, Clean Cities Campaign]

Call for evidence: Autonomous Passenger Vehicles in London

This response is submitted on behalf of Clean Cities, Europe's largest network of organisations on a mission to build public support for cities to shift from polluting vehicles to active, shared and electric mobility.

Whilst we acknowledge and agree with the serious and justified concerns around cybersecurity, privacy and transitioning jobs, our response is focused on our areas of expertise: clean transport and city liveability.

Executive Summary

Autonomous Passenger Services (APS) - commonly known as 'robotaxis' - should only be allowed to operate in London if they demonstrate a clear, positive contribution to the goals of the Mayor's Transport Strategy (MTS). Although evidence from deployments elsewhere suggests that autonomous vehicles (AVs) could contribute towards Vision Zero safety targets, it is less clear how the commercial robotaxi use-case can support the MTS target modal split or its Healthy Streets approach, which London is struggling to achieve. The huge increase in private hire vehicles in London over the past decade has not supported a demonstrable reduction in car vehicle miles being driven and the number of people using the bus has declined over the same period. It is difficult then to justify even more private hire vehicles being deployed in London, which is effectively what APS services are.

London should seek the necessary powers to:

1. **Cap the total number** of robotaxis permitted in the city and adjust this according to the needs of the entire mobility system.
2. **Geofence operations**, limiting their areas and hours of service to avoid competing with public transport.
3. **Introduce specific road-user charges**, particularly targeting empty vehicle circulation and excessively large vehicles.
4. **Make licensing contingent on robust data-sharing agreements**, with specific provisions for reporting near-misses and providing aggregate data to assist TfL in long-term travel demand planning.

How close are autonomous passenger vehicles to becoming a reality?

- Autonomous passenger vehicles have now driven millions of miles in other cities, and the operating companies claim that the vehicles are ready to drive on London's roads. A bigger question is perhaps how close is London to having the powers it needs to ensure that this is a positive addition to the city's transport network?

- At the end of last year, Clean Cities commissioned a pan-European city survey to understand attitudes towards transport and the possible solutions to make everyday travel cleaner, safer and more reliable. A representative sample of people were surveyed in nine European capitals, including London. The poll results demonstrated that Londoners are sceptical about the arrival of autonomous vehicles (AVs), with 38% of Londoners disagreeing with the idea of AVs circulating in the city, and 27% unsure. Men, and Londoners in the 25-34 age bracket, were more likely to be supportive than women and the elderly. Inner London residents were more supportive than Outer London, and those who already own their own car were more likely to agree to AVs in the city compared to those who don't own a car. These differing levels of support between different demographics is a potential cause for concern, as it suggests that those who will use robotaxis the most are those who have the least necessity - younger, male, car owners living in inner London. Those who have the most to gain from an expanded transport system supplemented by AVs - older people in outer London - are the least supportive of their arrival. Initially then at least, this suggests that the robotaxi use case of AVs will directly compete with public transport, or other more active modes, rather than serve people with currently unmet transport needs. You can find the full poll results on our website.

- It is essential that the city is able to set the parameters for the operation of autonomous vehicles. Rollout will start at a relatively small scale, and it is crucial that officials can fully monitor and evaluate all of the usage data to inform regulations going forward.

- As the window to grant consent is only six weeks once the application has been formally received, it is important that city authorities have raised as many potential issues as possible as part of the pre-application process, both with the companies and with DfT. Otherwise there is a risk that cities are forced into a timeline that does not work for them.

What impact would the introduction of autonomous passenger vehicles have in London?

- The impacts on London's wider transport network will depend entirely on how autonomous vehicles are deployed. When it comes to robotaxis operated by private companies, there is a huge risk that they will serve the areas with the highest density of travellers, and directly compete with public transport networks and reduce patronage. Setting certain parameters, for example; restricting the operating areas for robotaxis to places and times where the public transport network is not running, would help to manage this. London could also demand that companies incentivise trips which drop off at a public transport station, unless the user has a disability or other accessibility need that requires them to use a taxi.

- More shared vehicle options help people to avoid private car ownership. If there are policy incentives for AVs to operate as shared vehicles, then AVs could help to fill the void left by the collapse of Zipcar in London. (Research from CoMoUK shows that one car club car in London replaced 28 private cars.)

- As TfL knows well, if robotaxis increase congestion then they will make the bus network less effective and less appealing. More traffic congestion is also a concern for freight and logistics. Real-world data from deployments in California indicates that nearly half (46%) of all robotaxi miles are driven empty ('deadheading'). This makes it highly probable that without strict parameters, robotaxis on London's roads will increase total vehicle miles travelled (VMT) and exacerbate congestion. This makes it even more important to expand bus priority routes across the network.

- The public purpose of London's roads and kerbsides could be challenged by robotaxis, through robotaxis circulating to avoid parking charges, or by entering bike lanes or blocking pavements when picking up or dropping off. This is a concern, as these are the spaces most necessary for vulnerable road users to be safe. If APS operators suggest or demand adaptations to street space in order to make their services more effective or safer, such as dedicated AV drop-off zones, this will increase the car dominance of our limited public space. We recommend London adopt a principle similar to that of Vienna; that AVs must adapt to the city, and not the other way around. It is not TfL's, nor the local authority's responsibility to alter streets or provide infrastructure to help APS operate.

- According to TfL data, 57 per cent of the fatal collisions in 2025 in London reported speed as a contributory factor. AVs that always stick to the speed limit could bring road safety benefits and contribute to London's Vision Zero goals.

- Other potential impacts of robotaxis are hard to predict because the places where most robotaxi miles have been driven - the United States and China - have streets and transport systems that are very different to London's. The way that autonomous vehicles 'disengage' when they encounter a situation that they don't understand means that they could easily block junctions and cause traffic chaos in order to prevent a more serious collision. This has happened in both the US and China where multiple AVs have come to a stop at the same time across a city. The very different nature of our streets means that these 'edge case' scenarios may be more common in London than elsewhere.

- At Clean Cities, we ambitiously advocate for Streets for Kids, as we know that prioritising the things children need from public space will make our streets work better for everyone. A child's ability to travel independently is a good indicator for how safe and effective a city's streets are. Increasing active travel among young people is a powerful tool for tackling inactivity and the related physical and mental health issues, as well as reducing the carbon footprint and air pollution impacts of transport. Thus it is particularly worrying that autonomous vehicles may be less capable of recognising a child than an adult. Children are already more vulnerable on our streets, so to introduce a technology that is incapable of understanding that vulnerability is a huge concern. Operators should be required to ensure that timed and bespoke vehicle restrictions, which have been introduced to protect children, such as school streets and play streets, are fully integrated into their systems.

- New school streets are being rolled out regularly in London. TfL and local authorities should reserve the right to regularly audit the routing data to ensure that school street changes are quickly incorporated into the system data of the AI driver.

- Part of our Streets for Kids advocacy is our campaign to tackle Carspreading; the unnecessary and dangerous trend for cars to relentlessly increase in size and weight. This results in cars taking up more and more road space, and also makes cars much more dangerous to vulnerable road users. We support the Mayor of London's recent statements to question whether these supersized vehicles are suitable for London's roads. Although the responsibility to approve the individual vehicles will not sit with TfL, we would encourage engagement with DfT to require autonomous technology companies to use vehicles suitable for cities. Where SUVs are approved for APS usage, the Mayor should use his road pricing powers to introduce a levy when driven in the capital. London should embrace APS as an opportunity to reinvent the car, or at the very least to ensure we switch to more suitably sized cars that are specifically designed for cities. Pooled trips should also be incentivised so that APS vehicles are shared as much as possible.

- There are various ways that AVs could increase accessibility of the transport network, offering more independence to those who are unable to drive and by operating in areas currently underserved by public transport. But accessibility will only increase if it is built in from the start rather than treated as an afterthought. We suggest conditions are attached to the licensing process that a certain percentage of vehicles in a fleet must be wheelchair accessible. It is also important to note that for some people, it is the presence of the driver that makes a taxi or PHV journey accessible, and essential that a sufficient service of human-driven taxis and PHVs is always maintained. Engagement with groups representing disabled people should be a prerequisite for the application process, and AV companies should be able to demonstrate how feedback has been incorporated into their operating plans.

- The accessibility of individual vehicles is essential, but so is the accessibility of our streets as a whole, and an increase in congestion is unlikely to make our streets safer or more accessible for anyone. The companies must prove that their systems are capable of recognising and responding safely to people travelling outside of the vehicles using any sort of mobility aid, such as an adapted trike or other less-standard cycle. TfL and the local authorities must continue to stay focused on the changes that truly make our streets safer for everyone including slower speeds, safer pavements and cycling infrastructure that is accessible to cargo or otherwise adapted bikes.

- Despite the vehicles planned for robotaxi rollout being all battery electric (BEVs), there are still potential air pollution impacts if robotaxis replace active or shared transport journeys because of the increased tyre and brake wear. Additionally, although there is currently a lack of robust and publicly available data on the issue, it is likely that the energy use of the full tech stack and data requirements of an AV are much higher than a human-driven BEV. The Mayor and TfL have a responsibility to challenge the APS companies about how their operations support London's ambitious climate and air quality goals.

What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?

- London should be seeking powers to set a cap on the number of robotaxis on its roads, and the power to geofence areas of operation, such as avoiding central London where public transport accessibility and traffic congestion is greatest. London must be able to demand certain types of data from the companies so that it could evaluate whether a pay per mile charge is necessary for AVs in future to manage their circulation. As AVs may continue to circulate rather than park, parking policy will become a less effective lever to influence transport choices.

- Trying to establish data sharing agreements after permits have already been given and services are already in operation will be extremely difficult.

London should be seeking to make permits dependent on the APS companies' commitment to data transparency on certain data. Safety data must be a baseline requirement - encompassing not only actual collisions but also 'near-misses' or anomalies. This is crucial so that transport authorities can identify potential mistakes before they result in severe real-world consequences.

- Companies must also be transparent about how the automated driving system is updated after the initial roll out, and the impact this could have. For example, the possibility that the AI driver is updated to become more "aggressive" if the companies realise they are often held up at zebra crossings.

- London should also be clear from the outset what conditions would trigger a revocation of an operator's licence which could include; a breach in the agreed cap on the number of vehicles, or a high percentage of miles being driven empty, or clear evidence that robotaxis are slowing down bus journey times, for example.

What can London learn from other countries?

- Hamburg, which has a similar target to the MTS to reach 80% of journeys by sustainable modes, is proactively pursuing autonomous vehicles for public transport. On robotaxis it is ensuring that they are joined up to the public transport network through integrated booking, establishing a Memorandum of Understanding with Lyft to ensure that local taxi companies are involved in the transition, and that evaluation of data is an essential part of the MoU. Lyft has received approval from the city to deliver first and last mile on demand service in order to improve accessibility to public transport stations.

- Vienna has also laid out a position on AVs which makes it clear that AVs should enhance the city. It states that all data relating to road and traffic conditions, routes and travel times generated by AI must be accessible to public authorities for planning and traffic management purposes. The Vienna position is also that routing should prioritise system optimisation over individual optimisation; highlighting the specific example that shortcuts should not be made through residential areas or via school locations. This sort of principle and specificity is helpful in laying out expectations of how AVs should behave.

- Ruter, the transport authority in Oslo, is explicit about the potential for AVs to help reduce private car ownership, and the aim for AVs to prioritise shared transport in order to reduce the number of cars on the road.

For any additional information, please contact
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Submission to the London Assembly Inquiry:

The Rise of Robotaxis in London

Cllr Suzanne Gallagher (Kilburn Ward, London Borough of Brent)

Cllr Amandine Alexandre (Harlesden and Kensal Green Ward, London Borough of Brent)

Introduction

This submission is provided in respect of the ongoing London Assembly inquiry into autonomous vehicles (AVs), with particular reference to the activities of Waymo within the London Borough of Brent. It draws on direct local experience, correspondence with relevant stakeholders, community campaigning activity, and information obtained through formal requests, including Freedom of Information procedures and Member Enquiries.

The purpose of this submission is to highlight concerns regarding safety, transparency, democratic oversight, and community engagement in relation to AV trials. It also seeks to document the sequence of events that led to the Say No to Waymo campaign in Harlesden.

Local Context and Waymo Operations in Brent

Some time around the start of April, Waymo established a vehicle depot in Park Royal, within the London Borough of Brent - their first in London to this day - and started extensive autonomous vehicle testing across the borough.

The introduction of the Jaguar I-PACE SUVs - with their very distinctive 1.5m high bonnets and their multiple roof cameras and radars - on the roads of Brent was not preceded by any public announcement made by either Waymo, Brent Council or TFL, hence the approximate date aforementioned.

Despite the scale, the visibility of this activity and the harvesting of data, there has been extremely limited transparent public engagement with local residents and elected representatives.

Harlesden : A Congested and Polluted Neighbourhood

Amandine Alexandre, local resident and campaigner who was elected as councillor for Harlesden and Kensal Green on May 7th, noticed Waymo SUVs roaming around Harlesden during the first half of April.

> "I was struck by how incongruous the presence of those oversized vehicles on Harlesden High Street was. We don't have any cycle lanes in Harlesden. Another distinctive feature of Harlesden is how narrow pavements are. Pedestrians have to squeeze past each other awkwardly all the time on their way to the shops, work or school. People on foot are also pushed against traffic and pollution, and buses get stuck in traffic on Harlesden High Street.
>
> In this already very hostile environment to pedestrians, cyclists and public transport users, the presence of robotaxis owned by a Google parent company felt entirely redundant and disconnected from the essential needs of the people of Harlesden. It's important to keep in mind that half of Harlesden and Kensal Green residents live in deprived households.
>
> As a clean air campaigner, I was also worried about the fact that Waymo vehicles could add extra pollution from tyres' wear and tear to an already very densely populated[1], congested and polluted area", Amandine adds.

Harlesden High Street is a narrow high street surrounded by relatively high buildings, creating a canyon-like landscape where air pollution gets trapped and linger. In April 2023, a BBC News article highlighted Harlesden High Street as having the single highest concentration of nitrogen dioxide (NO2) based on quality monitoring done by the Greater London Authority.

Since then, NO2 levels dropped across London and in Harlesden. However, fine particulate matter (PM2.5), which is biggest driver of air pollution-related deaths, hasn't followed the same trend as NO2 - at least, not in Harlesden.

Based on the data collected by Breathe London Communities on Harlesden High Street, fine particulate matter PM2.5 - which is caused mostly from non-exhaust sources like tyre and brake wear and domestic combustion in urban environments - is increasing in Harlesden. While in 2023 the average annual concentration of PM2.5 was 7.4 μg/m^3, the level recorded by the Breathe London

[1] Harlesden & Kensal Green is home to around 20,600 residents, making it the third most populous ward in Brent with a density of 13,292 persons per km2 (Brent Council). For comparison, the average population density in London is approximately 5,782 people per square kilometer (Trust For London).

Communities' node in 2025 was 11xxx and 2026 is on track to record a similar level of PM2.5 on Harlesden High Street.

In this context of increasing fine particulate matter concentration on the high street, the introduction of the I-PACE Jaguar as part of Waymo trial is an extra cause for concern. What would the impact of those 2 tonne vehicles be in real conditions on the level of PM2.5 Harlesden residents are exposed to?

In addition to the above, the height of the bonnet of the I-PACE Jaguar (1.56m) is a worry. Vehicle bonnet height is closely linked with the risk of death and serious injury in the event of a crash. Average bonnet heights across Europe are growing year-on-year. In the UK, average bonnet heights have increased from 76.9 cm in 2010 to 83.8 cm in 2024[2].

Considering that the I-PACE Jaguar bonnet is almost twice as high as the average UK car, there are some good reasons to wonder how those vehicles would impact the safety of pedestrians in Harlesden. Collisions between cars and pedestrians are relatively frequent on the high street. On February 5th of this year, a man was left fighting for his life following a collision with a car on Harlesden High Street.

The Cordon Breach Incident

Local concerns in Harlesden were significantly heightened by a serious incident on 22 April 2026 on the High Street involving a Waymo vehicle, with a person behind the wheel, breaching a police cordon. The cordon had been established in response to a double stabbing that had happened earlier in the afternoon and was part of an active police investigation. The scene was filmed by a by-stander and shared on social media where it gathered a large number of views and over 1700 comments only in reaction to the video published by BBC London on Instagram.

While Amandine Alexandre and other local residents were already quietly questioning the benefits of those Waymo could well be for Harlesden and the surrounding areas, the police cordon breach incident triggered a whole host of extra thoughts and worries and prompted the local campaigner and her fellow Green Party candidate at the local elections Suzanne Gallagher to research at the safety record of robotaxis.

> "The fact that an autonomous vehicle in a test mode had entered a restricted zone under such conditions raised urgent and fundamental questions about the operational safety of Waymo's AVs systems.

[2] https://www.transportenvironment.org/articles/ever-higher-the-rise-of-bonnet-height-and-the-case-to-cap-it

> The incident created some confusion about the legal liability of the company in case of an incident. Waymo claimed that on April 22nd the 'validation driver' was in 'full control' of the vehicle and had been suspended pending an internal investigation[3], that we are yet to hear from. As for the police, we were very surprised and disappointed to be told by the Safer Neighbourhood Team for Harlesden and Kensal Green didn't have anything to say in response to our specific questions.
>
> We asked whether an investigation was being carried out following the cordon breach and whether the driver was being held accountable. The reply we received on April 27th couldn't have been more succinct : 'This is not the correct platform for your concerns', we were told in an email", Councillor Suzanne Gallagher recalls.

However, the fact that the cordon breach incident was categorised as an AI incident by the OECD and that, in early 2026, **New York City had hit pause on its robotaxi trials**, with Governor Hochul pulling expansion proposals due to a lack of support and unresolved safety concerns, were more than enough for Amandine Alexandre and Suzanne Gallagher to press on with their concerns.

The Harlesden incident acted as a catalyst for the publication of a petition calling for a halt to the Waymo trial - Harlesden Says No To Waymo - on 38 Degrees and the launch of a wider campaign from the Brent Green Party with the publication of a campaign page on the local party website.

Media coverage, Broader Concerns and Public Engagement

Following the launch of the petition, the campaign generated some media coverage on MyLondon and BBC London News in the 6.30pm news bulletin on May 13th.

In parallel, the campaign originally led by the now Brent Green Party councillors Alexandre and Gallagher grew to include trade unions. The App Drivers and Couriers Union (ADCU) responded proactively and provided organisational support to the duo. This collaboration led to a public demonstration in Harlesden on May 22nd, held at the Jubilee Clock, almost in the same spot where the Waymo incident had happened one month prior to that.

The campaigning group Pull the Plug, which focuses on putting the power of AI within the hands of ordinary people, attended the demonstration and produced a series of vox pop interviews. These materials subsequently gained significant traction online (on the Brent Green Party Instagram account, @brentgreenparty), contributing to broader public awareness and debate in Harlesden and beyond.

[3] https://www.bbc.co.uk/news/articles/c30rgpd2n14o

Engagement with Brent Council

After the Harlesden High Street incident, evidence of some interaction between Waymo and top representatives of Brent Council quickly emerged. The Leader of the Council, Mo Butt, and the then Cabinet Lead for Public Realm Krupa Sheth attended the launch event for Waymo's Park Royal site. The participation of both councillors - both dwarfed by the size of the I-PACE Jaguar and wearing high vis jackets - was not widely publicised but was documented through a Brent Council's LinkedIn post published in April.

A Member enquiry submitted to Brent Council resulted in the release of a meeting note dated 22 April (coincidentally, the same day the cordon breach took place). This meeting did not focus on any of the issues of concern to us as detailed in the submission. Instead, it focused primarily on issues of anti-social behaviour in Park Royal, including car meets.

Senior representatives from both Waymo and the Council were in attendance and a copy of this meeting note is annexed to this submission. While the meeting addressed policing and environmental management concerns in the area, autonomous vehicle operations were not the central focus.

Subsequent discussions intended to address these issues in more detail have not taken place, reportedly due to diary constraints. This delay raises concerns about the prioritisation of safety oversight in the context of ongoing AV testing.

Freedom of Information Findings

A Freedom of Information request submitted by us to the Department for Transport sought all correspondence relating to Waymo's activities in Brent, including interactions with council officers and elected representatives. The response to this request was nil, indicating an absence of recorded engagement at the departmental level.

A concurrent Freedom of Information request to Brent Council revealed 867 potentially relevant documents in a preliminary search of emails. We were invited to refine our request so that it would fall under the cost limits of processing the request which we have done and we await disclosure of the relevant documents.

This lack of oversight at a government departmental level, whilst at local council level there appears to be a lot of engagement, raises important questions regarding the role of central government (and local government) in regulating and monitoring AV trials as they happen in our communities, and whether sufficient governance structures are currently in place.

Engagement with Waymo

In June, direct correspondence was initiated with Waymo, specifically with Ben Lowenstein, Head of Policy and Government. This correspondence sought clarification on a number of issues, including the nature and extent of Waymo's community engagement, the basis of its claims of ongoing dialogue with local stakeholders, and the possibility of establishing formal briefings for elected representatives and community groups.

Further questions were raised regarding political engagement, including whether dialogue extended beyond Labour representatives, particularly in light of the evolving political composition of Brent Council following the recent election. Additional requests were made for records of community engagement activities.

A specific safety concern was also raised relating to a reported malfunctioning indicator on a Waymo vehicle. In its response, Waymo stated that it had no records corresponding to this incident.

Waymo's response, dated 11 June 2026, emphasised its commitment to community engagement and highlighted outreach to specific organisations, including the Asian Women's Resource Centre and the Harrow and Brent United Deaf Club. However, the detail provided was limited, and requests for further substantiation of these engagement efforts remain outstanding. Waymo have also indicated that Brent residents would be among the first in Europe to access AV services, despite the current lack of licensing for passenger operations.

Evidence of Selective Engagement

Information available in the public domain suggests that Waymo has engaged in targeted, high-level policy discussions. For example, a digital roundtable was convened with Labour Digital at the Labour Party Conference last autumn, involving a range of stakeholders from accessibility, safety, and technology sectors. While this demonstrates engagement at a national or strategic level, it raises questions about the inclusivity and balance of Waymo's engagement approach, particularly in relation to local elected representatives across political parties as well as community-based organisations including the Harlesden Neighbourhood Forum which has expressed an interest in engaging on the issues

Key Issues for Consideration

The experience in Brent highlights a number of systemic issues that warrant careful consideration by the Inquiry. These include the adequacy of safety protocols governing AV behaviour in emergency situations, the extent and quality of community engagement undertaken by operators, and the level of transparency surrounding both local and national oversight.

In addition, the case raises broader questions about democratic accountability, particularly where significant technological deployments occur in local areas without comprehensive involvement of elected representatives. Economic implications, including potential impacts on employment in the transport sector, also require thorough examination.

Conclusion

The deployment of autonomous vehicles in Brent has already exposed significant gaps in governance, engagement, and safety assurance. The breach of a police cordon in Harlesden illustrates the tangible risks associated with deploying emerging technologies in complex urban environments without fully established safeguards.

The fact that this happened on the same day Brent Council senior officials were meeting with senior Waymo executives over their own ASB concerns highlights the gaps that exist when it comes to scrutiny of AVs on our streets.

No Brent elected representatives issued a statement in reaction to the police cordon breach despite the severity of the incident. It's only when he was asked for a commentary by the local press to our campaign that the Leader of Brent Council declared that engagement does not equal a "blank cheque"[4].

While innovation in transport has the potential to deliver benefits, it must be accompanied by robust regulatory frameworks, transparent processes, and meaningful engagement with affected communities. Without these, public confidence in autonomous vehicle technology will be undermined, and the risks to safety, accountability, and social cohesion will remain unacceptably high.

Who is responsible for licensing autonomous passenger vehicles in London, and what role should the Mayor and TfL play?

Responsibility for licensing autonomous passenger vehicles currently appears fragmented between national and local levels, with the Department for Transport setting the overarching regulatory framework and Transport for London and local authorities expected to play a role in implementation.

However, evidence from Brent suggests a lack of clarity and coordination. A Freedom of Information request submitted to the Department for Transport returned no recorded correspondence relating to Waymo's activities in Brent, indicating an apparent absence of direct oversight or engagement at the national level. However, a parallel Freedom of Information request to Brent Council revealed extensive correspondence on the subject of Waymo.

At the local level, engagement appears on the surface to be limited. While senior councillors have attended Waymo-related events and meetings, and there has been a lot of emails, there is little evidence of structured and transparent

[4] https://www.mirror.co.uk/news/uk-news/waymo-driverless-taxi-london-robotaxi-37143861

decision-making processes regarding AV testing. Discussions between Brent Council and Waymo have, to date, it appears, focused largely on ancillary issues such as anti-social behaviour rather than the core question of AV operations as set out in this note, as well as safety.

This suggests an urgent need for the Mayor and TfL to establish a clear, formalised framework for oversight, ensuring that local authorities are meaningfully involved and that accountability mechanisms are robust.

How close are operators to deploying autonomous passenger services in London?

While operators, including Waymo, are publicly indicating that London may be among the first European locations for deployment, and that Brent residents may be the first in London to experience AV taxis, the current regulatory position does not support immediate passenger services. Autonomous vehicle trials in London are currently being conducted without passengers and with safety drivers present.

Statements made by Waymo suggesting that Brent residents may soon access autonomous services appear premature, particularly given that the necessary licensing framework has not yet been implemented. National policy indicates that small-scale pilot schemes may begin in 2026, with wider rollout anticipated thereafter, subject to safety certification.

There seems to be a strategic plan from Waymo to make the rollout of a fully commercial service in London something desirable, unstoppable and unquestionable when in fact the conditions for the safe introduction of driverless taxis in the capital do not seem to be met.

Are autonomous passenger vehicles compatible with the Mayor’s Transport Strategy?

There are serious concerns regarding the compatibility of autonomous passenger vehicles with the Mayor’s Transport Strategy, particularly in relation to objectives around reducing private vehicle use, promoting active travel, and achieving traffic reduction targets.

Evidence from Brent suggests that AV testing may contribute to increased vehicle presence on local roads, with unclear benefits in terms of modal shift or congestion reduction. Without integration into the wider public transport network, there is a risk that autonomous vehicles will function as an additional private hire fleet, potentially undermining strategic transport goals.

This concern reflects wider expert commentary presented to the Assembly, which has questioned whether the addition of autonomous fleets aligns with ambitions to reduce car dependency in London.

What are the principal risks associated with autonomous passenger vehicles, and can they be mitigated?

The Brent experience highlights a number of key risks associated with AV deployment.

The most immediate concern relates to safety, particularly the ability of autonomous systems to respond appropriately in complex, real-world scenarios. The Harlesden police cordon breach illustrates the potential consequences of system failure in high-risk situations involving emergency services.

Additional concerns relate to:

- Reliability of vehicle systems, including reported faults observed by residents
- Lack of transparency regarding system limitations and incident reporting
- Dependence on remote intervention or “edge case” handling, which is not fully disclosed

There are also broader risks relating to governance and accountability. The absence of documented engagement by the Department for Transport, combined with limited local oversight, suggests that current governance arrangements may not be adequate to manage these risks effectively.

While mitigation may be possible through stronger regulation, independent safety auditing, and clearer operational protocols, these measures do not yet appear to be fully in place.

To what extent are autonomous passenger vehicles accessible to all Londoners?

Waymo has indicated that accessibility and inclusivity form part of its engagement strategy, including outreach to specific community organisations such as the Asian Women’s Resource Centre and the Harrow and Brent United Deaf Club.

However, there is limited publicly available evidence to substantiate the extent or depth of this engagement. Requests for further detail on community engagement activities have not been fully answered.

Moreover, accessibility must be understood not only in terms of user experience but also in terms of equitable participation in decision-making processes. At present, many local residents and elected representatives do not feel adequately consulted or informed regarding AV deployment in their communities.

What impact could autonomous passenger vehicles have on employment in London?

The potential impact on employment represents one of the most significant concerns associated with AV rollout. London's taxi and private hire sector supports a large workforce, and the introduction of driverless vehicles poses a direct challenge to these livelihoods.

Engagement with the App Drivers and Couriers Union, which has offices in Brent, demonstrates the depth of concern within the workforce. The Union's active involvement in the Harlesden demonstration reflects a broader anxiety regarding job displacement and the absence of clear transition planning.

At present, there is little evidence that operators or policymakers have developed comprehensive strategies to address these impacts, raising concerns about the social and economic consequences of AV deployment.

Conclusion of Inquiry Responses

Taken together, these responses indicate that while autonomous vehicle technology is advancing rapidly, the frameworks required to ensure safe, equitable, and accountable deployment are not yet sufficiently developed.

The experience in Brent demonstrates that local communities are already encountering the impacts of AV trials, often without adequate engagement or oversight. This underscores the importance of ensuring that regulatory, democratic, and safety considerations keep pace with technological development.

Further Written Submission to the London Assembly Transport Committee Inquiry into Autonomous Passenger Vehicles

Cllr Suzanne Gallagher

Additional Evidence Regarding Local Authority Engagement and Deployment Timelines (London Borough of Brent)

1. Purpose of Further Submission

Following recent updates from Brent Council, this further submission provides essential clarifications regarding the deployment timeline, testing framework, and historical local authority engagement of Waymo's operations within the borough.

2. Clarification of Deployment Timelines

Depot Mobilisation: It is now clarified that Waymo’s operational move to its dedicated depot facility in Park Royal occurred in February 2026 (the specific day remains unconfirmed by the council).

Initial Testing Phase: The initial phase of Waymo's deployment on public roads was strictly limited to mapping the highways network across the London Borough of Brent. Waymo later commenced testing its active autonomous capabilities.

3. Initial Lack of Local Authority Engagement

Brent Council had no formal engagement or communication with Waymo regarding the nature, scale, or geographic extent of their autonomous vehicle operations on the borough's roads. The operations were initiated independently of local authority consultation.

4. Nature of Council Executive Site Visit

Prior descriptions characterising a site visit as an official "launch event" were inaccurate. The nature of the interaction is clarified as follows:

The Leader of Brent Council, Cllr Muhammed Butt, and the Cabinet Member Cllr Krupa Sheth, subsequently attended the Park Royal depot site. This visit was an informational briefing following an invitation from Waymo. The purpose was to receive a demonstration of the autonomous vehicle technology.

[Ref No. AV010, Collaborative Mobility UK (CoMoUK)]

Autonomous Passenger Vehicles in London

Response to the call for evidence from the London Assembly's Transport Committee

Published June 2026

3. What impact would the introduction of autonomous passenger vehicles have in London?

Impacts on the Mayor's Transport Strategy targets and key policy areas

Autonomous passenger vehicles (APVs) could have a positive impact on many of the outcomes of the Mayor's Transport Strategy, but the extent of these benefits (or disbenefits) being felt depends greatly on the policy and legislative environment set by decision makers. The two potential futures of AVs (not just robotaxis) are discussed in the CoMoUK white paper "Driverless shouldn't be directionless" which has been published this month and can be accessed here: http://www.como.org.uk/documents/driverless-shouldnt-be-directionless.

Safety is often the main topic of conversation, which is what operators are keen for the spotlight to be on. Evidence from US cities reporting an 80-90% reduction in serious crashes when compared to human drivers making similar journeys. This headline figure must be contextualised by the fact that London (and other UK cities) are designed differently, that UK roads are on average safer than US ones, and that the incidents that AVs encounter will be different. The general public also have higher standards of required safety, and focus should also be given to the perceptions of safety of other road users (not just those in the vehicles). We have spoken with multiple Disabled Peoples' Organisations, and while operators have engaged with stakeholders representing disabled individuals, there are persisting concerns about accessible vehicle design and the ability of the technology to "read" non-typical road user behaviours (such as those in wheelchairs.

The introduction of APVs to London also presents a question relating to geographic transport inequalities. Autonomous vehicles have the potential benefit of improving transport connectivity and choice, which would be most felt in suburban, outer Boroughs, where public transport gaps exist. However, operators will follow the money, and will be keen to prioritise central areas where early demand is likely to be highest. Here, the downside of potential increases in congestion, as well as mode shift away from more sustainable modes, is greatest. Policymakers should be taking action to pilot AVs in areas of greatest social need. Furthermore, there appears to be an assumption that robotaxis will be the model of autonomous vehicles that we will see. It would be more beneficial for policymakers to first define the transport challenges that most need solving, and then seek autonomous solutions for these challenges. The solution could be robotaxis, but it could equally be autonomous shuttle buses or similar, managed and delivered as part of an integrated public transport mix.

On the topic of mode shift, and potential impact on public transport and active travel, there is uncertainty. However, a study by the UC Davis Institute of Transportation Studies found that if ride-hailing options didn't exist in California, 47% of Uber and Lyft trips would have been made by public transport, active travel, or not at all. This change in travel behaviours would not contribute in any way to the Mayor's target of having 80% of trips made by active modes or public transport.

The Mayor also has set a target for London to be net zero by 2030. Autonomous passenger vehicles are typically electric vehicles, which could contribute to decarbonisation of road traffic. However, too little is known about the mode shift impact, or potential for induced journeys that would have been made by sustainable modes, to draw a concrete conclusion. Additionally, there is evidence from US trials that robotaxis that vehicles generate significant vacant miles (also known as deadheading). The percentage of dead (or vacant) miles will vary by location, but the extent of the potential problem is revealed from Waymo's own data in California. In September 2025, 44.3% of mileage was considered deadheading: 29.8% while the vehicle was idle, and 14.4% while travelling to an accepted trip. While driving around passenger-less, APVs could be causing additional congestion in already congested areas of London. This would have a negative impact on emissions and the quality of the public realm.

Opportunities for shared transport, and subsequent benefits for active travel and public transport

Our recently published white paper highlights some key areas of opportunity relating to shared transport, where the introduction of autonomous passenger vehicles could have a positive impact in London and beyond:

- Prioritising the shared use of AVs through regulation and clear legislation would help to drive positive behaviours around lift sharing. As noted in the response to question 4, differential pricing (of robotaxis in particular) could contribute to this goal but offering discounts to those trips shared with another passenger. Taking action in this space would also help to mitigate against the negative impacts of single occupancy AV trips, as well as effective zero occupancy trips when the vehicles are traveling without passengers.
- The London Assembly and TfL should consider pilots of automated services that operate like existing car club schemes. The recently published CoMoUK Annual

Car Club Report 2025[1] shows that car club users benefit greatly from a flexible, sustainable and cost-effective mode of transport that supports car-light lifestyles. The public response to the exit of Zipcar from London shows there is a demand for such a service, and therefore merits further research into the potential for an AV service such as this.

- Mobility hubs bring together shared transport with public transport and active travel in places that improve the public realm for all, and can make a significant contribution to the Mayor's Transport Strategy. The network of Green Travel Hubs in Camden show what is possible.[2] Autonomous passenger services should be required to support connectivity to mobility hubs, and therefore connections to sustainable modes of transport. The Assembly and TfL should also engage with operators to understand the designs and locations of planned depots where AVs will be charged. AV depots should be viewed as a tool for expanding the availability of EV chargepoints and be designed in a way that, similar to CoMoUK mobility hub design standards, improves the public realm.
- Shared bikes and e-scooters are thriving in London and the rest of the UK, as shown by our recently published Shared Micromobility Report 2025[3] which reported a 4% year-on-year increase in active users. AVs, given their more predictable driving behaviours, could make active travel journeys in London more pleasant. However, some users may be concerned by having to "predict" the behaviours of a combination of human drivers and automation.

4. What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?

The CoMoUK white paper "Driverless shouldn't be directionless" concludes with a set of policy recommendations. These would help to deliver on our organisational vision for

[1] https://www.como.org.uk/documents/annual-car-club-report-2025
[2] https://news.camden.gov.uk/camden-develops-innovative-green-mobility-hubs-in-somers-town/
[3] https://www.como.org.uk/documents/annual-shared-micromobility-report-uk-2025

an introduction of autonomous vehicles that is integrated, sustainable and equitable. Those policy asks have been adapted below to be specific to the London context. The Mayor and TfL should prioritise the following:

- Set a clear vision to ensure that AVs are introduced to London in an integrated way, that prioritises sustainable and equitable use cases.
- Evaluate which form of autonomous vehicles would best solve London's transport challenges. This should not be limited to robotaxis.
- Focus early trials of autonomous passenger vehicles on areas with greatest social value, include outer London boroughs where connectivity challenges are most significant.
- Prioritise the shared use of autonomous passenger vehicles, for example by requiring operators to trial price discounts for trips shared by multiple passengers.
- Explore autonomous vehicle services that replicate the success of existing car club models.
- Engage with Disabled Peoples Organisations' to define accessibility standards for both potential users of AVs and those in their surrounding environment.
- Require high levels of data transparency from operators, and that data shared is in a format that is easy to analyse and understand.

5. What can the Mayor and TfL learn from trials and deployments on autonomous passenger vehicles in other countries?

We would encourage the Mayor and TfL to engage with Ruter, the public transport authority for Osla and Akershus counties in Norway. Oslo presents a positive case study for a transport authority that has first set a clear vision for AVs, has identified the problems that they want AVs to address, and then set about defining and procuring solutions for these problems. This is in some ways the reverse of the worst-case-scenario we could be seeing in the UK, where operators are largely defining the "solution", and the transport authorities appear to be on the back foot.

Ruter have not prioritised robotaxis, instead focusing on suburban areas and using small autonomous shuttles to plug gaps in public transport connectivity. A report published by Ruter in 2019 estimated that a shared fleet of AVs totalling 30,000 vehicles could replace 600,000 private cars.

[Ref No. AV011, DG Cities]

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London Assembly Transport Committee

Call for evidence: Autonomous Passenger Vehicles in London

DG Cities Response

About DG Cities

DG Cities is an urban innovation company established in 2015 by the Royal Borough of Greenwich to foster innovation and utilise community engagement to make places better. As a London based and local authority owned public innovation company, DG Cities has played a central role in many major research programmes in the automated vehicle (AV) ecosystems, including bringing major trials of the technology to London, and working with London's diverse communities to test, learn and explore AVs, and the potential impacts they will have.

DG Cities research and insights focus on ensuring that public opinions are heard and shape the development of self-driving technology. To do this DG Cities deploys engagement methods to invite the public to share their views on autonomous vehicles, engage in live and virtual trials, and participate in online workshops and discussions as to the future of the technology.

Major projects undertaken by DG Cities of relevance to this call for evidence include:

- **Public Perceptions Research in support of the Statement of Safety Principles (2026):** DG Cities was commissioned by the Department for Transport to conduct robust public research using deliberative methods on the Statement of Safety Principles (SOSP) for Automated Vehicles (AVs), specifically focusing on the "careful and competent" (C&C) driver benchmark. Engagement with members of the public gathered insights into how the public will come to assess AV safety performance. Specifically, the study aimed to understand public perception of the C&C benchmark

(Research question 1) and explore how people would expect AVs to demonstrate they meet it (Research question 2).
- **DeepSafe (2024):** In **Deep Safe**, our research involved two interconnected studies with 2,000 respondents, testing the impact of quantitative safety messaging (e.g., KSI reductions) to increase public acceptance of AVs on UK roads. This work informs data-driven communication strategies designed to build broad public trust and support. We also identified a significant "trust gap" in existing Advanced Driver Assistance Systems (ADAS), underscoring the need for improved testing, regulation, and transparent communication for future AV deployment.
- **Ethical Roads (2022):** funded by the Rees Jeffreys Road Fund, DG Cities partnered with Reed Mobility to develop the Self-Driving But Guided By People report, a study into the ethical red lines of decision making that can be used to establish public standards of acceptance and risk of using AVs. Reed Mobility and DG Cities carried out a survey of more than 2,000 participants and held two workshops to investigate societal preferences for the behaviour of an urban self-driving bus service. The research provided an important evidence base, process and structure by which regulators can engage with the public in the acceptable and desirable features of self-driving vehicles.
- **DRisk (2020):** D-RISK was an Innovate-UK funded project focusing on the development of software for safe automated vehicles. The collaboration between dRisk.ai, Claytex, Imperial College London and DG Cities. D-RISK aimed to support the development of safe self-driving services by building the world's largest library of driving "edge cases": situations that aren't commonplace, and are unpredictable and high risk - scenarios which self-driving vehicles will need to be able to handle safely if they're to be used on UK roads. Edge case data was sourced to test and validate self-driving vehicle behaviour and train self-driving vehicle AI. Sources include traffic cameras, road accident reports and public disclosure through a crowdsourcing initiative with the UK public delivered by DG Cities.
- **Project Endeavour (2019):** Project Endeavour aimed to accelerate and scale the adoption of self-driving services across the UK by understanding the value of autonomous vehicle services through demonstrations and live trials, and to support the rapid development of public-road ready services. Ultimately Project Endeavour set out to test the building blocks of future self-driving services in the real world. The project ran between March 2019 and October 2021 and built on the research of MERGE Greenwich by developing and testing self-driving based services. The project was led by Oxbotica, working alongside DG Cities and Immense. In Autumn 2020, three further partners joined the project: TRL, BSI, and Oxfordshire County Council. Each partner brought its own cutting-edge expertise to the project. Project Endeavour delivered four autonomous vehicle trials on public roads across the UK.

Collectively, our experience demonstrates a full lifecycle approach to AV behavioural change: from initial qualitative and quantitative research on perceptions and motivations, through real-world and simulated testing to influence beliefs, to developing ethical guidelines and data-driven communication strategies that foster public acceptance and trust for future deployment. We leverage diverse engagement methods to ensure the citizen's perspective is central to AV development.

Responses:

How close are autonomous passenger vehicles to becoming a reality in London?

Commercial automated mobility (CAM) deployment has reached the UK, with providers like Waymo and Uber promising automated drives to their customers in London in 2026. The government is in the process of developing secondary legislation following the 2024 Automated Vehicle (AV) Act. These events follow a decade of trials and technology development and multiple commercial deployments around the world. It is the dawn of a new era for mobility in our country and as such it is time to really think about what it will mean for everyone.

Local authorities and the public at large have had limited opportunity to engage in the development of these technologies. Although there have been notable and highly successful community engagement projects (e.g. The DfT's Great Self-Driving Exploration), most people have been kept out of the conversation to date. There has been limited work to broaden engagement to communities away from trials, and to bring local authorities (LAs) closer to the developing technology. Development and innovation have focused on fostering the sector/market in which the focus of the private sector has been to develop the technology whilst central government has been creating the policy framework for safety, liabilities and licensing.

We believe it is time now to look at what all this will mean on the ground for LAs and their communities. Let's use this window of time before large scale deployments are here to decide how LAs can ensure the automated mobility future will be beneficial for our society.

There is a lot to learn from the insights that have been produced by the UK Connected and Automated Mobility ecosystem and international experiences. It is important to highlight that this is not a simple transport matter - CAM will have an economic, social and environmental impact wherever they are deployed. Some of it will be positive, but often only if they are actively managed to ensure these benefits are realised.

As DG Cities we recommend LAs to consider the below learnings and develop an action plan to maximise the positive and minimise the negative impacts.

Safety
- CAM can be safe, but it is not a given that it will be
- National regulation will not dictate CAM operators to adapt to local conditions

Public trust
- People can increase their confidence in CAM if it is introduced and communicated correctly

Transport problems
- People will use the vehicles, but they will not create a better transport network
- They can be beneficial for specific disabled groups, but real benefits depend a lot on service design
- The services will not be equitable, they'll be driven by market forces

Infrastructure
- Currently road infrastructure is not set up to align with technology requirements nor to enable drop-off/pick-up efficiently
- Vehicles collect a lot of data and insights, but it is not a given that will be shared with LAs

Economic impacts
- There will be an impact on jobs, it'll both create opportunities but will impact negatively on certain drivers
- Revenues from parking and fines will be impacted

How will autonomous passenger vehicles navigate London's complicated road network?

The technological aspects of this question will best be answered by the industry, in our view, as part of clearly defined tests. Our public research has highlighted that people expect performance of AVs to surpass human driving ability and be demonstrated before deployment. Therefore, the question should be “How will the UK confirm that autonomous passenger vehicles are able to navigate London’s complicated road network safely?”

There are two key considerations we’d like to add here, ones to consider when planning to assess AV safety in London:

1. London has an automated vehicle testing centre, called Smart Mobility Living Lab:London. It was established to test and evaluate automated vehicle performance in the real world, both in terms of technical safety but also with the idea of measuring impact of trials. It is imperative that this facility is utilised to support the city in answering these questions.
2. The concept of edge cases (scenarios that are infrequent but can cause accidents) is highly relevant when determining AV safety. The safety of these systems should be determined by ensuring they are able to deal with all types of scenarios in a satisfactory manner, potentially confirmed by both expert and citizen panels. It is crucial that the driving ability (and improved safety compared to human drivers due to this) is assessed separately from the inherent safety of newer and bigger vehicles that CAM providers will use. Just as a human driver does not get an easier driving test if they drive a bigger vehicle, it should also not be the case for AV systems.

What impact would the introduction of autonomous passenger vehicles have in London? We are particularly interested to hear about the impact on:

a. The Mayor’s Transport Strategy targets, for traffic reduction, and increases in walking, wheeling, cycling and public transport;
b. Safety and public purpose of London’s roads
c. Children, older and disabled people
d. Accessibility and passenger safeguarding
e. Cybersecurity
f. Londoners’ transport choices and risk to public transport ridership numbers
g. London’s taxi and private hire industry, particularly jobs.

One overarching theme across seven bullet points is that a local authority/transport authority will have to actively be involved. Another theme is that the answer to all these will evolve over time with any early issues likely being resolved rapidly. We are convinced that the only answer that will remain true over a 5-10 year period that London should prepare for is that local authorities will need to actively manage the city’s interaction with this new technology. This means they will require additional resources, capacity and capability to manage even the best version of a self-driving future.

Local authorities play a crucial role in creating the enabling environment for self-driving services to operate safely and inclusively for their communities. AVs could have a major risk on the workload, and complexity of issues that already stretched LAs must manage on a daily basis. For example, as part of Project Endeavour DG Cities undertook an engagement exercise with a number of local authorities designed to gain an understanding of the current levels of awareness and acceptance of self-driving technologies within a range of different authority types, and to develop materials to support local authorities to understand how to maximise the value of self-driving testing on their highways. The outputs of the engagement helped DG Cities to produce two guides:

- **CAV Trialling on Public Highways** which supports councils to help them understand the information organisations trialling in their area could be expected to provide. and the
- **CAV Trial Guide for Trialling Organisations** which is targeted towards organisations undertaking self-driving trials to help build understanding of what would be useful to provide when approaching the local highways authority.

The findings of our engagement with local authorities and other institutions showed that knowledge and awareness varied hugely by council, with most having very little engagement and only some actively involved in the self-driving/CAM agenda, and seeking to understand the impact of trends and future mobility on the lives of their residents.

The role which the local authority will play in both the transition to CAM and CAM futures is complex. The divergent understanding of CAM and the ability to prepare for - and potentially benefit from - connected as well as connected and automated mobility is constrained by both information and resources. Kerbside management, intelligent transport systems (ITS), vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) technology are all things which will influence future policy and infrastructure design, yet it appears a high number of councils lack the resources to proactively engage with the agenda.

What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?

Communications
A key finding from our recent research is that people expect the government (in some shape or form) to keep people informed about this new technology. The purpose of this is to build confidence in the due diligence that has taken place and to explain what these vehicles might mean for people. Private companies will undoubtedly run eye-catching and positive campaigns but their one-sided messaging will not satisfy people. We therefore recommend that the Mayor and TfL look at proactive marketing strategies to help residents be better informed about the purpose and impact of these technologies.

Equitability
A key approach that will help to build trust is by ensuring the new deployments will be equitable, reaching all of London's diverse communities. Whilst this might be challenging with small early trials, as services will scale up they should start supporting some of London's transport challenges.

What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?

Whilst others might provide evidence of international deployments, we feel it's key to highlight that the UK and London itself have been part of AV trials already.

Testing and trialling in the UK have provided important insights that the Mayor and TfL should utilise in understanding how to deploy autonomous vehicles. Trialling for Project Endeavour highlighted the importance of providing an **accessible opportunity** to members of the public to experience AVs in their local community. Trialling in Greenwich London was undertaken for project Endeavour with over 100 members of the public riding in autonomous vehicles on public roads. Our data highlighted that levels of trust in AVs were fairly high among participants before the trial began (74.5%), but this increased post-trial (87.2%).

Views on reliability of AVs also improved. Participants in the trial recognised the importance of trust to their experience and the future use of AVs:

> *"I didn't trust when I was stepping into the car. I just wanted to see whether it would do it or not…then once I saw it, I was continuously observing how the vehicle was reacting to the merges, the junctions, the roundabouts. I saw a couple of incidences and that it is making decisions, it is braking, putting brakes on…I felt my trust increased. The system is doing all the basics right."* Trial participant

And;

> *"It was interesting because I was also looking at this screen on safety driver's information from there and trying to get an idea of where it's pulling the information. And clearly the car's getting more information than I, as a driver, I would normally get. I would really be able to perhaps do it subconsciously, pick up an awful lot of that. But I also think you zone out a little bit when you're driving. So, I felt the decisions the car was making when I was looking at them were probably right."* Trial participant

The physical presence of a safety driver in the vehicle was an important factor that contributed to participants sense of trust:

> *"Having somebody in the driver's seat makes you feel safer. Knowing that someone can just brake if they need to. Even if it wasn't a trained person, just anybody, just having an emergency stop button, or something. If that wasn't there at all, and it was just you in the back. I think, just intuitively, I'd feel a bit weird."* Trial participant

Engagement with participants should not only be through face-to-face trials and experience days with AVs. Access to information that is informative and engaging can also help to develop trust and support communities to understand AVs, how they operate, and ask questions of operators. As part of DG Cities work on Project Endeavour, we developed a VR experience which highlighted the value of engaging the public through virtual means which offered a unique opportunity to test self-driving concepts with a wider community. For example:

- 73.9% of VR participants believed that self-driving technology in the future will be reliable, compared to 94.6% of those who participated in the physical trial.
- 61.7% of VR participants believed that self-driving technology will be safer than human driven vehicles, compared to 83.6% of those who participated in the physical trial.

These findings highlight the importance of giving people the opportunity to find out more about the technology and experience it firsthand. Managing this narrative and finding open and accessible ways to show the public this new technology will greatly help to bring residents along this journey.

Freenow by Lyft welcomes the Committee's investigation into autonomous passenger vehicles and is grateful for the opportunity to have contributed both in-person and through this written response. We have operated in London for close to fifteen years, and our future depends on the continued confidence of Londoners, the Mayor and Transport for London. AVs should earn their place on London's roads by demonstrating their commitment to making the city safer, fairer, greener, and healthier, aligned with the Mayor's Transport Strategy.

Question 1: How close are autonomous passenger vehicles to becoming a reality in London?

The UK has one of the world's most developed and robust regulatory frameworks for deploying autonomous vehicles through the Automated Vehicles Act 2024. Automated passenger services (APS) are approaching technical readiness. Our approach to deployment will be deliberately gradual.

In May 2026, the Department for Transport opened up applications for Autonomous Passenger Service (APS) permits. Through this process, operators can apply to the DVSA for permits to provide commercial AV bus-like, taxi-like, or phv-like services. Approvals for permits are expected to take between 4-6 months, and will include a number of steps such as desk-based assessments, on-site inspections of operations, local licensing authority consent, and pre-deployment vehicle inspections.

Freenow by Lyft will begin testing autonomous vehicles in Summer 2026, in a small operating zone in north London. We intend to launch passenger services in 2027.

Our deployment timeline is divided into the following phases:

- **Mapping & Driver-in Testing:** Freenow by Lyft will begin initial high-definition (HD) mapping and testing on London roads. These early validation and verification activities will be conducted strictly with professional, PCO-licensed safety operators present in the vehicle who are ready and able to take control if necessary.
- **Pre-Commercial Phases:** In the months leading up to the public rollout, we will progress to testing vehicles without a driver inside to validate fully driverless operations. Each vehicle and autonomous driving system (ADS) must pass in-depth inspections by the Vehicle Certification Agency (VCA) and the Driver and Vehicle Standards Agency (DVSA) alongside a detailed safety case.
- **Commercial APS Launch:** We are in ongoing discussions with the Department for Transport (DfT) and Transport for London (TfL) with the explicit goal of commercially launching automated passenger services for Londoners in 2027. The service will launch with a small, controlled fleet of vehicles and scale progressively based on operational performance, rider demand, and regulatory feedback.

Question 2: How will autonomous passenger vehicles navigate London's complicated road network?

We know first-hand that London presents a unique and complex urban driving environment characterised by narrow streets, high pedestrian and cyclist density, intricate junctions, and mixed-use zones. Freenow by Lyft and our technology partner, Baidu, navigate this through a strict engineering and operational deployment strategy:

- **Rigorous Pre-Service Validation:** Before any commercial vehicle enters service, the ADS undergoes extensive HD mapping, comprehensive sensor calibration, and supervised autonomous test-driving. This allows the system to construct a highly localised operational picture of specific road conditions, cyclist behaviors, and pedestrian patterns.
- **Advanced Sensor and Safety Redundancy:** Our partner vehicle, the Baidu Apollo Go RT6, utilises a complete sensor suite incorporating LiDAR, HD cameras, and radar. This hardware is backed by a robust 10-layer safety redundancy architecture to safely manage sensor anomalies or changing road conditions.
- **Staged, Geofenced Operational Domains:** Deployment will begin at a small scale within a strictly defined, geofenced Operational Design Domain (ODD). We will expand these operational zones incrementally, scaling only after vehicle performance has been thoroughly validated against London-specific conditions.
- **Deploying the Hybrid Network Core:** Crucially, autonomous vehicles will not navigate the network in isolation. They will operate side-by-side with human-driven private hire vehicles (PHVs) and black cabs on a single platform. This pairs fixed AV capacity with elastic human capacity, routing rides dynamically to ensure the most efficient operation across London's complex layout.

To advance safety, Freenow by Lyft updated its AV Partner Safety Evaluation Framework in June 2026, requiring every fully autonomous vehicle operating on the Freenow by Lyft platform to use a multi-modal redundant perception system with sensor diversity. In practice, vehicles must run overlapping sensor types (cameras, radar, and LiDAR) so that if one fails or is temporarily impaired, the vehicle can perceive its environment and continue to operate safely. This removes reliance on single-sensor type architectures, where one technology's limitations could compromise the whole system. Cameras can be blinded by glare, fog, or lens occlusion; radar struggles with stationary objects; LiDAR can be degraded by heavy precipitation.

Question 3: What impact would the introduction of autonomous passenger vehicles have in London?

Supporting the Mayor's Transport Strategy (MTS) Targets (Traffic Reduction & Active/Public Transport)

Freenow by Lyft's hybrid network pools rider demand across both AVs and human-driven black cabs and PHVs, rather than splitting it across separate, thinner fleets. Greater matching density is what drives efficiency in any on-demand network: more supply serving one demand pool means shorter wait times, better coverage, and fewer empty repositioning miles, because a vehicle completing a trip is more likely to find a nearby request rather than circle or deadhead back to a hub. An autonomous-only fleet operating in isolation forgoes this density. By keeping AVs and drivers in one managed marketplace, we use every vehicle more efficiently and reduce the empty mileage that adds to central London congestion, supporting the MTS goals of traffic reduction and a fairer, greener city.

Safety and Vision Zero

AVs present a massive leap forward in advancing the Mayor's "Vision Zero" goal of eliminating deaths and serious injuries on London's streets by 2041. AVs exhibit immense promise in eliminating collisions rooted in human distraction, fatigue, and impairment. To safely manage disruptive external scenarios (such as roadside vandalism), vehicles operating on Freenow by Lyft's hybrid network feature integrated accident and collision-risk detection. If an external risk or collision is detected, the vehicle can trigger an automatic Minimum Risk Maneuver (MRM), transmit live video feeds directly to our remote assistance center, and enable remote operations teams to communicate via external voice links.

Vulnerable passengers

AV deployment represents a historic opportunity to expand mobility independence, particularly for individuals with sight loss or visual impairments who can book and complete journeys autonomously without the need to rely on a driver. Passengers with sight loss or visual impairment can benefit from unlocking and entering a vehicle using bluetooth, and once inside the car can interact via voice activation to manage controls (windows, air-conditioning) or access journey information on front and rear screens.

However, technology cannot solve every accessibility need. This is why it is vital that Transport for London engage AVs as part of a wider, accessible transport network which maintains PHV and black cab services at its forefront. 100% of London's black cab fleet is wheelchair-accessible, and has been for over 20 years. Ensuring Londoners have access to as many different accessible forms of transport, whether that be black cabs, the tube, buses, bikes, or AVs, is the only way to ensure full connectivity and independence for passengers.

While capabilities such as automated wheelchair docking technologies continue to mature, human drivers remain readily available to provide physical, door-through-door assistance and serve passengers whose specific needs cannot be met by an automated platform.

Cybersecurity

Cybersecurity is fundamentally an extension of passenger safety. To insulate vehicles from malicious hacking or unauthorized access, our platform utilizes an array of stringent architectural safeguards, including:

- In-vehicle network segmentation and dedicated firewalls.
- Comprehensive access controls and robust data/communications encryption (utilizing TLS 1.2 or higher over 5G networks).

- Continuous firmware verification, rigorous software approval processes, and 24/7 cloud/vehicle monitoring.

Londoners' Transport Choices and Risk to Public Transport Ridership Numbers
When deployed as part of a hybrid network alongside driver-led services, AVs will function as complementary first- and last-mile solutions to the traditional public transportation system. Our platform integrates black cabs, PHVs, and micromobility (e-bikes/e-scooters), to give passengers the chance to choose from a full range of options, depending on their needs at any given time. A well supplied hybrid network encourages individuals to leave privately owned vehicles at home, leading to a safer, more sustainable London.

London's Taxi and Private Hire Industry, Particularly Jobs
Freenow by Lyft is the UK's largest black cab app, and we are fiercely committed to the long-term viability of the human-driven sector. In recent years, Freenow by Lyft has worked closely with London Assembly members to advocate for the black cab trade and to reverse the decline in licensed taxi drivers and vehicles. This work has included our 2025 report with the Centre for London "The Future of London's Black Cab Trade: Delivering a sustainable taxi trade for London", which we launched in the London Assembly with many committee members present.

Most recently, Freenow issued a joint letter to the Department for Transport, co-signed by the LTDA, calling for further support from government to the cab trade, recognising the unique role taxis play in providing accessible, sustainable transport to millions across the UK.

Over the next several years, the impact of AVs on employment will be highly limited due to the small size of early AV fleets relative to London's 100,000+ licensed taxi and PHV drivers. The Mayor's own research confirms this, with the recent GLA Economics report classifying PHV and taxi drivers as 'Level 1' low exposure risk to AI, on a scale of 0-4.

Far from reducing opportunities, international data shows that AV integration expands the total ride-hailing market. In San Francisco, while AV services scaled in Q4 2025, traditional Lyft rides simultaneously grew by nearly 10%. AVs absorb steady, repetitive, or lower-earning trips best suited for automation, granting human drivers more agency to focus on high-yield, flexible journeys. By growing the overall market, more passengers are attracted to ride-sharing as an option, creating a larger customer base for our drivers to access.

Furthermore, the transition creates net-new, highly skilled local technical roles. In our US operations, over a third of our AV fleet management and maintenance workforce has been successfully recruited directly from our human driver community.

Question 4: What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?

Freenow has been operating in London for nearly 15 years, throughout this time we have worked closely with TfL to ensure our service is meeting the needs of Londoners and TfL policy objectives. This engagement will of course continue as we launch AVs services in London.

The Mayor and TfL should prioritise collaborative, integrated governance that builds upon the existing transport network and local regulatory expertise. AVs can contribute to the performance and reach of London's transportation system when offered alongside a strong supply of taxis and PHVs, as well as the wider public transport and cycling network.

TfL is currently working on guidance to be published, providing operators seeking to launch commercial AV services with information on how AVs can best support the MTS. We support this work and would encourage engagement with industry in the development of this guidance. TfL, as the local licensing authority, already has a formal role in the consenting process for APS permit applications.

As a longstanding partner to TfL, with a history of delivering services in London, we would recommend the Mayor and TfL focus on the following areas:

1. **Engagement with industry:** for AVs to be a success, they must be introduced as part of a comprehensive, sustainable, accessible transport network and help TfL to deliver clear policy objectives as part of the Mayor's Transport Strategy. That can only be achieved through collaborative, pro-active engagement between industry and TfL. TfL should require all operators and APS applicants to establish regular engagement forums with TfL, to ensure alignment with policy objectives
2. **Wider taxi and PHV industry:** the introduction of AVs into London should be viewed as part of a wider hybrid network, with a strong driver-based black cab and PHVs sectors also. TfL should work with industry to identify the different use cases across each mode, and incorporate AVs into their wider policy development on taxis and PHVs, ensuring the necessary hybrid system to support accessible, sustainable travel for London passengers.

Question 5: What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?

International deployments, particularly across major US markets like California and Austin, Texas, offer clear, data-driven lessons for London's regulatory framework:

- **Hybrid Networks Heavily Outperform AV Only Models:** Early data from Austin, Texas and Atlanta, Georgia demonstrates that hybrid networks (where AVs and human drivers operate interchangeably on a single marketplace platform) achieve 30% more trips per vehicle per day and lower estimated times of arrival (ETAs) by 25% compared to isolated, AV-only fleets. Human drivers are structurally necessary to absorb volatile surge demands, which can spike up to 20 times baseline levels during peak hours or severe weather, surges under which pure AV fleets routinely fail to maintain reliability.

London's framework should actively support hybrid network operations to protect city efficiency.

- **Implement Dual-Stream Incident Reporting Frameworks:** Regulators should mirror the aviation and automotive oversight frameworks utilised in the US (such as NASA's ASRS and NHTSA's orders). A robust framework requires two distinct pillars: a mandatory reporting stream to capture high-consequence events (which must be coupled with fleet mileage denominator data to enable accurate rate-based comparison), and an independent, non-punitive voluntary reporting stream. This voluntary channel captures critical "near-misses" and edge cases reported by remote operators, passengers, or road users, supplying the leading indicators necessary for proactive risk prevention before a collision occurs.

As part of conditioning for providing ‘consent’ to APS applications, TfL should mandate pro-active engagement and develop new policy forums to allow industry experts to share best practice and shape future regulations of London’s AV sector.

GMB LONDON REGION

Submission to the London Assembly Transport Committee

Inquiry into Autonomous Vehicles

About GMB and our interest in this inquiry

GMB is one of the largest general unions in the United Kingdom, with more than half a million members across the private and public sectors. GMB London and Southern Regions represent members throughout London and the East of England.

GMB is the union for private hire and taxi drivers, and we do not come to this inquiry as bystanders. It was GMB that brought and won the landmark legal case that established the employment rights of private hire drivers in this country. In Uber BV v Aslam, after a four-year battle through the Employment Tribunal, the Employment Appeal Tribunal, the Court of Appeal and finally the Supreme Court in February 2021, the courts confirmed that private hire drivers are workers, entitled to the national minimum wage, holiday pay and a pension.

That victory led directly to the first recognition agreement Uber has ever signed with a trade union anywhere in the world, covering tens of thousands of drivers. We have fought the same fight for drivers at Addison Lee and elsewhere, and we continue to press every operator to obey the law.

We make this submission, therefore, on behalf of the very workforce whose livelihoods are most directly threatened by the arrival of autonomous passenger vehicles: the more than 110,000 licensed taxi and private hire drivers who keep London moving.

Summary of GMB's position

Autonomous passenger vehicles should not be rolled out in London unless the jobs, pay and conditions of workers are protected, services are safe and accessible to every Londoner, and democratic and public control over the system is guaranteed. The remainder of this submission sets out our answers to the Committee's questions and the conditions we believe must be met before any large-scale deployment is permitted.

The failure of TfL to use its leverage to get private hire companies to implement the Supreme Court Judgement and give private hire drivers more rights, has left drivers even more vulnerable. Many drivers in this position will not only lose their livelihoods but be left with crippling bills for vehicles they can no longer earn a living from.

It is urgent that TfL address this matter with providers and prioritise the security of private hire jobs.

1. Licensing, and the role of the Mayor and TfL

The licensing of autonomous passenger vehicles will sit within the national framework created by the Department for Transport and the Automated Vehicles Act 2024. In practice, however, the regulation of taxi and bus like services in the capital will be exercised in large part through Transport for London as the integrated transport authority.

GMB notes with concern that the new Automated Passenger Services permit is expressly designed to carve these services out of the existing taxi, private hire and bus licensing regimes. That carve out cannot be allowed to become a route around the standards that protect London's workers and passengers.

Our view is that the Mayor and TfL must use every power available to them, including licensing conditions, safety approvals, caps on vehicle numbers and operating rules, to protect workers, passengers and other road users. AV approval must never be treated as a narrow technical matter.

The precedent of Uber licensing is instructive. TfL has shown that it can and should attach conditions on working time, income floors and safety standards when a disruptive operator enters the market. The same approach must apply, without dilution, to AV operators.

2. How close are commercial operators to deployment?

The position is no longer hypothetical. The Department for Transport has fast tracked small scale taxi and bus like services without a safety driver to spring 2026, with full implementation of the Automated Vehicles Act anticipated in the second half of 2027. Several companies, including Uber, Wayve and Lyft, are actively seeking permission to carry paying passengers in London.

Waymo is already testing in London with a fleet of around 24 driver supervised vehicles, and it brings substantial commercial experience from the United States, where it now provides roughly 500,000 paid rides each week across more than 3,000 vehicles in ten cities. GMB is deeply concerned that Waymo is lobbying to legitimise a far larger London fleet, in effect seeking to leapfrog the legislation and establish a foothold from which to expand aggressively. The suggestion that Waymo can be classed as a premium product is fanciful given the fiercely competitive nature of the UK private hire market, and the planned introduction of the Zeekr vehicle makes that claim harder still to sustain.

GMB therefore characterises deployment as imminent on a limited scale rather than hypothetical, and we insist that worker protection and safety frameworks must be in place before any large-scale commercial service is authorised. Government is, at present, dazzled by the promise of AI adoption. It hears operators talk of billions in investment, but there is no guarantee that those sums will flow into the Exchequer, still less that they will deliver real value to London and its surrounding region.

3. Compatibility with the Mayor's Transport Strategy

In theory, autonomous passenger vehicles might help to reduce private car ownership and support some climate and congestion goals. The international evidence so far points the other way: they function mainly as another form of ride hailing, which often adds vehicle miles and undermines public transport.

GMB's position is that any AV deployment must be subordinate to the Mayor's existing goals: a reduction in traffic of 10 to 15 per cent, Vision Zero, and 80 per cent of trips made by active travel or public transport. AVs must not be permitted to expand road traffic or to displace buses, the Underground and licensed taxis. Vision Zero has had some success but remains behind schedule, and for it to work fully in this context, vehicle to everything communication (V2X) would need to be in place. At present there are too many competing standards and platforms for V2X to support the safe, green and just city that the Mayor and Londoners want. Any attempt to justify job losses by citing environmental objectives is problematic. Many workers across industries already see the government and London Mayors priorities as environmental rather than prioritising working peoples livelihoods and quality of life. Over the coming decades we need to find a way to have a meaningful just transition which centres working people. If AV are rolled out for environmental reasons and result in potentially tens of thousands of job losses, it will set the tone for the wider just transition by telling people that politicians care more about their environmental credentials than they do their citizens livelihoods.

So far in none of the countries around the world where AV has been rolled out has a genuinely just transition been even part of the plan. Workers are an afterthought. Any transition in the UK needs to put plans for a just transition first not last. Part of this must be improved workers rights for PH drivers.

The union would therefore support strict limits on fleet size, operating areas and operating hours, and a requirement that AV services complement rather than compete with public transport, for example by focusing on first and last mile links to stations rather than saturating the city centre.

A one in, one out limit should be agreed, set against the current number of licensed London drivers and vehicles or a defined maximum base. Vehicles that are not licensed in London should be required to return to their home licensing district once a booking is complete, rather than dwelling on the periphery to evade such a policy.

4. Principal risks, and whether they can be mitigated

The single greatest risk identified by GMB is the large-scale loss and degradation of work for the more than 110,000 taxi and private hire drivers in London. Many already face falling earnings in a saturated market and work under precarious self-employed arrangements. AV operators are highly likely to cut fares to undercut mainstream private hire and taxi services, suppressing driver incomes still further. Operators such as Waymo will not carry the cost of redundancies, nor will they sit within the corporate tax structures that operators, drivers and sole traders in this country rely on to contribute to the Exchequer.

The safety risks are equally serious: technology failures, collisions on complex urban streets, and the absence of a human driver able to respond to vulnerable passengers, anti-social behaviour or emergencies. This is of particular concern for disabled passengers, older Londoners and children.

Cyber security and terrorism risks are substantial. Government has already identified connected and autonomous vehicles as attractive targets for cyber attack and ransom driven disruption, and there is a realistic prospect of large scale network paralysis if fleets are compromised.

GMB's view is that mitigation is possible only if strict conditions are imposed from the outset:

- independent safety certification before any service carries passengers
- full transparency on every incident, reported to TfL and the public
- robust cyber security standards, independently audited
- meaningful human oversight of every fleet
- the power for TfL or the Mayor to suspend or cap services immediately when problems arise

In addition, all data centres, control functions and customer service staff must be based in London without exception, and data must not be offshored. Profits and tax must be paid in the United Kingdom, with no recourse to offshore arrangements. A London journey tax should be introduced to fund the training, education and redeployment of workers displaced by the growth of the autonomous market. Video and data captured of individuals must be retained only for a fixed period and **never used for the purposes of machine learning.**

Wider economic risks – the potential impact of tens of thousands of job losses and the resulting loss of tax revenue is not being taken seriously. At a time when unemployment rates are an important subject of debate and impact on public finances, the roll out of AV at the current time will result in more people claiming unemployment benefits. This is not only going to impact on those individuals but also on public spending.

Driver income – many private hire drivers already report reduced income from their work in recent years. Allowing providers to run AV vehicles without restrictions will almost certainly result in more profitable journeys being AV and less profitable journeys going to drivers. London is already a high-cost area to live, less private hire drivers now live in London. This continues the drain of working people out of London.

5. Accessibility for all Londoners

Disabled passengers and older Londoners rely heavily on human drivers for assistance into vehicles, for route adjustments and for reassurance. There is a real danger that robotaxis will prove less accessible than the vehicles they replace unless regulation intervenes. Recent UK survey work shows a strong public expectation that robotaxis must be fully accessible, including wheelchair access, yet operators have made no such commitment in their early fleets.

GMB's position is that no AV service should be licensed unless its vehicles and booking systems meet at least the basic accessibility standards of London taxis, including wheelchair access, assistance for visually impaired passengers, and clear routes to redress when things go wrong.

6. Potential benefits, and their likelihood in London

Proponents claim that AVs can improve safety by removing human error, provide round the clock coverage, and fill gaps in public transport, particularly in poorly served parts of outer London.

GMB accepts that, if tightly regulated, AVs could offer some benefits, such as better off peak coverage or services tailored to particular needs. These gains are not automatic, however, and may well be outweighed by job losses, added congestion and safety concerns. The most realistic benefits for London will be realised only if AVs are deployed as part of a publicly planned system, with worker protection, strict caps and clear integration with buses, the Underground and active travel, rather than as standalone, profit driven fleets. Where an AV journey can be completed as part of a multi modal trip, that should be the default.

7. Lessons from trials elsewhere

In US cities such as San Francisco and Phoenix, rapid AV deployment has generated significant controversy, including well publicised crashes, the obstruction of emergency vehicles, and serious concern from transport unions about safety and job displacement. At the same time, Waymo's rapid scaling, now handling roughly one in four ride hailing trips in San Francisco, shows how quickly robotaxis can come to dominate a local market once permissions are granted.

The incident record is sobering. In Atlanta a Waymo vehicle drove into an active crime scene; in San Antonio another drove into a flood. The US law firm DiMarco, Araujo and Montevideo have identified 1,429 Waymo related accidents reported between July 2021 and 17 November 2025. Waymo's current London operations have already produced an alarming number of incidents, from ignored police cordons to a vehicle travelling the wrong way through the Strand Underpass towards Waterloo Bridge, whatever explanations the company may offer in their defence.

Most tellingly, Governor Kathy Hochul of New York State has paused legislation that would have allowed broader autonomous vehicle testing across the state, declining to extend permits that expired in March 2026, while New York City officials continue to scrutinise closely how these vehicles would integrate.

The lesson is clear. Automation is not, at this stage, a substitute for human engagement. In dense, multi modal cities the infrastructure does not yet exist to allow autonomous systems to cope with ordinary, unpredictable human behaviour: the pedestrian crossing the road while looking at a mobile phone, or the scooter with its small and shifting footprint.

GMB's overarching lesson for London is this. Regulators must move at the pace of public safety and worker protection, not at the pace of corporate ambition, and they must retain the power to pause, roll back or cap services whenever the impact on safety, congestion or employment proves worse than promised.

Conclusion

London's drivers built much of this city's transport economy, and they should not be discarded in the rush to accommodate a technology that remains unproven on our streets. GMB London Region and Southern Region urges the Committee to hold the line for the workers and passengers of London, and to ensure that any deployment of autonomous vehicles is safe, accessible, accountable and fair to the workforce.

We would welcome the opportunity to give oral evidence to the Committee, and to work with the Mayor, TfL and the Assembly to get this right.

The IWGB is a trade union that represents Private Hire Drivers across the UK with a particular concentration in London and we welcome the opportunity to express our members' views to the committee.

Overall, our members are extremely concerned and worried about the rollout of autonomous passenger services because of the enormous risk to their livelihoods as well as a skepticism as to how this could feasibly fit within TfL's transport goals. A full rollout will threaten over 100,000 Londoners' jobs directly but it will be even more widely felt by their dependents. It will also significantly affect the ability of Londoners to hold their transport system to account and shape it in their own interests.

We have answered each of the questions in turn - with a priority focus on the areas that most impact our members

1. **How close are autonomous passenger vehicles to becoming a reality in London?**

They're very close to being a reality as they're already testing in London, and many of the companies testing here are already commercially operating a fully autonomous passenger service elsewhere. One exception to this is Wayve, the single UK company involved, for whom London will be their first supervised trial with passengers.

The UK government has been very vocal about shepherding autonomous vehicles quickly into the UK market in order to incubate an industry which they believe will attract tech investment. They are doing this with untested and unproven technology in a city as complex as London, and at the expense of many thousands of Londoners' livelihoods. The Transport secretary recently issued regulations that set the framework for Autonomous Vehicle Permits (APS) and she has made it fairly clear she believes London's "consent" role should be limited. The true timeline is therefore dependent on the degree to which TfL decides to stand up for the right of Londoners to have control over their city's transport network, and confronts any rushed process that threatens residents' and workers' interests.

Outside of the more conventional Robotaxi Models of Waymo, Baidu or Wayve, that have usually partnered with ride-hailing apps to market their taxis, Tesla is also developing its own autonomous vehicle technology. This has made significant advances recently and aims to ultimately allow personally-owned Teslas, for which there are many in London, to be used as Robotaxis when not in use. Considering some of the interventions the owner of Tesla has made in UK politics, this adds an additional threat of unaccountability if allowed to proceed.

2. **How will autonomous passenger vehicles navigate London's complicated road network?**

This is an as-yet untested question. Autonomous passenger vehicles have proven themselves capable when it comes to predictable road environments because they are trained on past data. They do not however operate with the intuition of a human and need vast amounts of data in order to understand how to respond in an unusual situation.

An important thing to note is the UK does not have jaywalking laws like they do in the US and China, the two key markets that already have autonomous vehicles taking passengers, and the locations where some of the most advanced companies in the sector have largely trained their technology. Therefore there are many more unpredictable situations which these companies will face in London compared to elsewhere. This is a potentially serious risk which warrants considerable testing data to assuage concerns on safety because inferences cannot be made from testing data elsewhere. It is not unlikely that to accommodate any wide rollout, that pressure will be put on planners to be more restrictive towards other road users. This would be a serious accountability problem.

Autonomous Vehicles continue to show themselves highly incapable in unusual situations that are less easy to understand through past data. Incipient emergency situations is one that these cars have had significant difficulty with in other markets and Waymo's current testing in London already found it driving through a police cordon. In Arizona there has been a well-documented issue with Waymos undertaking school buses, which is illegal and highly dangerous. Despite repeated testing to resolve the issue, with the local school district even helping to train them in an off road lot, the problem has persisted. This shows that even bespoke training on how to respond in situations that they find difficult to deal with has not resolved issues in the long term.

3. **What impact would the introduction of autonomous passenger vehicles have in London?**

These companies are deeply antagonistic to the ability of London government to administer a transport system in a way that is publicly accountable and designed in the interest of people who live and work here. The unaccountability of US technology companies is already of significant public concern in other domains and consequently this is a profound threat to the shape London will take in the coming years, and what kind of city it will be like to live and work in. London's transport system is one of the best in the world and private hire drivers, as well as taxi drivers, well complement the gaps that our publicly owned system cannot fill. What is being proposed here is not simply a shift from a manned car to an unmanned one but the introduction of a parallel, privatised transport network which will be able to undercut public transport and will be intent on doing so. These companies, backed by enormously powerful interests, will not ultimately seek to work with the transport network as it currently stands but against and in competition with it. And they will have the power to do so.

As a consequence, this is a watershed moment for London, the path that is taken from here will make its influence felt for decades. What we can be sure of is that autonomous passenger services will threaten over 100,000 Londoners’ livelihoods as well as bring a huge flood of vehicles onto already congested streets. As this will severely compromise the public good by threatening jobs and ushering in an unaccountable transport network it is therefore important to assess what are the corresponding benefits.

In the brief you've referenced the government's argument that this will bring huge economic benefit to the UK but this is very unclear and contestable. Wayve may be a UK company but they are partnering with Uber, a US firm, in order to market the service, using cars made by Ford, a US company manufacturing those vehicles in Mexico. Waymo is currently using Jaguar vehicles but will soon be using the Ojai, a specially designed vehicle manufactured in

China by Zeekr. And Baidu is a Chinese company which manufactures its own vehicles. Without a fare to pay to a driver, much of the value will be therefore captured by tech interests that do not need to be resident in London or the UK. Any jobs created to maintain vehicles will be minimal and the energy usage of these cars, being 30% higher than a normal electric vehicle will place added strain on London's energy system.

In contrast, the over 100,000 drivers currently working in London are unequivocally based here, they work and predominantly live in London. It must be stressed that in many instances these drivers are the sole breadwinner for their families, making the impact of any job losses far greater than the 100,000 figure. For a city of over 9 million people this will be potentially catastrophic - we would likely see profits accrue to powerful and unaccountable interests at the expense of ordinary Londoners' jobs.

In particular, migrant communities have long relied on private hire work as it offers a degree of independence while allowing for the long hours they often need to work to support their families with no savings or outside support. They work extremely hard and will not just automatically move into different industries. Driving is a job that people can, despite the difficulties, feel dignified and skilled in and have spent many years doing. Drivers often feel they have nowhere else to go. They do not want to leave the industry and will not leave it without a fight. A decision to begin rolling out autonomous vehicles and force them to compete with robotaxis will drive many into destitution and crisis.

According to TFLs data in 2025, over ⅓ of private hire drivers in London are over 50. Many of these would find it very difficult to retrain into another skill. In addition many rely on the flexibility of the hours to attend to care responsibilities. This could be in order to take their children to school but there is a large and disproportionate number of drivers with severely disabled children who need the flexibility of this kind of work to care for them.

Lastly, many drivers invest £10,000s into buying or leasing vehicles. These are long term financial commitments that cannot be quickly unwound and consequently leave drivers often already feeling debt trapped. It is absolutely imperative that this is acknowledged when talking about the financial impact of losing these jobs. If they left the industry today, many drivers would still carry these debt obligations.

4. **What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?**

The IWGB is calling for a full ban, this is an inappropriate technology to be introduced considering the catastrophic threat to livelihoods and the handing over of London's transport system to wealthy private interests at the expense of a publicly-owned transport network that can work alongside London-based drivers.

When an APS permit does come in front of TfL and the Mayor it is vitally important that they prioritise the interest of Londoners and resist any pressure to do otherwise. Proper safety tests are essential and if permits are considered then a strict limit on vehicles will be important as congestion is already considerable. An increase in congestion would increase pollution and electricity demand and also significantly lengthen travel times. It should also be recognised that many disabled Londoners rely on human drivers and this will continue to be the case, ensuring that they have continued transport access is as an obligation for the Mayor.

It has been encouraging to see the Mayor and head of TfL indicate that they would like to stand up for the right of Londoners to regulate the streets in which we live and work and have continued say over how permits will operate in the capital. There are cases such as In New York where city politicians have demonstrated their willingness to stand up for working people's livelihoods on this issue and it will be an important public test to see if the Mayor challenges expected pressure from central government to force this through.

Currently, licensing is a largely devolved matter and the government's attempt, through the Autonomous Vehicles Act, to strip London and other local authorities of their powers in this matter is an attack on devolved powers. This should be resisted at every stage and a case should be instead made for greater local oversight.

5. **What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?**

Trials show that autonomous vehicles do not perform well in unfamiliar situations. They have repeatedly driven through emergency scenes and flooded streets, and put children in serious danger. At present the technology is clearly not fit for purpose. This is a structural feature based on how the vehicles are trained, because they don't know how to respond in situations that cannot be predicted, which will be much more common in a city like London than it is in other cities where the technology has been tested.

LightHouse for the Blind and Visually Impaired- San Francisco

My name is Caitlin O'Malior and I work in advocacy and communications at LightHouse for the Blind in San Francisco. LightHouse provides services, education, employment, social and vocational programming for blind, low vision, and deafblind individuals throughout the San Francisco Bay Area and Northern California.

As a non-profit agency, we often work with community partners on accessibility and inclusion objectives. One of our most dedicated and impactful partnerships has been Wayno. For many years, before the app was available for public use, Waymo worked side-by-side with our clients and Access Tech consultants on how to make everything from the app's interface to user experience completely accessible for blind and low vision users. Most tech companies work to adapt their existing software to accommodate assistive tech, but Waymo built accessibility into their entire identify from the beginning.

As a visually impaired woman who often uses rideshares throughout San Francisco, I have never felt safer than I do when in a Waymo. The drive is smoother than most human drivers, all traffic laws and regulations are consistently being followed, and the app allows user to access step-by-step drop off and pick up instructions, making both the vehicle and my destination easy to locate. There are no language barriers, no uncomfortable behaviors, and the cleanliness of the vehicle is consistently impeccable. However, one of the most significant perks for many blind and low vision users is that they face zero service animal discrimination when riding in a Waymo. Guide dogs are safe, welcome, and never rejected.

I have loved working with Waymo both professionally and as a customer. The team is kind, compassionate, enthusiastic, and innovative. The ride and user experience is safe, clean, and calming. I cannot recommend it enough. It is, by far, the most accessible and inclusive rideshare option I have used and would encourage all major metropolitan areas to consider allowing Waymo's to operate in their areas.

Living Streets' Call for evidence for Autonomous Passenger Vehicles in London

1. **How close are autonomous passenger vehicles to becoming a reality in London?**

Autonomous passenger vehicles are likely to become a reality in London by the end of this year (2026).
A number of companies are already testing, or have announced plans to test, autonomous vehicle technology in London, including Waymo, Wayve and Apollo Go.

2. **How will autonomous passenger vehicles navigate London's complicated road network?**

London presents a challenging urban environment for autonomous vehicles.
London streets contain large numbers of pedestrians, cyclists, buses, delivery vehicles, taxis and other road users interacting in complex and often unpredictable ways. Many streets are historic in nature, with constrained layouts, mixed uses and significant pedestrian activity.
Living Streets is concerned that much of the evidence presented by AV operators is based on performance in environments that are less complex than central London. We are concerned that introducing AVs to this urban environment could create safety issues for vulnerable road users and pedestrians.

3. **What impact would the introduction of autonomous passenger vehicles have in London? We are particularly interested to hear about the impact on:**

Mayor's Transport Strategy targets: traffic reduction, walking, wheeling, cycling and public transport
Living Streets is concerned that autonomous vehicles could undermine the Mayor's Transport Strategy which seeks to increase walking, wheeling, cycling and public transport use, by making private motorised travel more attractive than these alternatives.
There is a particular risk that AV services could increase traffic levels through additional vehicle movements and empty running. Analysis of Waymo operations in California found that only 54% of vehicle miles travelled were with passengers on board. If similar patterns emerge in London, AVs could increase congestion and compete for road space with buses, pedestrians and cyclists.
Increased traffic volumes would make streets less attractive for walking and wheeling and could discourage active travel. AV deployment should therefore be assessed against its impact on traffic reduction, mode shift and public transport use.
Safety and the public purpose of London's roads
Living Streets supports Vision Zero. There is evidence that autonomous vehicles may reduce collisions caused by human error and therefore they may have the potential to improve road safety outcomes. The Institute for Engineering and Technology (IET) claims that for every 10,000 errors made by drivers, a self-drivingvehicle would make

just one. 88% of all recorded collisions on roads in Great Britain involved human error, and therefore we welcome the potential safety benefits that AVs present.

As well as safety when it comes to collisions, AVs must demonstrate that they can operate safely around pedestrians and other vulnerable road users before being permitted to operate widely on London's streets. Additionally, we do not want to see an increase in the number of motor vehicles on the road – autonomous or human driven.

The public purpose of streets should also be considered. Streets are public spaces that should support social interaction, access to services and healthy lifestyles. AV deployment must not result in streets being designed around the needs of technology and private profit rather than people.

Children, older and disabled people

Living Streets believes the needs of vulnerable road users should be central to decisions about the deployment of AVs in London.

Children, older people and disabled people are more likely to experience the impacts of road danger and therefore stand to benefit from genuine safety improvements. However, they are also more likely to be adversely affected if AV systems fail.

There is evidence that automated systems can struggle to respond appropriately to people whose appearance, movement or behaviour differs from the patterns on which they were trained. This raises concerns about the safety of disabled pedestrians and others whose movements may not conform to expected behaviours.

Testing, regulation and monitoring should therefore explicitly consider impacts on these groups.

Accessibility and passenger safeguarding

Autonomous vehicles may provide new mobility options for some disabled people and others who face barriers to independent travel such as visually impaired people with guide dogs.

However, accessibility benefits should not be assumed. Many passengers currently rely on assistance provided by taxi and private hire drivers. If driverless services become widespread, some users may lose access to support they currently receive when boarding vehicles, securing equipment, navigating journeys or responding to emergencies.

Passenger safeguarding is also an important consideration, particularly for vulnerable passengers travelling alone.

Living Streets believes that AV services should be required to demonstrate equivalent or improved accessibility and safeguarding standards compared with existing services.

London's taxi and private hire industry, particularly jobs

Autonomous vehicles could have significant implications for London's taxi and private hire sectors. While the scale of any employment impact remains uncertain, widespread deployment of autonomous passenger services could reduce demand for professional drivers.

In addition to employment impacts, Living Streets is concerned that there is a risk that the loss of drivers could reduce passenger assistance, safeguarding and local knowledge that many users currently value.

Any transition towards autonomous services should consider both workforce impacts and the wider social value currently provided by professional drivers.

4. **What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?**

Living Streets believes TfL and the Mayor should place pedestrian safety, accessibility and public benefit at the centre of engagement with AV operators.

We ultimately believe that technology should not be introduced at the expense of pedestrian freedom to use pavements and roads safely and conveniently. If AVs are introduced in London, they must adhere to the hierarchy of road users and should be part of the solution to re-design our streets to put the most vulnerable at the heart of the change. Living Streets believes that any technology introduced to our streets should therefore contribute to creating places where walking is the natural choice, reduces traffic, improves safety, and supports inclusive mobility.

Priorities should include requiring operators to demonstrate safe operation around pedestrians, cyclists, and disabled people before deployment.

Additionally, we believe that operators should be required to comprehensively share data on collisions, near missies, traffic impacts, and accessibility performance. Pilots and trials should be independently assessed and evaluated.

If AVs are introduced, impacts on walking, wheeling, cycling, and public transport use should be assessed.

We believe that there should be action to ensure that operators aren't deploying vehicles with no passengers in them to decrease the risk of unnecessary congestion.

Living Streets also believes that safeguarding and accessibility should be prioritised in any regulations.

5. **What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?**

International experience demonstrates both the potential benefits and the risks associated with AV deployment.

Evidence from the United States suggests autonomous vehicles may reduce certain types of collisions and improve compliance with traffic rules. However, international deployments have also highlighted concerns relating to interactions with pedestrians, emergency vehicles, roadworks, disabled people and unexpected road conditions.

TfL should also learn from cities that have prioritised sustainable transport and public space. The success of autonomous vehicles should not be measured simply by whether they operate safely, but by whether they contribute to healthier streets, reduced traffic, and greater accessibility.

[Ref No. AV017, London Ambulance Service NHS Trust]

London Ambulance Service NHS Trust's Response to the London Assembly Transport Committee Call for Evidence: Autonomous Passenger Vehicles in London

Introduction

London Ambulance Service NHS Trust (LAS) welcomes the opportunity to contribute to the London Assembly Transport Committee's investigation into autonomous passenger vehicles.

As the capital's emergency and urgent care responders, our utmost priority is ensuring the health and safety of Londoners.

Looking at the data since the 2022/23 financial year, LAS attended an average of 10,975 road traffic collisions per year. During the same period and out of these road traffic collisions, an average of 8,438 ambulance conveyances were made to a hospital each year. However, this does not include patients who were transported to hospital by a third party, made their own way to hospital, or were discharged at the scene. On average, 37 road traffic collisions attended by LAS each year were recorded as involving a taxi. However, the true number may be higher, as the type of vehicle involved is not recorded for every incident.

While the introduction of autonomous vehicles presents significant opportunities for London, it also introduces new operational considerations for emergency responders that should be addressed through clear standards, effective partnership working and appropriate regulatory oversight.

Operational preparedness

LAS is already engaging with autonomous vehicle developer Waymo in preparation for potential commercial deployment in London. In particular, LAS and Waymo are working to develop a structured training package for our frontline clinicians and incident managers, covering:

- How ambulance clinicians can recognise that they can safely and effectively engage with an autonomous vehicle in case of an incident, whether the vehicle is directly involved or operating nearby an incident
- Methods for safely accessing a vehicle where a patient inside requires emergency medical assistance
- Understanding how autonomous vehicles respond to emergency service resources' audible and visual warning equipment, including the actions ambulance crews should expect vehicles to take.

We welcome this collaborative approach and believe that **engagement between the Greater London Authority, Transport for London, Department for Transport, emergency services and operators should be a standard for any organisation seeking to deploy autonomous passenger vehicles in London.**

Emergency response considerations

From an ambulance service perspective, one of the most significant considerations is how medical emergencies involving patients – whether they are passengers or pedestrians - will be managed.

Where a passenger experiences a medical emergency during a journey, LAS would like to see clear and reliable processes to ensure that emergency services receive timely, accurate information. In particular, we recommend that operators and regulators explore the following possibilities:

- Incidents are detected, alerted and communicated directly to LAS's Emergency Operations Centres especially if a patient is unable to call 999. This mechanism should be available for the patient inside the vehicle as well as potential patients outside the vehicle such as a pedestrian or a cyclist.
- Information (such as patient's condition) is shared to support clinical triage before crews arrive
- Vehicles have the ability to determine whether to continue to a place of safety or stop immediately, depending on the nature of the emergency

LAS would particularly welcome mechanisms that enable authorised clinicians to access live vehicle camera feeds in serious road traffic collisions, and where appropriate and proportionate, to support remote clinical triage and decision-making. Access to visual information could significantly improve the assessment of patient condition, inform the priority of the response and support the provision of pre-arrival advice. This functionality could be particularly crucial when the passenger (patient) is unconscious inside the vehicle with no by-stander presence.

Equally, autonomous vehicles should be capable of relocating, where clinically and operationally appropriate, to safe stopping locations that minimise disruption to traffic and preserve access for emergency vehicles. There should also be a mechanism to effectively manage and support an incident where the autonomous vehicle collides with another patient.

We would welcome consideration being given to equipping autonomous vehicles with life-saving equipment, such as a defibrillator and a first aid kit. If these vehicles are intended for public use, they could provide valuable medical support and early intervention in emergencies before the arrival of the emergency services. These pieces of equipment are designed for use by members of the public, with clear instructions that enable safe and effective use, and their inclusion could help improve outcomes in time-critical incidents. Crucially, defibrillation within 3-5 minutes of collapse can produce survival rates up to 50-70%. The availability of a defibrillator within autonomous vehicles could play a life-saving role.

The importance of common operational standards

As multiple autonomous vehicle operators enter the London market, it will be important that emergency services encounter consistent systems and procedures regardless of manufacturer or operator.

LAS would support the development of common operational standards covering emergency vehicle interaction, methods of vehicle access, emergency override procedures, communication protocols and information sharing. Standardisation would help ensure consistent patient outcomes, reduce training requirements, and improve responder confidence and.

Opportunities

While much of the discussion around autonomous passenger vehicles focuses on regulation and safety, there are also opportunities for LAS.

Autonomous transport services could support the movement of NHS staff between healthcare sites, facilitate the collection or return of staff from operational locations, and reduce reliance on staff driving for certain non-emergency journeys.

Looking further ahead, autonomous transport may also offer opportunities to support clinicians working within community settings or alongside ambulance crews by providing additional transport options for patients in non-emergency situations that improve operational flexibility and productivity.

These potential benefits should be explored in partnership with NHS organisations as the technology matures.

Conclusion

First and foremost, autonomous passenger vehicles should be required to meet the highest safety standards, and operators should be expected to work toward eliminating the possibility of incidents of any scale.

LAS supports innovation that has the potential to improve transport and public services, provided patient safety remains the overriding priority. This process should also include the Department of Health and Social Care and NHS England’s Regional Team for London as well as the Department of Transport and Transport for London.

The successful deployment of autonomous passenger vehicles will depend not only on vehicle safety, but also on how effectively they integrate with London's emergency services. Early engagement with emergency responders, common operational standards, effective information sharing and clear procedures for managing medical emergencies will all be essential to ensuring that autonomous vehicles contribute positively to London's transport system.

LAS looks forward to continuing to work with vehicle operators, Transport for London, the Greater London Authority and national partners to help develop safe and effective arrangements for the introduction of autonomous passenger vehicles in London.

LB Ealing response to GLA Transport Committee call for evidence on autonomous vehicle rollout in London

26 June 2026

The Committee welcomes any evidence relevant to the following questions:

1. *How close are autonomous passenger vehicles to becoming a reality in London?*

Companies involved in developing, testing and operating autonomous vehicles are keen to propagate the idea that AVs will be imminently ready for full deployment across London, with all issues resolved. The reality on the ground is very different. 'Becoming a reality' does not mean a few vehicles testing and mapping London's complex road network; it means successful integration with the existing transport network, in line with policy objectives, and that is both less plausible and arguably less desirable.

A very simple exchange witnessed at an APPG for Transport event on AV safety in early 2026 summarises the problem from a Highway Authority perspective, though there are many other considerations. When asked how the vehicles will navigate less-than-optimal roads (e.g. leaf litter, faded paint, potholes, obscured signage, snow and ice), the response from Waymo was that Highway Authorities will simply need to ensure the road network is up to standard.

That is not a response rooted in an understanding of the current resources and funding available to London boroughs and TfL, who are already under significant sustained funding pressure and cannot upgrade the entire road network in the short-term to meet the requirements of AVs. Whereas human drivers understand road layouts and can intuit road markings even where faded, or covered with leaves or snow, there is a far higher risk of AVs malfunctioning in this context. This could lead to AVs entering cycle lanes, colliding with cyclists, e-scooter riders or motorcyclists, colliding with pedestrians, or colliding with other vehicles.

Knowing that the companies in question are glossing over significant issues like this, it is hard to avoid the conclusion that, at the very least, AVs *should* still be a long way from London-wide passenger operations.

2. *How will autonomous passenger vehicles navigate London's complicated road network?*

For 2,000 years, London's roads have found a complex balance between the many competing needs of people moving around the city. The road network, which evolved gradually to serve desire lines between places now lost to history, and to enable people to travel on foot and on horseback, is of historic and cultural value in itself, akin to the other ancient cities of Europe. Learning its layout is rightly applauded, through the acquisition of The Knowledge. It should not be regarded as a hurdle to American technology companies, who position their products as innovative and convenient even as they put at risk the aspects of London life which are actually cherished by its inhabitants: walkability, interesting road layouts, historic significance, and organic interactions between people using its roads.

To render London's road network digestible by algorithm, to enable AVs to drive on its roads, is to render it less welcoming to people, in ways which may seem insignificant at first, but which cumulatively will change it completely. The strategic policy objectives of the GLA and TfL have for some years related to *people:* Vision Zero aims to keep them safe; the mode shift targets aim to improve public health, reduce air pollution, and support the creation of a more people-friendly city. TfL and boroughs have poured resources into reclaiming space from vehicles, making streets greener, safer, and more comfortable. All of this work acknowledges that public highways are not fixed, and that public space can and should be reclaimed from the mid-20th century devotion to motor vehicles, and used to support the many and varied activities of London's inhabitants.

London's road network in 2026 is a complex, sometimes challenging, environment, continually striving to keep in balance the needs of people walking, wheeling, playing, resting, cycling, scooting, driving, and using public transport. It is not an environment in which vehicles have unquestioned priority and right of way, unlike the American cities in which Waymo and Uber already operate.

Our greatest concern is that AV companies will plead (gradually so as to avoid undue attention), for changes to the UK's roads to support AVs. It is plausible that they will cite pedestrians crossing roads freely as a risk to road safety, as AVs are likely to be delayed and challenged by London's pedestrian behaviours; and lobby for the UK to implement American-style 'jaywalking' rules to 'keep pedestrians safe'. They may claim their operations are not viable unless such changes are made. If the DfT, GLA and TfL wish to maintain momentum on the positive changes made in the past decade, it is imperative to hold firm on strategic priorities supporting people, not vehicles, to use our streets.

Additionally, the point noted above on highway maintenance is also relevant here. London's road network is largely constrained for space; vehicles must navigate in relatively narrow lanes with limited room for error. An AV which cannot definitively mitigate against faded paint, leaf litter, snow, or other factors, is not safe to drive in a 3.5m (or narrower) traffic lane next to a cycle lane, or in a shared space. The risks to people walking, wheeling, scooting and cycling would be too high.

3. *What impact would the introduction of autonomous passenger vehicles have in London? We are particularly interested to hear about the impact on:*

- *The Mayor's Transport Strategy targets, for traffic reduction, and increases in walking, wheeling, cycling and public transport*
- *Children, older and disabled people*
- *Accessibility and passenger safeguarding*
- *Cybersecurity*
- *Londoners' transport choices and risk to public transport ridership numbers*
- *London's taxi and private hire industry, particularly jobs*.

We would want a comprehensive EQIA conducted in liaison with Highway Authorities and other stakeholders.

We cannot see any benefits for the Mayor's Transport Strategy, quite the contrary.

4. *What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?*

- Demanding clarity on what the test driving so far has revealed about the AVs' ability to navigate London's road network. The trial must function as such, with transparent debate and access to commercial data for decision-making. If the AVs are struggling with faded line markings, for example, that is critical information, not a small detail.
- Establishing protocols for liability and damages which prioritise people *not* using the AVs. There is no acceptable level of risk to people walking and cycling from an AV, but it is not currently clear how liability would work in the event of a collision. The companies must be held accountable, through the power to levy significant fines, to prosecute if necessary, and to end contracts where appropriate.
- Being clear that the existing complexities of London's roads, including pedestrians' right to cross roads freely, are not up for discussion. AVs must be capable of navigating them without risk, or they cannot operate.

5. *What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?*

- Whether they actually stimulate local or regional economic growth or simply take away the livelihoods of taxi/private hire drivers. Evidence from other countries on any economic growth attributable to implementing AVs, beyond the idea of attracting investment.

- Whether they reduce deaths and serious injuries from collisions at the expense of altering pedestrian behaviour and rendering streets more impersonal and alienating.
- How other countries are measuring success, if any of them are – rather than assuming AVs are inevitable and tolerating their potential risks and downsides.
- Need to be mindful that some lessons/experiences from other trials elsewhere may not apply to London if there are significant differences in street design/layout, highway/traffic regulations, modal split, etc.

26 June 2026

London Cycling Campaign response to the London Assembly call for evidence on automated vehicles

LCC is pleased to respond to the London Assembly call for evidence: https://www.london.gov.uk/sites/default/files/2026-06/Autonomous%20Passenger%20Vehicles%20-%20CfE%20-.pdf

About LCC

London Cycling Campaign (LCC) is a charity with more than 20,000 supporters, of whom more than 11,000 are fully paid-up members. We speak up on behalf of everyone who cycles or wants to cycle in Greater London; and we speak up for a greener, healthier, happier and better-connected capital.

Introduction

The first thing most people worry about with robotaxis is safety and the operators are eager to focus on their low AV collision rates. But the longer-term impact of robotaxis, and AVs in general, on transport choice, road design and active travel could be much more far-reaching. At one extreme AVs could multiply car use by ousting public transport, at the other they could significantly reduce dependence on private cars.

The British government is clearly in favour of AVs, stating "bringing forward the pilots of self-driving vehicles will help the government deliver the Plan for Change, by creating 38,000 jobs to put money in the pockets of hardworking people, driving investment to back British engineering excellence and creating an industry worth £42 billion by 2035[1]."

The Automatic Vehicles Act 2024 (AVA), facilitating and governing AV use, is expected to be fully implemented by the second half of 2027.

[1] We note that in evidence provided to the London Assembly Transport Committee by Thomas Ableman on the 9th of June 2026 the cited figure of £42bn was said to be based on the expectation of AV production in the UK.

Safety first

What the robotaxi firms all promote is stress-free convenience for passengers and reduced road danger to other road users. Waymo, owned by Alphabet, Google's parent company, points to its estimated 3,500 robotaxis operating in full driverless mode in eleven US cities and says that injury causing crashes are 82% lower when compared to a human driver benchmark. WeRide , a Chinese firm that runs 1300 robotaxis and 1500 other self-driving (Level 4) vehicles, claimed at a recent press conference[2] that it has had no collisions.

While Waymo self-driving technology is based on detailed mapping and LIDAR sensors, Wayve, based at King's Cross and backed by the likes of Uber and Microsoft, essentially makes self-learning (as the car is driven) software that can be installed in a range of vehicles. Like Waymo it argues the technology is safe and it has released a one hour uninterrupted "London landmarks" AV trip recording on its website which starts and ends at Kings Cross.

LCC's observation of driverless car behaviour shows broad similarity to conventional vehicles but currently, external (to the car) observers in London cannot know if the vehicle is, or is not, in driverless mode. We note that Matthew Sparkes, journalist for the New Scientist, encountered a Waymo vehicle in central London which came to a sudden stop, initiated by the user in charge, when he was cycling at a roundabout. It appears that, according to Waymo, prior to the sharp stop, the vehicle was in AV mode and presumably did not expect him to follow the path he was taking at the roundabout. We are also aware of a cyclist turning a corner into a side street and encountering a robotaxi making a U-turn at the corner.

It is evident that London's irregular street plan and the combination of some streets with no cycling infrastructure, others with fully protected lanes and still others with a mix of protected, partly protected and unprotected infrastructure, could provide a challenge for the AV operators. Thus far, we are not aware of AV collisions in London.

Reduced collision rates, however, do not mean that AV collisions don't happen. Incidents do occur because of what City AM calls "real world unpredictability." Operating in London may yet prove to crank-up that unpredictability – thousands of narrow, winding streets instead of US-style grids and no jaywalking laws (in many US states, it is illegal to cross the road against a signal or where there isn't a formal crossing point). Some even suspect AV firms would lobby for street redesigns and jaywalking legal changes in the UK in the future, if robotaxis prove unable to cope with our convoluted streets and/or 'unpredictable' road users.

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[2] Move 2026 in London

We note also that in evidence given to the Transport Committee by Professor Siddartha Khastgir stated that driverless cars were currently less accurate at detecting children than adults.

Risks can also arise from computer hacking, power failures, cyber threats, vandalism and plain confusion. Robotaxis typically have remote oversight back at HQ but that's not the same as a driver on-site. Confused robotaxis have, in the US, blocked traffic, driven in circles and caused traffic jams.

Responsibility for collisions

While it is yet to be for fully implemented, the UK government's AV 2024 Act, and the earlier Automatic and Electric Vehicle Act 2018, place responsibility for collisions or offences of an authorised driverless AV first with the vehicle insurer(s) and ultimately with the Authorised Self-Driving Entity (ASDE) – meaning the manufacturer or software developer of the vehicle.

As far as can be deduced from lawyers' interpretation of the AVA, strict liability will apply to AV collisions if the vehicle is in self-driving mode – thus insurers will pay out without victims being required to show the vehicle was 'at fault'.

Lyon and Davidson solicitors, however, state: "As with any personal injury claim, the injured party and their legal representatives must establish a compelling case, demonstrating liability and negligence on the balance of probabilities. In cases involving self-driving car manufacturers, this may require detailed technical forensic analysis and expert witness testimony to substantiate the existence of a defect and its direct causation of the accident."

A complication noted by insurers is that, in the event of an AV with a safety operator or so called "user-in-charge" on board, a victim of a collision with such a vehicle may have to establish who was in charge of the vehicle at the time of the collision. Thatcham Research which is funded by the insurance industry states:

"identifying whether the vehicle or the human was driving at the time of incident is critical. This can only be achieved by ensuring that the insurer has immediate access to sufficient data and information from the vehicle."

Thatcham also notes the risks of both uninsured AVs and the risks of cyber attacks on vehicles:

"There is no provision in the law for uninsured AVs, including if they are involved in cyber attacks or acts of terrorism. Currently, the MIB (Motor Insurer's Bureau) is working closely with the DfT and CCAV (Centre for Connected and Autonomous Vehicles) to understand the risks of cyber attacks on self-driving and highly connected vehicles. Cyber attacks on these types of vehicles present a step change in terms of risk, not least because of the theoretical possibility of multiple vehicles being hacked simultaneously."

Cost and uptake

The popular vision of robotaxis is that without the cost of drivers, or working hours limits, they will be more profitable, and potentially more affordable than private hire vehicles with drivers. The reality is that, at present, no robotaxi firm is profitable and fares in the US are generally comparable to Uber trips of the same distance.

The exception is Tesla which, in its limited (with safety monitor) robotaxi trial in San Francisco, is undercutting Uber and estimates that the retail cost of a dedicated, but basic, two-person robotaxi will be £23K (less than a quarter of the price of a Waymo Jaguar). New generation Baidu vehicles are estimated to cost £22.2K. Wayve doesn't sell AVs but its kits for EV cars are currently costed at £8K on top of the cost of the vehicle.

To the cost of the vehicle, you have to add maintenance, parking, cleaning, insurance, admin, charging, software licence and support, and remote operators, which could add another 75% to the ongoing outlay according to some estimates. Were robotaxis to avoid parking costs by driving in circles you would add to congestion, and its costs to the economy.

The key figure, in terms of the growth of robotaxis, will be end cost to the user. Blogger Brad Templeton compares the average US ride/hail cost of $2.50 per mile to the current cost of running a private car in the US at $1 per mile. However, in conversation with LCC, consultancy McKinsey did not rule out robotaxi prices falling below $1 per kilometre in time and consultancy Steer, in a recent webinar, stated that, in time, hire costs could fall by 80% from current levels.

Were such a level of pricing to be reached, some private car owners may opt to go 'car-free'. A McKinsey survey found 18% of Britons willing to give-up personal car ownership over the next 10 years. Though, as we know, near half of London households already don't own a car.

Not surprisingly, robotaxi forecasts show wide variation ranging from "won't be break-even on a cash flow basis until 7-8 years after launch", to "revenue from robotaxi software could grow more than 1,000-fold over two decades, potentially reaching $136bn by 2046."

Popularisation and demand

Blogger Jason Slaughter on his Not Just Bikes YouTube channel paints a bleak world when AVs dominate most surface travel, dislodging public transport and active modes. Motoring will only increase, he argues, as people will be able to work inside AVs and will therefore choose to live further from workplaces in cheaper homes. Slaughter suggests

AV producers will lobby successfully for AV only lanes and roads just as car makers pressed for motorway construction.

A more optimistic view is that affordable and readily accessible robotaxis will supplant private car ownership, liberating road space for public areas and sustainable transport modes. In evidence to the London Assembly, Thomas Ableman cited an estimate that 30,000 Robotaxis would suffice to eliminate the need for private car use in that city (multiplying that figure by nine (London has nine times the population of Oslo) would amount to 270,000 robotaxis or one tenth of the 2.7m private cars owned in London). As Londoners who were subscribers to the Zipcar shared vehicles will know, the now defunct service facilitated car-free living – with users reporting that they only used a motor vehicle when alternative transport modes wouldn't have worked for their journey.

Status value of AVs

What's unknown is the future status-value of robotaxis and AVs in general. Arriving in an antennae-bristling Waymo Jaguar may score points when they first appear on our streets but will non-descript Tesla taxis carry the same cache? And if the image of driving at high speeds on open roads portrayed in ads is already far from reality, the attraction of a privately-owned vehicle that follows the road rules to the letter may be low. AV cars may have a more purely utilitarian role than one which encompasses both status and utility.

Robo-shuttles

Multi-passenger AVs or robo-shuttles are already being used as a transport solution in zones where access to conventional buses is currently limited or where there are shortages of bus drivers. Outer London could be a zone where robo-shuttles have a role to play and popular destinations such as stations, hospitals and larger workplaces could have associated robo-shuttles.

AV software firm Imagry told delegates at the Move 2026 exhibition that it can adapt a conventional electric bus to its AV driverless application in three months.

Electric bus maker Karsan is running AV buses in full driverless mode (as of 2026) in Stavanger, Norway on a commercial basis and has recently launched AV minibuses in Atlanta, Georgia to serve the World Cup football tournament. It estimates that operating costs will fall significantly in the next two years.

As reported to the London Assembly by Thomas Ableman (Transport Committee on 9th June) Oslo's transport authority Ruter is running AV buses in partnership with MOIA in the Groruddalen suburb in order to improve public transport links. Ableman suggested this was an example of a local authority harnessing AV technology to serve local needs.

Impacts on cycling and other modes

Robotaxis, the first wave of AVs in London, could well impact not just private hire, and privately-owned motor vehicles, but also cycling and specifically 'dockless' shared e-bike services, which in London currently cost around £1.50 per mile plus unlocking costs of £1, against current private hire vehicle costs of £1.25 per mile plus start cost of £2.50. If robotaxis can undercut either, or both, modes, demand could switch in their favour.

For active travel the other question will be whether the convenience and speed of cycling in urban areas outperforms the convenience and speed of robotaxis, given their far larger form-factor and inability to access cycle tracks and some residential no-through routes for cars. Cycles currently have a significant advantage in London over private hire vehicles on cost and journey times, though a disadvantage on weather-proofing, luggage carrying and perceptions of safety.

Regulation and taking control

TfL and government have the power to influence robotaxi take-up through road pricing, congestion charging, planning (for storage and parking of vehicles) and licensing. They can also fund or license robo-shuttles as noted above.

We note, and welcome, the advice proffered to the London Assembly in its first AV session – that the capital must decide what it wants AVs to deliver for the city rather than just react to their arrival. The good practice example cited above is Oslo's AV shuttle service which serves an outer zone of the city and integrates with public transport.

If robotaxis and robo-shuttles do show far lower collision levels than conventional vehicles, then TfL's Vision Zero targets could be supported by more widespread uptake. If TfL were to influence motor vehicle travel though a smart and fair road pricing system, instead of a plain congestion charge, it could presumably fine-tune vehicle use: promoting robo-shuttles linked to other public transport, favouring robotaxi trips at less busy times and also favouring trips by multiple, rather than solo, passengers.

Looking ahead

LCC aims to work constructively to ensure robotaxi trials, and their potential subsequent rollout, deliver an improved and safer city, particularly for cycling and active travel, and our red line is conditions worsening for those cycling, or for Londoners in general.

For this, public transparency and data-sharing, specifically around collisions and near misses will be vital to reinforce public acceptance of these vehicles and their safety benefits.

We also want to see the Mayor stand-by his commitment to increase the share of walking, cycling and public transport use from the current 64% to 80% of all trips in

London by 2041. To achieve this target the new generation of AV vehicles must serve to reduce car journeys, not increase them.

Robotaxis have the potential to reduce road danger and loosen Londoners' attachment to owning and using private motor vehicles but could also undermine the rising trend of people cycling if road danger increases or if operators seek to push out all other transport modes. Londoners will lose out if our streets get more dangerous or if car congestion is simply replaced by AV traffic jams.

The optimistic view is that shared vehicles could significantly reduce car trips and car ownership releasing some of the space occupied by an estimated 2.7 million private cars for other purposes such as homes and green spaces and active travel.

[Ref No. AV020, London TravelWatch]

GLA Transport Committee call for evidence: Autonomous Passenger Vehicles in London

Written evidence from London TravelWatch

About London TravelWatch

London TravelWatch is the official independent transport watchdog set up to advocate for all people travelling in and around capital. We are sponsored and funded by the London Assembly, which is part of the Greater London Authority, and is independent from transport operators.

London TravelWatch promotes integrated transport policies and presses for better journeys for everyone, with higher standards of quality, performance and accessibility. We work directly with users, other transport user groups as well as transport operators, providers, regulators and local authorities. In turn, transport operators consult us on proposed changes to services or closures of lines or stations.

We cover all forms of Transport for London (TfL) services, National Rail services in and around London, and those who walk, wheel or cycle in the capital.

Our submission

As the city's official transport watchdog, London TravelWatch has an interest across different types of transport. However, we note that autonomous passenger vehicles (APVs) are not yet in use in London, and therefore as an organisation we have had limited interaction with the services.

This limits our evidence of APVs in practice, and we will therefore focus our response to this call for evidence on our initial reflections and the areas we believe need to be explored in more depth.

APVs could have a transformative effect on London's transport network, though whether the impact is net positive or negative will depend on how they are used. Some key areas which should be carefully considered include:

- Safety and security of APVs. It is vital that APVs are safe both for users and other people travelling, with proof of high-quality of driving, adherence to the rules of the road and low-accident rates, and ongoing monitoring.

- The wider role within the existing transport network. If APVs are rolled out in London, we would like to see them support the existing transport network, not hinder it. There is the opportunity for them to build connectivity in areas with more limited public transport, for example to facilitate first mile/last mile travel to stations, and offer an accessible transport option. However, there are also concerns that they could increase congestion, particularly impacting bus passengers, and reduce public transport and active travel use.

- Accessibility. If APVs are introduced to London they should be accessible by design, providing a viable travel option for people with additional requirements. This applies to both the vehicle and the service, for example the booking and support systems.

- Public perception and engagement. As a relatively new technology, we are aware that there concerns and questions from the public and stakeholders as to the impact and workings of APVs. We would like to see APV operators and transport authorities meaningfully address these, including through transparent communication and co-design with the public to make sure any services introduced meet Londoners' needs. This is particularly important for more vulnerable and/or under-represented groups.

- Regulation. As a new and yet untested (in the UK) service offering there will be a need for strong regulation of APV use in London to ensure it meets the necessary standards and appropriate use. This should also be designed in a way that facilitates maximum benefit for London, for example requiring the sharing of operator data with TfL to inform traffic management.

Committee question 3: What impact would the introduction of autonomous passenger vehicles have in London?

With the rollout of autonomous passenger vehicles confined to a relatively few number of locations, there is limited evidence to their impact to the places they are introduced. However, there are multiple areas outlined by the committee where we believe they may have an impact that needs further exploring, focusing on our remit of passenger travel:

The Mayor's Transport Strategy targets, for traffic reduction, and increases in walking, wheeling, cycling and public transport

Londoners' transport choices and risk to public transport ridership numbers

We support the Mayor's Transport Strategy target to reduce overall traffic levels and increase the share of journeys made by walking, wheeling, cycling and by public transport to 80%. However, there is a chance that APVs could make this target harder to reach if it encourages people to travel using them instead of using public transport. With the rate of usage of active travel modes already struggling to make any notable progress towards the 80% target by 2041 (estimated to be 63.4% in 2024), any significant use of APVs may well hit this further.

The level of pricing for APV journeys will be a significant factor in if and how it is used, with the knock-on impact for demand for other forms of transport. It will be important to see how affordable journeys will be for Londoners and if there will be elements such as dynamic pricing.

If the use of APVs replaces shorter journeys currently made on foot, by bus or by cycle or e-scooter then it will probably not help the targets for traffic reduction. Indeed, an extensive use of APVs would add to traffic levels and, likely, congestion, particularly in the most popular locations. We would like to see official modelling of the projected impact on congestion by TfL to build understanding of the likely effects of APV use.

An increase in congestion levels would fall heavily upon bus passengers, who have seen their journeys take longer and become less reliable in the last decade.[1] There is an established connection between increases in journey times and falls in bus ridership.[2] Even slower journeys will make buses less attractive to use, especially for discretionary travel, which in turn will impact usage and only make it more difficult for the 80% target to be reached. We do note the potential to make bus APVs, which may offer benefits to passengers - though this is not something we have yet explored.

There is also the potential for APVs to be used strategically in areas with more limited connections to public transport. This in theory could reduce reliance on private car ownership by providing an alternative option. If done well it could also facilitate more use of public transport by connecting people to more transport options and supporting the first mile/last mile of journeys, for example taking someone home from their nearest rail station. If APVs are rolled out in London, we would like to see operators work with TfL and local authorities to help deliver these aims.

Safety and public purpose of London's roads

Safety of APVs is of utmost importance if they are to be introduced across the city, both for those in and outside the vehicle. Extensive testing and ongoing monitoring should be undertaken to make sure they are safe, following the rules of the road and not endangering others.

There are also possible safeguarding implications with the use of APVs that should be explored. For instance, APVs takes away the driver. This could make some people feel safer, for example as they are not alone with someone they don't know. On the other hand, APVs mean that there won't be a point person if something goes wrong or the passenger needs help, such as if a medical issue arises.

Children, older and disabled people

Accessibility and passenger safeguarding

Care needs to be taken to make sure that APVs do not make travelling less accessible. For instance, a significant rollout of APVs has the potential to crowd out

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[1] network-all-bus-speeds-to-p01-2026.xlsx. The average bus speed in 2025/26 is lower than at any time since modern records began in 2013/14.
[2] Delivering the Mayor's Transport Strategy 2023/24. Research indicates that a 10 per cent increase in journey times can lead to a 6 per cent fall in bus demand.

black cabs, which would leave fewer options for people who need for example wheelchair accessible vehicles. Beyond just driving the vehicle, taxi drivers can also be a useful source of local and other information.

However, if done well we believe APVs could make travelling around London more accessible. For this to happen, the rollout of APVs needs to be inclusive to ensure that those with accessibility requirements can use them. Things that should be considered include, but are not limited to:

- Vehicle design. This includes ensuring that they are wheelchair accessible, whilst there should be audio and visual announcements and braille labels within the vehicle.
- Accessible booking design. This includes apps and websites which are screen reader compatible, with large font and colour contrast. It is positive that Waymo have been working with RNIB on developing accessibility features.
- Non-digital ways to book rides. London TravelWatch knows that older and disabled people are less likely to have access to non-digital forms or feel less confident in using them, so provision needs to be made for them to also access APVs.

This should be done through inclusive design by meaningfully engaging with people with additional requirements from the outset to co-design, to build a transport system that works for everyone.

Public engagement

If APVs are to be introduced to London's streets, it is vital that the needs and views of the travelling public are considered in how this is done. To do this, we would like to see authorities and operators meaningfully engage with the public, particularly with a focus on those with protected characteristics and people who may be most impacted by the introduction of APVs.

Existing surveys indicate that there are mixed views on autonomous vehicles, which we believe need to be addressed so people feel safe and supported when travelling around the city. For example:

- Older people are less likely to trust or ride in a self-driving car than younger drivers. A 2025 survey revealed that only 17% of those aged 55-64 and 12% aged over 65 were at ease with driverless cars. This compares to 33% of 18-26-year-olds.[3]

- Concerns remain about the technology. When looking into why people might not want to be transported in a driverless vehicle, a study by Aviva reported that 41% wouldn't trust the technology.[4]

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[3] Driverless Cars Research UK: Shifting Public Attitudes Towards Autonomous Vehicles – HPI Blog
[4] New Study Reveals Public's Lack of Trust in Driverless Vehicles - Fleet Alliance

- There is more trust for a human driven vehicle than an AV. A 2025 You Gov survey revealed that 79% had little or no trust in using a fully driverless taxi. By contrast, 85% said they would choose a taxi with a human driver, compared to just 6% who would opt for a driverless one.[5]
- There is also a difference in levels of trust with self-driving technology between men and women, with 28% of men surveyed expressing confidence in driverless cars, compared to only 16% of women.[6]

These perceptions are likely to be shaped by a mix of facts and feelings and may change when APVs start to be rolled out due to personal experiences with them. However, it is still important to take these concerns seriously. To address these, areas that need to be considered include:

- Providing clear and transparent communication about APVs, such as around safety data and reassurances about the accuracy and robustness of the technology.
- Co-designing the system for using APVs from booking to travelling in the vehicles to make sure that it meets everyone's needs, by working with groups including disabled people, older people and families with young children. This is particularly important when considering accessibility requirements.
- Working with transport bodies and local authorities to consider the role of APVs in the existing transport network, and how they can work to support it, not hinder it.

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[5] Do Britons trust driverless taxis and autonomous vehicles?
[6] Driverless Cars Research UK: Shifting Public Attitudes Towards Autonomous Vehicles – HPI Blog

Date: **26TH June 2026**

To: **The London Assembly Transport Committee**

From: **Commander Charmain Brenyah, Superintendent Tony McGovern**

Topic: **Call for Evidence: Autonomous Passenger Vehicles**

MPS Response to London Assembly Transport Committee Call for evidence: Autonomous Passenger Vehicles in London (May 2026)

Introduction

The Metropolitan Police Service (MPS) has been undertaking preparations for the potential deployment of automated vehicles on London's Road network. This has included engagement with key partners, including National Police Chiefs' Council (NPCC), Centre for Connected and Automated Vehicles (CCAV), Department for Transport (DfT), Driver and Vehicle Standards Agency (DVSA), the Home Office and Transport for London (TfL), as well as direct engagement with operators intending to participate in Automated Passenger Services (APS) pilots. The MPS is represented at several national working groups.

The MPS has also engaged with law enforcement and transport authorities in the United States and continues to work closely with UK emergency service partners including London Ambulance Service (LAS) and London Fire Brigade (LFB).

This work has enabled the MPS to identify key risks and areas of concern which may impact policing in London. These broadly relate to operational safety, enforcement, data access and interpretation, and reliance on operators. These themes are reflected throughout this response.

1. How close are autonomous passenger vehicles to becoming a reality in London?

Autonomous passenger vehicles are approaching deployment in London through pilot schemes, with several operators indicating their intention to take part in the Automated Passenger Services pilot.

While this represents a significant step towards operational use, deployment is taking place in advance of the full implementation of the Automated Vehicles Act. As a result, the current framework relies on a combination of existing legislation, secondary instruments, APS permits and non-statutory guidance.

2. How will autonomous passenger vehicles navigate London's complicated road network?

The MPS is not best placed to comment in detail on the technical capabilities of how autonomous passenger vehicles will navigate London's Road network. However, from a policing perspective, there are important considerations regarding how these vehicles behave in complex and dynamic policing scenarios. This includes their interaction with traffic control measures, emergency services and incidents. These considerations are reflected further in the response.

3. What impact would the introduction of autonomous passenger vehicles have in London?

London Policing

The introduction of automated vehicles is expected to have a number of operational impacts on policing. Key considerations include the ability of AVs to interact effectively with police officers and respond appropriately in dynamic environments.

AVs may not reliably interpret police hand signals or recognise the range of MPS uniforms or vehicles which may limit officers' ability to control or direct vehicles. Similarly, vehicles may not respond consistently to traffic management measures such as police implemented road closures, diversions or police incident cordons.

The MPS understands that emergency service interaction will form part of the authorisation process, either through self-drive tests or inclusion within the safety case. However, there is currently limited visibility on what specific interactions will be included and how these will be assessed.

These limitations may increase complexity during major events, protests and spontaneous incidents, where adaptable traffic control is required. In addition, certain specialist policing tactics, such as Special Escort Group (SEG) movements, rely on precise vehicle positioning and compliance with police direction, which may not be consistently achieved by AVs.

There will also be an increased requirement for officer training and familiarisation to ensure safe and effective interaction with AVs. This will have cost and resource implications, particularly given the scale of officers requiring input and the pace of technological change.

In addition, the absence of a single, consistent framework across operators and manufacturers may result in variations in how systems operate. This creates a risk that separate training inputs may be required for different vehicles, further increasing abstraction and training demands.

From an operational perspective, AVs introduce additional challenges in incident management, including reliance on operators to respond to police requests in a timely manner, such as implementing geofencing, remotely stopping vehicles, or enabling access.

They also introduce increased complexity in both criminal and collision investigations, particularly in relation to establishing control of the vehicle, accessing and interpreting data, and securing evidence in a timely manner. There may also be challenges in maintaining evidential impartiality where data is heavily reliant on operator or manufacturer input in situations where they may be the liable party. This is further compounded where relevant data is held overseas, creating additional challenges around access, data protection and timescales for retrieval.

Without clear processes and reliable access to evidence, there is a risk of delays and reduced confidence in investigative and judicial outcomes.

Prior to the full implementation of the Automated Vehicles Act, there is uncertainty in determining the appropriate prosecution route and applicable legal framework, as existing legislation such as the Road Traffic Act was not designed with automated vehicle operation in mind.

As a result, enforcement of certain offences, such as red-light offences, may rely on action on APS permits or vehicle authorisations, rather than traditional prosecutions or the financial sanctions that will be available under the Automated Vehicles Act.

This uncertainty is particularly critical in serious incidents, including those involving injury or fatal collisions, where establishing liability and identifying a viable prosecution route remains unclear. In these circumstances, any perceived absence of accountability risks damaging the delivery of justice for victims, their families and seriously eroding public trust.

Passenger Safeguarding

The absence of a human driver removes a key point of oversight from within the vehicle. From a policing perspective, there is uncertainty around how operators will identify and respond to incidents occurring within vehicles. These incidents may range from medical emergencies, such as a passenger becoming unresponsive, to Violence Against Women and Girls offences (VAWG), and are particularly concerning where a passenger is unable to raise the alarm themselves.

With a human driver present, such incidents would be more likely to be identified and acted upon at an earlier stage. Evidence from deployments in the United States indicates an increase in calls to medical services where passengers are unresponsive at the end of a journey through intoxication. This may highlight limitations in monitoring systems as these are not identified incidents until the journey has concluded. Reference: *April 29, 2026 Public Safety Committee Special Called Meeting | AustinTexas.gov*

The MPS responded to the consultation on the Automated Passenger Services (APS) permit scheme, which set out a number of considerations relating to safeguarding and policing. It was positive to see that many of these were reflected in the non-statutory guidance issued by CCAV.

However, the MPS has not yet had full visibility of operator specific safeguarding policies and processes. These are expected at permit application stage. Work is ongoing with operators to develop clear reporting requirements and escalation pathways to ensure incidents are identified and managed appropriately.

4. What actions should the Mayor and TfL prioritise when engaging with operators, and what powers should they seek to regulate the sector?

The Mayor and Transport for London should play a clear role in the local oversight and permitting of automated passenger services, working alongside national regulators.

Transport for London are best placed to understand London's complex operating environment, align deployment with local transport policy objectives, and ensure integration with other passenger services, including Taxi and Private Hire.

They are also well placed to develop a borough level understanding of local authority concerns, including transport priorities and the potential impact of automated vehicle deployment on communities.

From a policing perspective, there is a need for clarity around TfL's responsibilities in giving local consent for any APS permits, as well as their ability to impose conditions on services and how these are reflected in approvals. Clear mechanisms are also required for escalating emerging risks and taking appropriate action.

In addition, defined reporting responsibilities are needed in the event of incidents, including how and when TfL is notified and how this aligns with APS permit notification requirements & conditions set out by DVSA.

5. What can the Mayor and TfL learn from trials and deployments in other countries?

The MPS has engaged with law enforcement and transport authorities in the United States, where automated vehicle deployments are more established. In addition, the MPS has had sight of incident reports and operational insights from these deployments. This has proven beneficial in risk identification and preparation for the APS pilot and wider rollout of automated vehicles in London.

International learning is valuable, but must be carefully adapted to the London context, including the planned UK deployment model and our existing regulatory framework.

Conclusion

From a policing perspective, successful deployment will depend on clear regulatory frameworks and governance, effective operator engagement and accountability, reliable access to data and greater understanding of how AVs interact with different policing scenarios. Addressing these issues will be critical to ensuring public safety, maintaining effective policing and public confidence

[Ref No. AV022, Motability Foundation]

Call for evidence:
Autonomous Passenger Vehicles in London
June 2026

Impact of Autonomous Passenger Vehicles – Accessibility & Safeguarding

Executive summary

This submission by the Motability Foundation, a national charity focused on improving transport accessibility for disabled people, responds to the London Assembly Transport Committee's call for evidence on Autonomous Passenger Vehicles (APVs) in London. It focuses on the accessibility, safeguarding and equity considerations that the Mayor, Transport for London (TfL) and industry should take into account as APVs are developed and deployed across London. The key points we address are:

The transport accessibility gap – Disabled people continue to face persistent and systemic transport barriers. APV services could improve independent mobility for some disabled people, including through greater availability of door-to-door transport, increased service reliability and reduced reliance on driver support for some journeys. However, these benefits are not automatic.

Accessibility: significant potential, but not guaranteed – Evidence from early automated vehicle and robotaxi deployments suggests that accessibility has too often been treated as an issue to be managed after deployment, rather than a requirement to be built in from the start. Without clear policy direction, APV services could replicate existing barriers or require costly retrofitting later.

Accessibility beyond users – The accessibility impacts of APVs extend beyond passengers using the service. They also affect non-users, including disabled pedestrians navigating crossings, junctions and kerbside spaces. APV deployment should therefore be considered as part of the wider public realm and transport network, not only as a passenger service.

Passenger safeguarding and trust – Removing the human driver introduces new questions about assistance, reassurance and emergency response. Disabled people may need support with boarding and alighting, securing mobility aids, accessible communication with remote operators and managing disruption or incidents. Trust will be critical as to whether APV services are usable and attractive for disabled people.

The need for human assistance – Automation may change, rather than remove, the need for human support. For some disabled people, an onboard staff role or accessible remote assistance may be important to make APV services usable, safe and reassuring.

Risk of widening inequality – Early deployments could create or reinforce inequalities if issues such as accessible vehicle availability, geographic coverage, digital exclusion and affordability are not actively managed. Coordination across London will be important to ensure accessibility, safeguarding and equitable service coverage do not vary significantly by local area.

Integration with the wider transport system – APVs should complement, rather than compete with, London's wider transport system. There is an opportunity for APVs to support first and last mile journeys and improve access in areas where accessible transport options are currently limited.

Inclusion by design – Disabled people and disabled people's organisations should be involved in the design, testing, delivery and evaluation of APV services. Given the diversity of disabled people's access needs, services should not be designed on the basis of assumptions about accessibility or user experience.

The choices made at this stage of deployment could have long-term consequences for disabled Londoners and for the wider transport system. Building accessibility, safeguarding and equity into APV services from the outset would help reduce the risk of future remediation costs, avoid reinforcing existing barriers, and position London as a global leader in inclusive future mobility.

The Motability Foundation welcomes the opportunity to contribute to the London Assembly Transport Committee's call for evidence on Autonomous Passenger Vehicles (APVs) in London.

Our submission responds to Questions 3, 4 and 5 by setting out the accessibility and safeguarding considerations that government, Transport for London (TfL) and industry should take into account as APVs are developed and deployed across London.

We draw attention to the door-to-door journey impacts for disabled people, including:

- journey planning and booking,
- boarding and alighting,
- onboard safety and reassurance, and
- the role of human support within emerging service models.

The evidence provided draws on international experience as well as research commissioned or supported by the Motability Foundation.

About the Motability Foundation

The Motability Foundation is a national charity focused on improving transport accessibility for disabled people. Established with all party parliamentary support in 1977 and incorporated by Royal Charter, we believe that access to transport is fundamental to independent living, social inclusion, and economic participation for disabled people. We recognise being able to leave our home, access different places and spaces, and see the people who matter most to us, are vital and essential parts of life. But many disabled people, when travelling, are faced with significant challenges and barriers to do this. Our vision is to build a future where all disabled people have the transport options to make the journeys they choose. The Foundation drives systemic transport change through its activities, including:

- Funding charities and organisations that give disabled people everyday transport options, ranging from community buses to wheelchairs.
- Awarding grants to charities and organisations that provide diverse types of transport or work towards making transport accessible.
- Conducting research, in partnership with disabled people and key stakeholders across the industry, to inspire innovations that champion accessible transport for all.
- Overseeing the Motability Scheme and providing grants to help people use it.

The transport accessibility gap for disabled people

Level 5 automation, where a vehicle has the ability to drive itself all conditions, without any human input or supervision, has the greatest potential to change how vehicles operate. It could introduce a transformational step change in transport accessibility for disabled people. Level 5 automation has the capability to open entirely new forms of independent mobility across private, public, and other shared modes of automated transport.

The current state of accessible transport for disabled people remains poor. The House of Commons Transport Committee's 2025 report,[1] 'Access denied: rights versus reality in disabled people's access to transport', concluded that accessibility failings are system-wide, that "no mode of transport is free from problems", and that there remains a substantial gap between disabled people's legal rights and their daily experience of transport. Research commissioned by the Motability Foundation has also identified a transport accessibility gap between disabled and non-disabled people.[2] A key reason for this gap is that current transport provision, across both public and private modes, does not adequately meet the needs of disabled people.

This disparity is illustrated in official statistics. The Department for Transport's National Travel Survey 2024 reports that disabled adults aged 16+ made, on average, 29 per cent fewer trips than non-disabled adults.[3] This disparity increases with age: disabled adults aged 60 and over made 35 per cent fewer trips than non-disabled people in the same age group.[4] This is a long-term and persistent trend. The evidence base indicates a significant disparity in both the frequency of journeys and the patterns of travel undertaken by disabled and non-disabled people.

Accessibility: significant potential, but not guaranteed

Official statistics indicate that disabled Londoners make up a substantial part of the capital's population, even though London has a lower estimated prevalence of disability than other UK regions. The Department for Work and Pensions' Family Resources Survey 2023/24 estimates that 17 per cent of people in London are disabled, using the core Equality Act 2010 definition of disability.[5]

As this is a survey-based estimate, it should be treated as an indication of scale rather than a precise population count. But it does suggest that around one in six Londoners may experience a long-term condition or impairment that has a substantial and long-term effect on their day-to-day activities. Disability is, therefore, not a marginal issue for London transport policy. It affects a significant proportion of the population whose ability to travel,

[1] House of Commons Transport Select Committee (2025). Access denied: rights versus reality in disabled people's access to transport. First Report of Session 2024–25. Available at: https://publications.parliament.uk/pa/cm5901/cmselect/cmtrans/770/report.html#:~:text=The%20evidence%20from%20disabled%20people,focused%20on%20three%20principal%20factors
[2] Motability (2022). The Transport Accessibility Gap. Available at: https://www.motabilityfoundation.org.uk/media/iwaidhxk/motability_transport-accessibility-gap-report_march-2022_final.pdf
[3] https://www.gov.uk/government/statistics/national-travel-survey-2024
[4] Department for Transport (2025). NTS 2024: Disability. 27 August 2025. Available at: https://www.gov.uk/government/statistics/national-travel-survey-2024/nts-2024-disability
[5] Department for Work and Pensions (2026). Family Resources Survey: financial year 2024 to 2025. Available at: https://www.gov.uk/government/statistics/family-resources-survey-financial-year-2024-to-2025/family-resources-survey-financial-year-2024-to-2025

access services, work, education, healthcare and social participation depends on the accessibility, affordability and reliability of the transport system.

APV services present a substantial opportunity to improve independent mobility for disabled people in London. Potential benefits include:

- Greater availability of door-to-door transport.
- Reduced reliance on driver support for some journeys.
- Increased reliability compared to some current services.

This potentially transformative technology could enable disabled people to have more choice and control over when and how they travel, supporting greater spontaneity, freedom of movement and independence in daily life. For example, without the requirement for a human driver, it may be possible to improve accessible vehicle design and layouts. Level 5 automation could also enable new business models that provide commercially feasible services which are not currently viable because of the cost of employing a human driver. Travel could also be cheaper for users and passengers. In private transport, automation could create opportunities for disabled people who do not hold a driving licence, or who cannot drive a non-automated vehicle, to use automated vehicles independently.

However, these benefits are not automatic and will depend on design and regulatory decisions made at an early stage. TRL and RiDC's 2024 research, funded by the Motability Foundation, indicates that automated transport could replicate or worsen existing barriers unless accessibility is prioritised from the outset.[6]

Evidence from early automated vehicle and robotaxi deployments, which is presented below, also suggests that accessibility has too often been treated as an issue to be managed after deployment, rather than a requirement to be built-in from the start. This is reflected in approaches that rely on retrofit solutions, later-stage accessible vehicle development, or parallel human-driven alternatives, instead of embedding disabled people's access needs in the initial design of vehicles, booking systems, customer support and operating models.

Stakeholder and user research suggests that many current or emerging services are not yet accessible for all disabled users. In parallel, deployments are concentrated in a limited number of major urban markets, reflecting phased commercial rollout patterns. This raises important questions about whether disabled people outside those early deployment areas, including those in suburban and less densely served areas of London, will be able to benefit from these services.

- Early robotaxi deployments have relied on standard vehicle platforms that are not wheelchair accessible.

[6] TRL & RiDC (2024). The impact of automated transport on disabled people: detailed methodology and findings. Available at: https://www.trl.co.uk/uploads/trl/documents/PPR2050-Impact-of-Automated-Transport-on-Disabled-People.pdf

    - Early shared automated vehicle deployments “lacked accommodations for people with disabilities” and were not designed with accessibility in mind.[7]
    - Some deployments outside of the UK have diverted disabled passengers away from automated passenger vehicles (APVs) and into human-driven services. This highlights a more fundamental issue: operational AV fleets are not being designed to cater for disabled users in the first place, rather than simply offering an alternative form of assistance.[8]
    - Dedicated wheelchair-accessible robotaxis (e.g. Cruise WAV/Origin) are only now being developed as new, purpose-built vehicles, rather than part of initial deployments.[9]
    - Accessibility features have often been introduced retrospectively, if at all. Case study evidence shows post-production modifications were required to retrofit accessibility into a shared AV platform.[10]
    - Research highlights the importance of considering accessibility early on in design of AVs, based on lessons learned from systems where it was not embedded initially.[11]
    - Disability stakeholders in California, USA, on of the world’s leading places for robotaxi deployment, report that robotaxis are currently inaccessible for many users, reflecting a lag between deployment and inclusive design.[12]
    - Wheelchair-accessible robotaxis are described as new prototypes or next-generation vehicles, indicating that accessibility is being added after initial rollout phases.[13]

- Services can be concentrated in commercially viable areas, limiting equitable access.
    - Robotaxi services are currently operating in selected major urban markets such as San Francisco, Phoenix, Austin, and Los Angeles.[14]
    - Expansion is gradual and city-by-city, requiring significant investment and time to scale across full metropolitan areas.[15]

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[7] Tabattanon K., & D’Souza C., (2019). Accessibility Retrofit of a Shared Automated Vehicle: Challenges and Lessons Learned Proc Hum Factors Ergon Soc Annu Meet. ; 65(1): 385–389. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC8375518/
[8] Forbes (2023). Cruise Shows Origin Robotaxi With Wheelchair Ramp; Many Disabled Options Possible. Available at: https://www.forbes.com/sites/bradtempleton/2023/09/20/cruise-shows-origin-robotaxi-with-wheelchair-ramp-many-disabled-options-possible/
[9] TechCrunch (2023). ‘Cruise reveals wheelchair-accessible robotaxi with testing to begin next month’. Available at: https://techcrunch.com/2023/09/14/cruise-reveals-wheelchair-accessible-robotaxi-with-testing-to-begin-next-month/
[10] Tabattanon K., & D’Souza C., (2019). Accessibility Retrofit of a Shared Automated Vehicle: Challenges and Lessons Learned Proc Hum Factors Ergon Soc Annu Meet. ; 65(1): 385–389. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC8375518/
[11] ibid
[12] https://escholarship.org/uc/item/3pp8k71h
[13] TechCrunch (2023). ‘Cruise reveals wheelchair-accessible robotaxi with testing to begin next month’. Available at: https://techcrunch.com/2023/09/14/cruise-reveals-wheelchair-accessible-robotaxi-with-testing-to-begin-next-month/
[14] AVIA (2025). Robotaxi Report. Available at: https://cdn.prod.website-files.com/67ee365c25e6530594bd40c2/6930ab29af2f0cc7461e061b_Robotaxi%20Report.pdf
[15] BCG (2026). Here at Last: The Evolution of the Robotaxi. Available at: https://www.bcg.com/publications/2026/here-at-last-the-evolution-of-the-robotaxi

- Reports emphasise the need for policy and investment to ensure equitable access, particularly for underserved communities.[16]
- Current deployment patterns reflect early-stage, commercially driven rollout rather than universal service coverage.[17]

These patterns indicate that, without clear policy direction, London could risk replicating existing gaps in transport accessibility rather than addressing them. To align with TfL's objective of delivering a more accessible road network and safeguarding vulnerable users, accessibility should be treated as a core system requirement spanning:

- Vehicle design (e.g. step-free entry, wheelchair securement, intuitive interfaces).
- Service design (e.g. non-digital booking options, accessible customer support).
- Operational models (e.g. availability of accessible vehicles at scale).

Accessibility beyond users: impacts on non-users

The accessibility impacts extend beyond passengers using the service. It is important to consider:

- Users (including disabled passengers).
- Shared users (e.g. pooled services/ride hailing).
- Non-users (e.g. pedestrians, particularly those with mobility impairments, and people with visual impairments and those with sensory impairments).

For disabled non-users, key concerns include:

- Vehicle behaviour and predictability, particularly at crossings and junctions.
- Interaction with visually impaired pedestrians, who may rely on informal cues from drivers (e.g. eye contact or gestures).
- Kerbside access and obstruction, particularly where pick-up and drop-off increases pressure on already constrained spaces.

This highlights that accessibility in an automated transport system is not only a passenger issue, but a wider public realm and network design challenge. Research on automated vehicle and pedestrian interaction highlights that urban environments remain complex, uncertain and safety-critical, particularly where pedestrians rely on informal cues from drivers.

- AV–pedestrian interactions are "complex" and influenced by variability in pedestrian behaviour and real-world uncertainty.[18]

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[16] Bipartisan Policy Center (2024). Driving Equity: the benefits and impact of Autonomous vehicles on Underserved communities. Available at: https://bipartisanpolicy.org/wp-content/uploads/2024/06/BPC_Tech_AV-report_.pdf
[17] BCG (2026), op.cit.
[18] Rezwana, S. & Lownes, N. (2024). Interactions and Behaviors of Pedestrians with Autonomous Vehicles: A Synthesis, in *Future Transp* 2024, 4(3), 722-745. Available at: https://www.mdpi.com/2673-7590/4/3/34

- Integrating AVs into urban environments raises safety concerns and technological limitations, especially in interactions with pedestrians.[19]
- Navigating crowded, unpredictable urban environments with multiple pedestrians is identified as a key challenge for motion planning.[20]

Ensuring that automated passenger services support the public purpose of London's roads, rather than operating solely as private commercial services, will be essential.

Passenger safeguarding and trust

For many disabled people, current transport systems rely on the presence of a driver to provide:

- Physical assistance.
- Assurance and human interaction.
- Support during disruption or emergency situations.

The removal of a driver introduces new safeguarding considerations, including:

a. Assistance and journey completion

- Boarding and alighting support.
- Securement of wheelchairs or mobility aids.
- Help at pick-up/drop-off points.

b. In-journey support and disruption

- Accessible communication with remote operators.
- Support in the event of delays, rerouting, or system faults.

c. Emergency response

- Rapid, accessible escalation pathways.
- Confidence that assistance will be delivered when needed.

Evidence from pilots and research into automated services indicates that remote assistance models are still evolving and may not yet provide equivalent reassurance or usability for all users, particularly those with higher support needs. TRL and RiDC's research found that the absence of a human driver or onboard staff member was an important concern for disabled participants, including in relation to boarding, information, reassurance and incident response.

- Tele-assistance and teleoperation models face unresolved design, implementation and regulatory challenges.[21]

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[19] Ibid.
[20] Moller K., et al. (2025). Pedestrian-Aware Motion Planning for Autonomous Driving in Complex Urban Scenarios, in IEEE Open Journal of Intelligent Transportation Systems. Available at: https://arxiv.org/pdf/2504.01409
[21] Tener, F. et al (2024). Towards Seamless Remote Interactions: Exploring Novel Paradigms for Teleoperation of Autonomous Vehicles, in AutomotiveUI Adjunct '24, September 22–25, 2024. Available at: https://dl.acm.org/doi/fullHtml/10.1145/3641308.3677399

- Remote operation is widely considered necessary because AVs cannot resolve all situations independently, requiring ongoing development of intervention models.[22]
- A 2026 investigation found "significant variations in operator qualifications, response times, and practices" across companies, highlighting a lack of standardisation.[23]

Trust will therefore be a critical factor in uptake, especially among groups who already face barriers to transport access.

Risk of widening inequality

There is a risk that early deployments could create or reinforce inequalities if these issues are not actively managed. Key risks include:

- Limited availability of WAVs due to higher production costs or lower fleet utilisation.
- Geographic inequality, with services focused on high-demand, profitable areas.
- Digital exclusion, where app-based models disadvantage users without access to smartphones or digital confidence.

Without regulatory safeguards, this could lead to a system in which disabled people:

- Experience reduced availability of services.
- Face longer wait times.
- Are excluded entirely from certain service models.

This would be inconsistent with London's wider accessibility and inclusion objectives, as reflected in the Mayor's Transport Strategy and TfL's Equity in Motion customer inclusion strategy. Deployment can either reduce or exacerbate inequality depending on policy and rollout approach. Research by the Urban Institute on ride-hail autonomous vehicles concluded that autonomous mobility could redress or exacerbate inequities depending on how services are rolled out and regulated.

- AVs may exacerbate social accessibility inequities depending on deployment conditions.[24]
- Research consistently shows impacts on equity are uncertain and highly dependent on policy choices and implementation models.[25]

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[22] Tener, F. et al (2022). Driving from a Distance: Challenges and Guidelines for Autonomous Vehicle Teleoperation Interfaces, in CHI '22, April 29–May 05. Available at: https://dl.acm.org/doi/fullHtml/10.1145/3491102.3501827

[23] Markey, E.J. (2026). Senator Edward J. Markey (D-Mass.), Press release: Markey Investigation into Autonomous Vehicle Companies' Use of Remote Assistance Operators Reveals Serious Safety Gaps, Lack of Transparency. Available at: https://www.markey.senate.gov/news/press-releases/markey-investigation-into-autonomous-vehicle-companies-use-of-remote-assistance-operators-reveals-serious-safety-gaps-lack-of-transparency

[24] Dianin A. et al (2021). Implications of Autonomous Vehicles for Accessibility and Transport Equity: A Framework Based on Literature. Available at: https://www.mdpi.com/2071-1050/13/8/4448

[25] Ibid

- Autonomous mobility could either redress or exacerbate inequities, depending on how services are rolled out and regulated.[26]
- Active policy and governance will therefore be needed to support equitable outcomes.[27]

Integration with the wider transport system

The impact on accessibility must be considered within the broader transport ecosystem. There is a risk that APV services could:

- Compete with and undermine investment in accessible public transport services.
- Reduce incentives to improve step-free infrastructure or assisted travel provision.

However, there is also a clear opportunity to:

- Provide first/last mile connections to public transport.
- Improve access in areas where accessible options are currently limited.
- Complement existing services rather than replace them.

International examples suggest that these outcomes depend heavily on policy direction and regulatory frameworks, rather than market-led delivery alone. Relevant examples include public-sector partnerships in Phoenix, first/last mile integration pilots in Europe, and policy-led AV trials in Singapore are provided below.

Phoenix (USA) – AVs supporting transit access
Waymo partnered with Valley Metro, the Phoenix metropolitan area's public transport authority, to explore first/last mile trips and mobility gaps.[28] Valley Metro described the partnership as an opportunity to understand how autonomous vehicle technology could connect people to public transit and support wider mobility-on-demand objectives.

Relevance:

- Demonstrates a deliberate policy choice to integrate AVs into the system, not displace it.
- Early example of AV operators being positioned as "enablers" of transit.
- Shows how active collaboration between a transit agency and an AV provider can help avoid ride-hailing-style competition and support planned system integration.[29]

[26] Urban Institute (2023). Steering Autonomous Vehicles Toward Equity. Available at: https://www.urban.org/research/publication/steering-autonomous-vehicles-toward-equity
[27] Bipartisan Policy Center (2024). Driving Equity: The Benefits and Impact of Autonomous Vehicles on Underserved Communities. Available at: https://bipartisanpolicy.org/report/driving-equity-the-benefits-and-impact-of-autonomous-vehicles-on-underserved-communities/
[28] Smart Cities Dive (2018). Phoenix transit agency partners with Waymo for driverless vehicle pilot. Available at: https://www.smartcitiesdive.com/news/phoenix-transit-agency-partners-with-waymo-for-driverless-vehicle-pilot/529263/
[29] Ibid

Germany (Hannover / Interreg North Sea pilots) – First/last mile integration
Autonomous shuttles deployed to link public transport nodes with final destinations.[30] Designed specifically to complement existing services in low-density areas where fixed-route buses are inefficient.

Relevance:

- Shows AVs filling gaps where conventional transport struggles.
- Highlights the role of public-sector leadership and policy-driven deployment models.

Singapore – AVs as part of a planned public transport system
Government trials have positioned AV shuttles as a way to augment the public transport network, with a focus on short routes connecting residents to MRT (light railway) stations and local amenities.[31] Delivery has been supported through a phased regulatory framework and national policy strategy.

Relevance:

- Provides a clear example of policy-led system integration.
- Shows how accessibility outcomes can be shaped through government planning rather than left solely to market rollout.

Dallas (MOD Sandbox) – Integrated microtransit + transit
A publicly funded pilot used on-demand services, including shared mobility, to connect users to underutilised transit.[32] The aim was to increase ridership and improve access to transit services.

Relevance:

- Demonstrates integration through subsidy, platform integration, and public funding.

Ride-hailing impacts (analogue for robotaxi deployment)
Evidence on ride-hailing provides a useful analogue for future robotaxi deployment.[33] Research using Chicago ride-hailing trip data found that a significant proportion of ride-hailing trips could potentially have been served by public transit, indicating a risk that such services can compete with, rather than complement existing public transport.
AVs could draw riders away from transit and contribute to service reductions that disproportionately affect dependent users. AV-based services may accelerate similar substitution effects if they follow comparable operating models with lower labour costs.

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[30] Interreg Europe (2026). Integration of Autonomous Shuttles for First–Last Mile Public Transport Connectivity. Available at: https://www.interregeurope.eu/good-practices/integration-of-autonomous-shuttles-for-first-last-mile-public-transport-connectivity
[31] Ministry of Transport Singapore (2026). Automated & autonomous vehicles. Available at: https://www.mot.gov.sg/what-we-do/automated-autonomous-vehicles/
[32] Intelligent Transportation Systems Joint Program Office (2022). Connecting Travelers to Transit with First-Mile/Last-Mile Solutions. Available at: https://www.itskrs.its.dot.gov/decision-support/case-study/connecting-travelers-transit-first-milelast-mile-solutions
[33] Barbar, Y. & Burtch, G. (2020). Examining the Heterogeneous Impact of Ride-Hailing Services on Public Transit Use, in Information Systems Research, Vol. 31, No. 3 (September 2020), pp. 820-834. Available at: https://www.jstor.org/stable/48759139

Relevance:

- Widely used in policy discussions as a proxy for future AV impacts.
- Supports the need to manage the risk that unmanaged commercial deployment could undermine transit demand.

Wider considerations for the deployment of Autonomous Passenger Services

The Foundation has been exploring the potential of connected and autonomous vehicles to transform mobility for disabled people. Underpinning this is user research conducted for the Foundation by TRL Limited, a leading transport research consultancy, and the Research Institute for Disabled Consumers (RiDC).

TRL and RiDC's 2024 research,[34] [35] explored the potential impact of Level 5 automated transport on disabled people through an evidence review, stakeholder engagement, focus groups, a survey of more than 800 disabled people, and usability trials of existing automated services. From this we highlight existing barriers to accessibility from the deployment of AVs, as well as new potential barriers specifically arising from this automotive technology.

Existing accessibility barriers from the deployment of AVs

Potential accessibility barriers could arise across the whole journey chain, the door-to-door sequence of making a journey. Automation alone will not be a solution to the current transport accessibility barriers faced by disabled people.

- Journey planning and booking can have a considerable psychological impact for disabled people. The process can be more complex, time-consuming and stressful for disabled people compared with non-disabled travellers.[36] A key reason is that disabled people often do not have access to the accessibility-related information required to travel, particularly for multi-stage journeys using different transport modes.[37] [38] AVs could increase the importance of digital booking and planning systems, especially for No-User-In-Charge (NUIC) services, so it is imperative that these are accessible.

[34] TRL & RiDC (2024a). The impact of automated transport on disabled people: summary report. Available at: https://www.trl.co.uk/publications/the-impact-of-automated-transport-on-disabled-people--summary-report
[35] TRL & RiDC (2024b). The impact of automated transport on disabled people: detailed methodology and findings. Available at: https://www.trl.co.uk/uploads/trl/documents/PPR2050-Impact-of-Automated-Transport-on-Disabled-People.pdf
[36] Thinks (2023). Evidence Review on Accessible transport: Informing our innovation priorities. Available at: https://www.motabilityfoundation.org.uk/media/qo2frbdy/28-07-23_mot_innovation-review_final-report_publishablev_vk_clean.pdf
[37] ncat (2025). Understanding and addressing the gap in transport accessibility data: The transport and accessibility dataset. Available at: https://www.ncat.uk/wp-content/uploads/2025/03/ncat-Understanding-and-addressing-the-gap-in-transport-accessibility-data-full-report-PDF-FINAL.pdf
[38] Bus Users UK (2024). Why Are We Waiting? Disabled people's experiences of travelling by bus. Available at: https://www.motabilityfoundation.org.uk/media/yafpu4gb/bus-users-uk-report-2024.pdf

- Vehicle identification and detection is an issue for disabled users of AVs because electric AVs are significantly quieter than internal combustion engine-powered vehicles. They present a safety issue for pedestrians, particularly those who are blind and visually impaired, who depend on sound cues to detect traffic. The absence of a human driver also removes the opportunity for informal human interaction, including signalling of intent (such as by a head nod or a hand wave) to make gestures, like giving way, which sometimes can be essential for interactions between driver and pedestrian. The literature suggests there is a need for a combination of external audio and visual signals for AVs to communicate their intentions externally.[39]
- Boarding and alighting for disabled people, especially those with mobility impairments or vision impairments, requires step-free access to and from a vehicle. The point of transfer is a critical area for disabled people.[40] This can be provided through level boarding or ramps, but wheelchair users can experience unreliable or malfunctioning equipment on public transport, such as automatic ramps on buses. Where driver-operators cannot get a ramp to work, passengers may be unable to board or alight. In some cases, this can mean remaining stuck on a bus until a solution is found.[41] Other concerns include the possibility of anxiety if a vehicle sets off before a disabled passenger is safely seated.[42] While this is an issue for both human-driven and driverless vehicles, driverless services will need to demonstrate how they will mitigate this risk without a human staff member onboard.
- Onboard safety and reassurance are critical for disabled people. Automated public transport has the potential for increased antisocial behaviour and conflict because of the lack of a human authority presence. Disabled people can experience a range of public attitudes when travelling on public transport, from subtle microaggressions to overt hostility and hate crime.[43] [44] A significant issue is the bystander effect among fellow passengers. Research with disabled people who have experienced a disability-related incident on public transport indicates that most of these incidents were witnessed by other passengers, yet few intervened.[45] Current transport services usually have staff, such as the driver, who can prevent issues from arising or manage them through de-escalation. Drivers are seen as a critical source of reassurance for passengers, providing authority, comfort and safety during a journey.[46] How would a conflict, such as a non-disabled person occupying a space designated for disabled people, be managed in the absence of a driver or other staff member? Another consideration is how wheelchair users will be able to ensure they are secured in travel restraint systems without human assistance.

[39] TRL & RiDC (2024b). The impact of automated transport on disabled people: detailed methodology and findings. Available at: https://www.trl.co.uk/uploads/trl/documents/PPR2050-Impact-of-Automated-Transport-on-Disabled-People.pdf
[40] Ibid
[41] Bus Users UK (2024) op cit.
[42] Savanta (2025). Creating an Inclusive Future: addressing accessible transport needs for young disabled people. Available at: https://www.motabilityfoundation.org.uk/media/piqd0f5a/final-report-young-disabled-people-and-transport-accessibility-v6.pdf
[43] United Response (2025). Journey to safety: combatting disability hate crimes on public transport. Available at: https://s33156.pcdn.co/wp-content/uploads/Journey-to-Safety-report-spreads-web-quality.pdf
[44] Savanta (2025) op. cit.
[45] United Response (2025) op cit.
[46] TRL & RiDC (2024b) op. cit.

- Completion of a journey for disabled people can raise two critical issues. The first is alighting from the vehicle. Alighting from an AV raises questions about recognising passenger intent: will an AV system recognise a request from someone who wants to exit, and will it provide enough time for them to disembark safely?[47] The second is whether someone can reach their destination. The first and last miles of a trip mean that the door-to-door journey experience for disabled people is as critical as the accessibility of the transport service itself.[48] All it takes is one broken link in the journey chain to prevent a journey from being completed.[49] While private AVs and private hire automated taxis can help disabled people make a door-to-door journey, public transport will often require the traveller to transfer to another mode, or to walk or wheel to their endpoint. Even if an AV is accessible, the last mile can undermine the journey if transport hub infrastructure, streetscape design or navigation conditions are inaccessible or unsafe.[50]

New accessibility barriers from the deployment of AVs

TRL and RiDC's research identifies potential barriers to private and public transport which could emerge if accessibility is not prioritised in automated vehicle and service design.[51] These include:

- Absence of human assistance – without the presence of a human driver, who can perform functions associated with enabling accessibility (such as not departing until someone is secure onboard a vehicle), as well as operating the vehicle, disabled users of AVs could struggle with boarding and alighting, securing mobility aids (such as wheelchairs) and getting bespoke travel related information.
- Inability to maintain vehicles – disabled users of private transport could theoretically use AVs without needing to drive them or even knowing how to drive a vehicle. Therefore, independent travel could be opened to disabled people who cannot use a private vehicle on their own. Nonetheless, basic upkeep of AVs will be required. But there could be circumstances where some disabled people are unable to carry out maintenance (such as plugging in charging cables, cleaning sensors, checking tyres etc) thereby limiting their independence.
- Inaccessible digital inputs – a human-machine interface (HMI) will need to be established to interact with an AV to allow humans to communicate any requirements before, during or after a journey (such as confirming the start and end

[47] TRL & RiDC (2024a). The impact of automated transport on disabled people: summary report. Available at: https://www.trl.co.uk/publications/the-impact-of-automated-transport-on-disabled-people--summary-report
[48] Sustrans (2023). Disabled Citizens' Inquiry: Giving disabled people a voice in walking and wheeling policy and practice. Available at: https://www.walkwheelcycletrust.org.uk/media/11708/sustrans-disabled-citizens-inquiry-full-report.pdf
[49] ncat (2025). Understanding and addressing the gap in transport accessibility data: The transport and accessibility dataset. Available at: https://www.ncat.uk/wp-content/uploads/2025/03/ncat-Understanding-and-addressing-the-gap-in-transport-accessibility-data-full-report-PDF-FINAL.pdf
[50] ncat (2024). The Barriers to Streetscape Access. Available at: https://www.ncat.uk/wp-content/uploads/2024/12/ncat-The-barriers-to-streetscape-access-Full-Report-Accessible-PDF-FINAL.pdf
[51] TRL & RiDC (2024b). The impact of automated transport on disabled people: detailed methodology and findings. Available at: https://www.trl.co.uk/uploads/trl/documents/PPR2050-Impact-of-Automated-Transport-on-Disabled-People.pdf

locations of a trip etc). If the HMI relies on a single input method, it will not be accessible for the diversity of disability conditions. For example, relying on a touch screen would present a barrier to those who are blind or visually impaired. Relying on voice recognition would be a barrier to those with speech and/or auditory impairments.

- Loss of communication with other drivers and pedestrians – AVs are significantly quieter than internal combustion engine-powered vehicles. They present a safety issue for some disabled people, such as those who are blind and visually impaired, who depend on sound cues to detect traffic. The absence of a human driver also removes the opportunity for human interaction including informal signalling (such as a head nod or a hand wave) between driver and pedestrian.

The need for human assistance

Automation could drive the need to retain some human presence, particularly in public transport modes, given the accessibility barriers highlighted in this submission. TRL and RiDC's user research,[52] including usability trials of automated services with disabled participants with diverse sensory, cognitive and mobility impairments, found that the presence of an onboard staff member was a significant enabler of an accessible journey.

The usability trial found that many of the participants felt that having a 'bus captain' (i.e. a non-driving staff member onboard) provided a higher level of support. For many user research participants, the absence of someone fulfilling a 'bus captain' role, or someone who could fulfil a user-in-charge (UIC) contingency driving role, would not make public AV transport attractive or usable for disabled people.

Conversely, a self-driving bus which has some kind of staff role with a focus on customer service, like a 'bus captain', could improve customer service, enabling a more personalised and accessible service to passengers. These findings suggest there is a need to consider repurposing staff rather than removing them.

Principles for automated services

The barriers outlined above demonstrate that accessibility considerations for AVs extend beyond the technical operation of the vehicle itself. They encompass vehicle design, the service model through which it is deployed, the human support available to passengers and the wider journey chain within which automated services operate. If these issues are not acknowledged and addressed at the point of regulatory design and deployment, automated transport could replicate, or potentially exacerbate, existing accessibility barriers for disabled people.

[52] TRL & RiDC (2024a). The impact of automated transport on disabled people: summary report. Available at: https://www.trl.co.uk/publications/the-impact-of-automated-transport-on-disabled-people--summary-report

TRL and RiDC's research on the effect of AV technology on disabled people developed a draft set of principles for developing and deploying accessible automated services.[53] These principles reflect wider considerations that government and industry should take into account when developing the AV regulatory framework.

1. User-centric participatory design: disabled user groups must be actively involved in every stage of development, including ideation, prototyping and testing.
2. Continuous monitoring and evaluation: following implementation, providers should track data on accessibility and customer experience to identify and act on further improvements to accessibility.
3. Inclusive end-to-end journey approach: design must look beyond the vehicle to ensure that the service is accessible across the whole journey chain, from door to door.

Ensuring that accessibility is embedded from the outset of AV development and deployment will be critical if this technology is to deliver meaningful improvements in transport equity for disabled people. If it is not, automated transport could replicate existing barriers and require costly retrofitting to make vehicles, and the services they provide, inclusive and accessible.

Issues for the Committee, Mayor and TfL to consider

Looking ahead, APVs could make an important contribution to London's integrated transport system, including improving mobility options for some disabled people. However, the evidence presented in this submission suggests that these benefits are unlikely to be realised automatically. They will depend on how services are designed, authorised, deployed and monitored.

The Motability Foundation encourages the Committee, the Mayor and TfL to consider how accessibility, safeguarding and equity can be built into APV deployment from the outset. The issues below are not intended to prescribe a detailed regulatory model. Rather, they set out evidence-informed considerations which are consistent with emerging research, international experience and wider thinking on inclusive automated mobility.

Central to this is the involvement of disabled people in the design, testing, delivery and evaluation of APV services. Given the diversity of disabled people's access needs, APV services should not be designed on the basis of assumptions about accessibility or user experience. Therefore, the Committee, Mayor and TfL may wish to consider how operators can demonstrate meaningful engagement and co-production with disabled people and disabled people's organisations (DPOs) throughout service design, trials, deployment and ongoing improvement.

1. Accessibility as part of licensing and condition

[53] TRL & RiDC (2024b) op. cit.

- Explore requiring all operators to meet mandatory minimum accessibility standards as a condition of licensing, including clear expectations for wheelchair-accessible vehicle provision at fleet level.
- Set out a clear trajectory for increasing accessible vehicle availability, rather than relying on voluntary or market-led provision.
- Ensure accessibility requirements apply consistently across vehicle design, digital interfaces, and service delivery models.

Rationale: International experience suggests accessibility is often introduced late or retrospectively unless explicitly required at the outset (i.e. design, procurement etc).

2. Require inclusive, multi-channel service models

- Require operators to provide non-digital booking and customer access options, alongside app-based services.
- Set minimum expectations for accessible human support, including real-time assistance before, during, and after journeys.
- Ensure services are designed for the full diversity of disabled users, including those with sensory, cognitive and communication needs.

Rationale: The shift toward fully digital, driverless services risks excluding users without accessible interfaces or support.

3. Define robust safeguarding and assurance frameworks

- Establish clearly defined safeguarding standards for driverless services, covering:
    - Assistance with boarding, alighting, and mobility aid securement.
    - Accessible communication with remote operators.
    - Emergency escalation and response protocols.

- Require operators to demonstrate how they will provide equivalent or improved reassurance compared to driver-supported services.

Rationale: The removal of the driver introduces new risks around support, reassurance, and incident response.

4. Require accessibility-by-design in all trials and pilots

- Make accessibility a core requirement of all trials and pilot programmes, rather than an optional add-on.
- Require co-design with disabled people/organisations throughout testing, evaluation, and iteration.
- Use trials to generate robust evidence on usability, safety, and real-world accessibility performance.

Rationale: Early deployment decisions shape long-term outcomes; building accessibility in from the outset is likely to be more effective than retrofitting it later.

5. Introduce monitoring, transparency, and accountability mechanisms

- Require operators to report on accessibility performance metrics, including:
    - Availability of accessible vehicles.
    - Wait times and service reliability.
    - User satisfaction across diverse groups.

- Capture feedback from both users and non-users, including impacts on pedestrians and the wider public realm.
- Use this data to inform ongoing regulatory oversight and intervention.

Rationale: Accessibility outcomes are highly dependent on how services are implemented and managed.

6. Ensure integration with London's wider transport system

- Prioritise deployment models that complement, rather than compete with, public transport, including:
    - First/last mile integration.
    - Partnerships with TfL and public transport providers.

- Avoid service models that risk undermining public transport use or investment, particularly where this would disproportionately affect disabled people.

Rationale: International examples show that integration is shaped by policy choices and partnership models, rather than market-led delivery alone.

7. Actively manage equity and geographic access

- Require operators to demonstrate how they will deliver equitable service coverage, not just operate in high-demand areas.
- Consider how the Mayor, TfL, London boroughs and the City of London, would coordinate APV deployment across London to ensure accessibility, safeguarding and equitable service coverage do not vary significantly by local area.
- Consider regulatory tools, incentives, or obligations to ensure city-wide accessibility and inclusion.
- Address risks of digital exclusion and affordability alongside physical accessibility.

Rationale: Deployment patterns elsewhere show services tend to concentrate in commercially viable areas unless directed otherwise. Also, coordination across London will be important to avoid accessibility and service quality varying by local area.

Closing statement

APV services represent a significant opportunity to reshape and transform mobility in London. For disabled people, this could enable greater independence, flexibility and the ability to take up to opportunities that are currently hard to access, if not out of reach. However, these outcomes are unlikely to be delivered by technology alone. Without early consideration of accessibility, safety and equity, there is a risk that APV services could replicate and/or deepen existing, long standing barriers in transport and travel faced by disabled people.

London is particularly well placed to take a considered approach because APV services would be introduced into an already complex, regulated and highly integrated transport system. The Mayor and TfL have established responsibilities for London's transport network, including public transport, streets, road safety, taxi and private hire licensing, and the wider objectives set out in the Mayor's Transport Strategy. This gives London an opportunity to consider from the outset how APV services should support wider public interest outcomes, rather than being shaped only by early commercial deployment.

In this context, public interest outcomes include more than the availability of new passenger services. They include accessibility for disabled people, safety for passengers and other road users, safeguarding, integration with public transport, fair geographic coverage, affordability, protection against digital exclusion, and the management of impacts, such as congestion.

The choices made at this stage of deployment could have long-term consequences. They will influence whether APV services:

- expand access and inclusion, or reinforce existing barriers;
- strengthen and complement the wider transport system, or create additional fragmentation;
- support the ambitions of the Mayor's Transport Strategy, including accessibility, safety and modal shift.

An accessibility-led approach will not only help reduce the risk of future remediation costs. It could also position London as a global leader in inclusive future mobility. The Motability Foundation would welcome further engagement and dialogue with the Committee, the Mayor and TfL about autonomous transport and how APV services can deliver meaningful benefits for disabled Londoners.

Motorcycle Industry Association (MCIA) submission

Developing the automated vehicles regulatory framework – 25th June 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, accessory 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 welcomes the opportunity to contribute to the London Assembly Transport Committee's inquiry into Autonomous Passenger Vehicles (APVs).

2. The deployment of autonomous passenger services has the potential to deliver benefits in relation to safety, mobility and accessibility. However, these benefits can only be fully realised if APVs are introduced in a manner that supports London's wider transport objectives and protects all road users.

3. Much of the current debate surrounding autonomous vehicles focuses on passengers and vehicle occupants. MCIA believes equal consideration must be given to the interaction between APVs and vulnerable road users, particularly motorcycle and moped users.

4. Motorcycles and mopeds account for approximately 1% of road traffic volume,[1] however, they account for a quarter of all road fatalities.[2] They combine speed and manoeuvrability with limited physical protection, making them particularly vulnerable in the event of a collision. The ability of autonomous systems to safely detect, interpret and respond to motorcycles and mopeds must therefore be considered a fundamental requirement of deployment.

[1] https://roadtraffic.dft.gov.uk/

[2] https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-provisional-results-2025/reported-road-casualties-in-great-britain-provisional-estimates-2025

5. MCIA supports a cautious, evidence-led approach to APV deployment. Operators should be required to demonstrate not merely that autonomous systems are safe for passengers, but that they can safely operate alongside all road users in complex urban environments such as London.

6. The Committee should also consider APVs within the wider context of the Mayor's Transport Strategy. Deployment should not be assessed solely on technological capability, but on whether it contributes to wider public policy objectives including:
   - Vision Zero
   - Traffic reduction
   - Increased use of sustainable transport
   - Improved accessibility
   - Reduced congestion
   - Greater transport integration.

7. MCIA believes that autonomous passenger services should complement existing transport modes, rather than undermine them. Any deployment framework should therefore ensure that APVs support public transport, walking, cycling, and other space-efficient transport modes, including motorcycles and mopeds.

8. London has the opportunity to become a global benchmark for the safe integration of autonomous vehicles within complex urban transport systems. This will require a regulatory approach that places vulnerable road user safety at its core.

Questions

How close are autonomous passenger vehicles to becoming a reality in London?

9. APVs are no longer a theoretical concept. Developments in the United States of America, China, and elsewhere demonstrate that commercial deployment is technically feasible in certain operating environments. However, London represents one of the most complex mixed-traffic urban environments in the world, presenting challenges that differ significantly from many locations where autonomous services currently operate.

10. London's road network is characterised by:
    - High traffic density
    - Complex junction layouts
    - Extensive interaction between different transport modes
    - Significant pedestrian activity
    - Large numbers of cyclists
    - Substantial motorcycle and moped usage.

11. The successful deployment of APVs in less complex environments should not automatically be interpreted as evidence that equivalent performance can be achieved in London. Before widespread deployment is considered, operators should demonstrate safe operation in real-world London conditions, including environments where motorcycles and mopeds are not only present, but are commonplace.

12. The key question is therefore not whether APVs are technically capable of operating in London, but whether they can do so safely, consistently and in a manner that supports the wider transport network.

How will autonomous passenger vehicles navigate London's complicated road network?

13. The greatest challenge is unlikely to be route navigation itself, rather, it is the ability of autonomous systems to correctly interpret and predict the behaviour of other road users in highly dynamic environments. This is particularly relevant to motorcycles and mopeds.

14. Unlike conventional passenger vehicles, motorcycles may:
    - Adopt dynamic road positioning
    - Filter through stationary or slow-moving traffic
    - Accelerate more rapidly than surrounding vehicles
    - Occupy different lateral positions within a lane
    - Appear from locations not always anticipated by conventional driver behaviour models.

15. These behaviours are lawful, commonplace and often contribute to rider safety. Autonomous systems must therefore demonstrate that they can reliably detect motorcycles and mopeds, classify them correctly, predict likely behaviour, and respond safely and proportionately.

16. The Committee should seek assurance that operators can demonstrate safe interaction with motorcycles and mopeds through extensive real-world testing in dense urban environments rather than relying on simulation or closed-track testing, which cannot adequately replicate filtering behaviour, obstructions, or dynamic rider positioning.

What impact would the introduction of autonomous passenger vehicles have in London?

Safety and Vision Zero

17. MCIA supports technologies capable of reducing human error and improving road safety. Many collisions involving motorcycles occur because of another road user

fails to see the rider, misjudges their speed, turns across their path, or changes lane without adequate observation.

18. If autonomous systems can consistently outperform human drivers in these scenarios, there is potential for meaningful safety improvements. However, this cannot be assumed. Research by the RDW (the Netherlands Vehicle Authority) has already shown that advanced systems such as adaptive cruise control often fail to respond to motorcycles,[3] therefore, it is critical that these complexities are understood and addressed prior to APVs being deployed in London.

19. If these challenges are not addressed, there is a risk that APVs could systematically fail to detect motorcycles and mopeds in certain scenarios, introducing new collision risks and undermining public confidence in automated transport systems.

20. Operators should be required to provide evidence demonstrating performance specifically in relation to vulnerable road users, including motorcycles and mopeds. Near-miss data should be collected and published alongside collision data, allowing regulators and stakeholders to identify emerging risks before serious incidents occur.

Traffic Reduction and Congestion

21. The Committee should carefully consider whether APVs contribute to, or undermine, the Mayor of London's traffic reduction objectives. The impact will depend heavily on how services are deployed.

22. If APVs primarily replace private car journeys, congestion may reduce. If APVs generate significant numbers of empty-vehicle journeys, or replace journeys currently made by public transport, walking or cycling, congestion could increase.

Motorcycles and Mopeds within the Transport Network

23. The Committee should recognise that motorcycles and mopeds already contribute positively to London's transport system. They occupy less road space than cars, reduce congestion, offer affordable mobility, provide efficient urban journeys, and support many commercial and logistics activities.

24. The success of APVs should not be measured solely by their ability to move people, but by their ability to operate safely alongside existing transport modes.

Children, Older and Disabled People

[3] https://www.femamotorcycling.eu/acc-does-not-always-see-motorcyclists/

25. MCIA recognises the potential for APVs to improve mobility for individuals who may currently face barriers to independent travel. However, accessibility must extend beyond vehicle occupants.

26. An inclusive transport system is one that is safe for all users. This includes ensuring that APVs can safely interact with motorcycle users – where the average age is mid-to-late fifties,[4] disabled road users, pedestrians, cyclists, and other vulnerable road users. Accessibility outcomes should therefore include consideration of how APVs affect the wider public realm and not solely those travelling within the vehicle.

Cybersecurity

27. Cybersecurity is fundamental to public confidence in autonomous transport systems. Any compromise of vehicle perception systems, communication systems or operational controls could have significant consequences for passengers and other road users.

28. The Committee should seek assurances that operators maintain robust cybersecurity arrangements and that appropriate reporting and intervention mechanisms exist where vulnerabilities are identified.

What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?

29. MCIA recommends four priorities:

Vulnerable Road User Safety

30. TfL should require operators to demonstrate safe interaction with vulnerable road users, including motorcycle and moped users, before any large-scale deployment is authorised.

31. Testing should explicitly include:
    - Filtering motorcycles and mopeds
    - Motorcycles and mopeds in bus lanes
    - Lane-splitting scenarios
    - Complex junction interactions
    - Poor weather conditions
    - Night-time operation.

Transparency

[4] https://www.britishmotorcyclists.co.uk/millennials/

32. Operators should be required to publish:
- Collision data
- Near-miss data
- Safety performance information
- System limitations
- Operational design domain information.

33. Data should be sufficiently detailed to enable assessment of performance in relation to vulnerable road users.

Independent Oversight

34. TfL should seek powers to condition, restrict, or withdraw operational approval based on safety performance, including vulnerable road user-specific metrics. This should include the ability to:
- Require safety reviews
- Impose operational restrictions
- Suspend deployment where risks emerge
- Mandate corrective actions.

Stakeholder Engagement

35. Motorcycle organisations, rider groups, accessibility organisations, and road safety bodies should be engaged throughout the deployment process.

36. The design of autonomous transport systems should not occur in isolation from those most affected by them.

What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?

37. International experience demonstrates that APVs can operate successfully in some environments. However, it also demonstrates the importance of maintaining strong regulatory oversight and continuous monitoring.

38. London should avoid assuming that success elsewhere guarantees success in the capital. Instead, international deployments should be used to identify best practice, emerging risks, effective reporting frameworks, successful public engagement approaches, and lessons regarding interactions with vulnerable road users.

39. Particular attention should be given to evidence concerning motorcycle and moped interactions, which remain comparatively under-examined within much of the autonomous vehicle debate despite their significance for road safety.

Conclusion

40. MCIA supports innovation in autonomous transport where it delivers clear and demonstrable public benefit. However, APV deployment in London must be contingent on proven safety performance in real-world conditions, particularly in relation to vulnerable road users.

41. For motorcycles and mopeds, the key test is straightforward: APVs must demonstrate that they safely detect, understand and respond to some of the most vulnerable road users on London's roads.

42. If this can be achieved, autonomous technologies may contribute positively to Vision Zero and wider transport objectives. If it cannot, deployment should not proceed until those shortcomings have been addressed.

43. MCIA therefore recommends that the Committee places vulnerable road user safety, modal integration, and transparency at the centre of its recommendations, and ensures that no large-scale deployment proceeds without clear evidence that these requirements have been met.

Call for evidence: Autonomous Passenger Vehicles in London

Question 1: How close are autonomous passenger vehicles to becoming a reality in London?

Autonomous passenger vehicles are close to becoming a reality in London, but they are likely to arrive first through limited, supervised and geographically defined deployments rather than immediate city-wide commercial operations.

From Odysse's perspective, London is now moving from the concept and trial phase towards early commercial deployment. Autonomous passenger services are already operating commercially at scale in several international markets, and recent testing activity, regulatory developments and commercial partnerships indicate that London is becoming a near-term deployment market rather than a distant future opportunity.

However, deployment should be viewed as a progression rather than a single milestone.

While the technology is approaching readiness for passenger services within defined operational design domains, London-wide deployment will take longer because of the complexity of the capital's road network, high density of vulnerable road users, kerbside activity, roadworks, congestion and the need to build public confidence.

In practical terms, we expect the first meaningful commercial deployments in London to be limited in scale, operating in specific areas, supported by clear safety cases, robust operational oversight and close regulatory engagement. Wider deployment will follow, guided by operational evidence, public confidence and demonstrated performance.

Question 3: What impact would the introduction of autonomous passenger vehicles have in London?

Economic impact and employment

Autonomous passenger vehicles will over time change the structure of employment within London's taxi and private hire sector. These changes will be gradual over many years, and not in rapid time frames. We do not anticipate any sudden changes to employment of drivers in taxi and private hire. Initial commercial deployments are expected to continue using safety operators while operational experience is gained, new operational design domains are validated and public confidence develops. As deployment expands into new environments, safety operators are likely to continue playing an important role during mapping, verification and validation activities.

Changes brought about by the roll out of autonomous vehicles should not, however, be viewed simply as the replacement of drivers. Commercial autonomous passenger services require substantial operational capability behind the scenes. New roles are already emerging in areas including:

- Fleet supervision;

- Fleet operations;
- Remote assistance;
- Charging and maintenance;
- Safety management;
- Incident response;
- Data management; and
- Customer support.

Our experience operating commercial passenger transport services suggests that large-scale autonomous fleets require significant operational infrastructure beyond the vehicle itself. While some traditional driving roles may reduce over time, new operational, supervisory and technical roles will emerge. Public policy should therefore support workforce transition through retraining and skills development, allowing today's professional drivers to participate in tomorrow's mobility ecosystem.

Safety and public confidence: Safety must remain the overriding priority.

Autonomous systems have the potential to reduce collisions associated with distraction, fatigue, impairment and human error. However, public confidence will depend not only on statistical safety performance but also on transparency, accountability and effective operational management.

Safety should be viewed as an operational system rather than solely a property of autonomous driving software. Effective vehicle deployment, maintenance, remote supervision, incident response, passenger safeguarding and operational governance all contribute to safe service delivery.

Operators should therefore be expected to:

- Report incidents consistently;
- Share appropriate safety data with regulators;
- Demonstrate robust operational oversight;
- Maintain effective emergency response procedures; and
- Operate within clearly defined safety management systems.

Accessibility and inclusion: Autonomous passenger vehicles have the potential to improve mobility for many Londoners, particularly older people and disabled passengers.

Accessibility should be designed into autonomous passenger services from the outset.

Future licensing frameworks should therefore require operators to demonstrate:

- Accessible booking channels;
- Passenger assistance procedures;
- Appropriate vehicle accessibility provisions; and
- Support arrangements for vulnerable passengers.

Public transport and congestion: The impact on congestion will depend largely on regulatory design and operator incentives.

Autonomous passenger services have the potential to complement London's wider transport system by improving connectivity, increasing vehicle utilisation and reducing reliance on private car ownership.

As with any on-demand transport service, efficient fleet management will be critical to minimising unnecessary empty vehicle movements and making the most effective use of London's limited road space.

TfL should consider asking operators to report a standardised set of operational performance metrics, including:

- Deadhead (empty) vehicle mileage as a proportion of total mileage;
- Passenger occupancy;
- Vehicle utilisation;
- Service reliability; and
- Interaction with public transport.

In our view, deadhead (empty) mileage should become a core reporting metric.

It provides an objective measure of how efficiently autonomous fleets are being deployed and allows regulators to compare different operating models as the market develops.

The success of autonomous passenger services should ultimately be reflected in safer roads, lower emissions, improved accessibility, higher vehicle utilisation, reduced unnecessary vehicle movements and stronger integration with London's wider transport network.

Question 4: What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?

Odysse recommends that TfL focus on five priorities.

A. Develop a London-specific operational framework

London presents unique operational challenges, including a highly complex road network, dense mixed traffic, vulnerable road users, extensive kerbside activity and frequent roadworks. TfL should therefore develop an operational framework that reflects London's unique characteristics rather than relying solely on national standards.

B. Assess operational capability as well as vehicle capability

Approval should not be based solely on autonomous driving performance.

Operators should demonstrate:

- Fleet operations management capability;
- Safety management systems;
- Incident response procedures;
- Vehicle maintenance processes;
- Passenger support arrangements; and
- Appropriate operational staffing and supervision.

Commercial deployment depends on operational maturity as much as autonomous driving capability.

C. Introduce standardised operational reporting

Regulators should require operators to report a consistent set of operational performance metrics, including:

- Safety incidents;
- Deadhead (empty) mileage;
- Vehicle utilisation;
- Passenger occupancy;
- Service reliability; and
- Accessibility performance.

Standardised reporting would enable evidence-based regulation, allow objective comparison between operators and ensure autonomous passenger services continue to support London's wider transport objectives.

D. Introduce autonomous services through phased deployment

A phased approach enables regulators and operators to learn, refine policy and build public confidence while supporting responsible innovation.

E. Regulate outcomes rather than prescribing technology

TfL should establish clear outcomes relating to safety, accessibility, emissions, network efficiency and integration with London's wider transport system while allowing operators flexibility in how those outcomes are achieved.

Outcome-based regulation encourages innovation while maintaining strong public accountability.

Question 5: What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?

A. Operational excellence is as important as autonomous driving.

Experience from international deployments demonstrates that successful autonomous passenger services depend as much on fleet operations as on autonomous driving capability. Efficient fleet deployment, minimising empty (deadhead) mileage, vehicle maintenance, charging, cleaning, customer service, remote supervision, incident management and passenger safeguarding are all essential components of a successful commercial service.

B. Public trust is fundamental

Long-term success depends on public confidence. Transparent reporting, clear accountability, strong regulatory oversight and open engagement with the public will be essential if autonomous passenger services are to gain widespread acceptance.

Autonomous passenger vehicles should therefore be viewed not simply as a new technology, but as part of the continued evolution of London's transport system.

C. Measure the right outcomes

International deployments demonstrate that commercial success is often measured by fleet growth or trip volumes. London's opportunity is to go further by measuring transport outcomes, including safety, accessibility, vehicle utilisation, deadhead mileage, congestion impacts and integration with public transport. Doing so would better align commercial deployment with the objectives of the Mayor's Transport Strategy.

The opportunity for London is not to deploy the greatest number of autonomous vehicles. It is to deploy them in a way that delivers better outcomes for Londoners: safer roads, lower emissions, more efficient use of road space, improved accessibility and stronger integration with one of the world's leading public transport networks.

[Ref No. AV025, Omnia]

WRITTEN SUBMISSION

London Assembly Transport Committee

Investigation: Autonomous Passenger Vehicles in London

Submitted by **Omnia Platforms Ltd** · July 2026

We recognise that the call for evidence closed on 26 June 2026. This submission is offered late in case it remains useful to the Committee, and addresses a single issue on which we have particular expertise: the risk of proprietary lock-in identified in the Committee's own terms of reference.

About this respondent

Omnia Platforms Ltd is a British company registered in England and Wales (company number 17236418), developing neutral dispatch infrastructure for ground transport. Our patent application GB2613396.7 concerns the routing of journeys to vehicles and drivers across multiple, competing sources of demand.

Declaration of interest. We would benefit commercially from a market in which vehicle operators are able to serve more than one demand channel, and the Committee should weigh this submission accordingly. We hold no commercial relationship with any autonomous vehicle operator, ride-hailing platform or vehicle manufacturer, and we are not asking the Committee to endorse or require any particular product, including our own.

Response to Question 4

What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles, and what powers should they be seeking to regulate the sector?

1. Lock-in is a consequence of commercial structure, not of the technology

The Committee is right to identify the risk that London's transport becomes overly dependent on private companies. We would offer one distinction that we believe matters for regulatory design: that dependency does not arise from autonomy itself. It arises from how passengers reach vehicles.

An autonomous vehicle operator has capital committed to vehicles and, typically, no direct relationship with passengers. A demand platform has the passenger relationship and, typically, no vehicles. Where those two things meet through a single exclusive arrangement, the availability of autonomous journeys in a city becomes contingent on the health of one commercial relationship between two private companies — neither of which is accountable to London.

The relevant question for a regulator is therefore not only who is operating vehicles on London's streets, but by what route passengers reach them, and how many such routes exist.

2. The risk is already observable

In late June 2026, Waymo and Uber ended their self-driving partnership in Phoenix, Arizona. In July 2026 it was reported that Waymo was considering ending the wider partnership altogether, with the two companies said to have disagreed over commercial terms, vehicle availability in poor weather, and routing. Reporting indicates the arrangement carried exclusivity in certain cities.

Separately, Zoox has deployed vehicles on Uber's network in Las Vegas and Los Angeles while continuing to operate its own consumer application in both — an operator choosing, in practice, not to rely on a single channel.

We draw no conclusion about the conduct of any party. The structural observation is what matters: bilateral exclusive arrangements between vehicle operators and demand platforms are not necessarily durable, and where a city's service depends on one, disruption to that relationship is disruption to the city's transport.

3. Suggested priorities for the Mayor and TfL

(a) Ask about channel dependency at permit stage. When engaging operators intending to pilot in London, ask how passengers will reach the vehicles; whether that arrangement is exclusive; how long it runs; and what would happen to the London service if it ended. This requires no new powers and would surface the risk while it is still cheap to address.

(b) Treat reachability as a resilience matter rather than a competition matter. The question is continuity of service for Londoners, not market share between private companies. A service reachable through more than one channel is more robust to commercial failure, contractual dispute or a single provider withdrawing from the market.

(c) Avoid conditions that inadvertently entrench lock-in. Requirements that can only practically be satisfied by a vertically integrated operator — one owning the vehicles, the software and the consumer application — will tend to exclude smaller and specialist operators, and to concentrate the market in exactly the way the Committee is concerned about.

(d) Consider the demand London itself may wish to see served. Accessible transport, contracted and scheduled journeys, and travel booked through channels other than the major consumer applications are unlikely to be well served by operators whose only route to passengers is a single commercial platform. If the Mayor and TfL wish autonomous vehicles to serve public purposes, the means by which those journeys are placed will need to exist.

(e) Note that the passenger licensing regime does not extend to goods. TfL has acknowledged publicly that operators may seek approval for purposes such as shopping and food delivery without requiring TfL consent. If autonomous capability arrives in London first through goods movement, the same concentration risks may develop outside the regime the Committee is examining.

4. What we would caution against

We are not suggesting that TfL should mandate any particular technology, standard or supplier, and we would regard a requirement drafted around any single provider — ourselves included — as a poorer outcome than the problem it sought to solve. Our submission is that the Mayor and TfL should ask how many routes exist between London's passengers and London's vehicles, and should be reluctant to license a service where the answer is one.

Further information

We would be glad to assist the Committee further, in writing or in person, on any of the above.

Stuart O'Hara, Founder — Omnia Platforms Ltd

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Registered in England & Wales, company no. 17236418 · ICO registration ZC171134 · GB Patent Pending GB2613396.7

June 25th, 2026

To the London Assembly Transport Committee,

I am writing to provide evidence for the committee's inquiry into autonomous passenger vehicles in London. In particular, we want to share what lessons London can learn from trials and deployments elsewhere.

ONE Community is based in Arizona, USA, and was founded to advance workplace equality, equal treatment in housing, and equal access to public accommodations for LGBTQ+ individuals and their allies. ONE Community is a member-based coalition of businesses, organisations, and individuals committed to advancing equality and inclusion across Arizona and the United States. In 2022, ONE Community became the first LGBTQ+ organisation to join Waymo's national public education initiative, Let's Talk Autonomous Driving, now called Waymo Community, making us a pioneering voice in the conversation about how fully autonomous vehicles can serve — and protect — marginalized communities.

We draw on nearly four years of direct partnership with Waymo in metropolitan Phoenix and on the broader evidence base from San Francisco and other US deployments.

Our UNITY Pledge — launched in February 2013 — has now been signed by more than 3,800 businesses and more than 22,000 Arizonans, making it the largest equality pledge in the United States.

Waymo signed the UNITY Pledge as a founding act of our partnership. Since then, ONE Community has worked alongside Waymo to help design, test, and communicate a transport service that treats every passenger with dignity — regardless of their sexual orientation, gender identity, HIV status, or any other characteristic.

Before presenting lessons from deployment, it is important to establish why the LGBTQ+ community has a specific and documented relationship with transport safety — and why autonomous vehicles represent a meaningful intervention.

Research consistently shows that LGBTQ+ individuals — and transgender passengers in particular — face elevated rates of harassment, discrimination, and violence when using public and private transport. A 2025 systematic literature review published in the Journal of Transport Reviews found that LGBTQ+ people experience specific personal security risks on public transport, and that long wait times and high visibility at stops position them as targets for harassment.

In the United States, TransitCenter data shows that bias incidents have led 10% of LGBTQ+ riders to avoid public transit altogether, with transgender riders feeling most unwelcome. London is not immune. TfL's own Together Against Hate campaign, bystander training programme, and £10 million investment in lighting and CCTV at 50 stations in 2023–24 all acknowledge that the transport network is not yet equally safe for all users.

Harassment in a rideshare or taxi context is distinct from public transit: it occurs in an enclosed, private space, with a single driver who may themselves be the source of discrimination. LGBTQ+ riders in Phoenix described specific fears before discovering Waymo: anxiety about being misgendered by a driver; concern about holding a partner's hand or discussing their destination; uncertainty about whether a driver would refuse a trip or subject them to unwanted commentary.

I personally feel safe during a Waymo ride, like a pressure I've felt in other spaces has been lifted from my shoulders. In discussions with other leaders in the LGTBQ+ community, the sentiment is similar: you just get to enjoy the journey. This lived experience - the simple, radical prospect of traveling without fear of judgment is the starting point for the lessons to follow.

The most important structural decision Waymo made in Phoenix was to build community partnerships before, not after, riders started paying for trips. ONE Community became Waymo's first LGBTQ+ education partner in June 2022 — at a point when the service was already commercially available but still expanding.

What followed was not a tokenistic announcement. Waymo signed the UNITY Pledge as a public commitment. ONE Community became part of the Let's Talk Autonomous Driving, now called Waymo Community, public education campaign, participating in community outreach, events, and media. The partnership surfaced specific needs — for example, the importance of discretion in route information, and the significance of the vehicle having no human driver who could overhear a conversation about an LGBTQ+ venue or health appointment.

Waymo subsequently extended this model to dozens of organisations representing LGBTQ+ communities across its operating cities, including one•n•ten (LGBTQ+ youth in Phoenix), Openhouse SF (LGBTQ+ seniors in San Francisco), and Pride event partnerships.

What this means for London

The London Assembly's own investigation rightly asks: "To what extent are autonomous passenger vehicles accessible to all Londoners?" Answering that question requires engaging the communities who currently feel least safe in transport spaces, which Waymo does in communities where it operates. The core value proposition of an autonomous vehicle for marginalised communities is straightforward: the technology does not discriminate. It does not refuse a trip to a same-sex couple, does not misgender a transgender passenger, does not make a comment about someone's destination, and does not create a hostile atmosphere.

But non-discrimination is not the same as active inclusion. From the Phoenix experience, active inclusion means:

- Rider privacy: audio and visual cues that keep journey information within the vehicle and do not expose destination details to third parties.
- Operator conduct standards: even if the vehicle is driverless, any remote support operator or customer service agent must be trained with inclusivity standards.
- Data handling: data about where LGBTQ+ community members travel — to support services, HIV clinics, community centres — must be protected with robust privacy standards. This is not merely a legal requirement; it is a matter of safety.

In Phoenix, Waymo did not wait for problems to surface through formal complaints. The company convened roundtable conversations with multiple Phoenix nonprofits — including LGBTQ+, disability, and civic organisations — to understand mobility barriers before they became service failures.

The defining characteristic of the ONE Community–Waymo partnership is that inclusion is actionable and documented, not merely stated. Waymo's first act was to sign the UNITY Pledge — a public, named commitment to workplace equality and equal treatment in housing and public accommodation for LGBTQ+ individuals. This was not a press release; it was a legal and reputational commitment that ONE Community could hold Waymo accountable to.

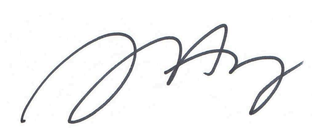
The partnership then moved beyond pledge-signing to tangible support: financial backing for LGBTQ+ community events and organisations; free and discounted rides for community nonprofits and their clients; volunteering by Waymo staff at LGBTQ+ community events; and co-authored public education materials that explained how autonomous technology addresses specific safety concerns. Having a partner like Waymo to provide access to our resources, as well as so many other nonprofits around the valley is life-changing for the people we serve.

London stands at an exceptional moment. London is poised to be Europe's first major city to host commercial robotaxi operations. The question before the Mayor and the Transport Committee is not whether autonomous vehicles will come — it is whether they will arrive in a form that is worthy of London's values.

ONE Community's partnership with Waymo demonstrates that autonomous mobility can be genuinely transformative for LGBTQ+ people: eliminating the threat of discrimination from a driver; enabling freedom of movement without fear; and connecting communities to the services they depend on. But these outcomes require deliberate design. They do not happen by default.

The LGBTQ+ community in London — like every community — deserves a transport system that is as diverse, as safe, and as free as the people who use it.

Respectfully,



Angela Hughey
Co-founder & President
ONE Community &
ONE Community Foundation

PACTS
Parliamentary
Advisory Council
for Transport Safety

Autonomous Passenger Vehicles in London

Who is responsible for licensing autonomous passenger vehicles in London and what role do the Mayor and TfL play in this?

The approach taken by the government is for companies wishing to run an Automated Passenger Service (APS) to apply first to the DVSA for an APS permit, and for the DVSA to then request consent from a local authority before issuing APS permits. The government published guidance on this for local authorities and transport bodies in March 2026.

However, while the DVSA may be the permit body, neither TfL nor the Mayor should be passive consultees, and TfL should use its consent role to test whether a proposed service supports London's transport strategy, including Vision Zero, the Safe System approach, accessibility, and the safety of vulnerable road users.

How close are commercial operators to deploying autonomous passenger vehicles for hire in London?

PACTS is not best placed to assess commercial readiness. Our interest is whether any deployment is demonstrably safe, properly authorised, transparently monitored and subject to effective oversight. Commercial readiness should not be treated as a proxy for safety readiness.

It is important to note that there is a difference between the 'pilots' which are to be tested and full AV Act implementation. Through the Automated and Electric Vehicles Act 2018 (AEVA), it is possible for a vehicle which is registered as self-driving to be used on the roads. This means that evidence demonstrating compliance with requirements that will subsequently be clarified in secondary legislation may not be available when the pilots commence.

For this reason, any pilot deployment in London should clearly demonstrate the types of testing the operator has undertaken and the conditions under which those tests took place. PACTS would also recommend transparent arrangements for data sharing, including the reporting of collisions, near misses and system failures, so that TfL and other relevant bodies can understand whether the service is operating safely.

Are autonomous passenger vehicles compatible with London's strategic transport goals in the Mayor's Transport Strategy?

Autonomous vehicles are only compatible with the Mayor's Transport Strategy if they adhere to the Vision Zero and Safe System approach. Currently, the minimum requirement in the AV Act 2024 is for them to be as safe as a careful and competent driver. This standard is not equivalent to the conditions of the Safe System where collision severity is limited so people are not killed or seriously injured.

PACTS considers that automated vehicles should perform significantly more safely than a careful and competent human driver. There is a risk that without this, we risk producing the same number of collisions with the same numbers of people being killed and seriously injured, just with a different cause. Additionally, the assumption that removal of a driver will reduce collisions and their severity fails to take into consideration that a flawed driver may be replaced by something as flawed due to inability to detect and process the streetscape and its occupants (other road users), malfunctions, software faults, deliberate attacks and such like. Autonomous passenger vehicles should therefore only be considered compatible with London's strategic transport goals where they support safe streets, public transport integration, accessibility, and the protection of road users who are most at risk of harm.

What are the principal risks associated with autonomous passenger vehicles in London, and can they be mitigated?

PACTS identifies the central test as whether automated vehicles improve road safety, rather than whether operators are commercially ready. In PACTS' view, AVs should perform significantly more safely than a careful and competent human driver; simply matching human performance should not be treated as sufficient.

The principal risks in London arise from the complexity and density of the road environment. London streets are occupied by people walking, riding pedal cycles, taking buses, using e-scooters or EAPCs, riding motorcycles, travelling with limited mobility, taking taxis, delivering freight and goods or serving in the emergency services. AV safety assessments must therefore consider the risks to all these people, not only passengers inside the vehicle. No road user should be put at additional risk with the deployment of automated passenger vehicles. AVs must also interact predictably with police, ambulance, fire and traffic officers.

PACTS considers that these risks can be mitigated, but only through a comprehensive and independently scrutinised safety case. This should include simulation, real-world testing, scenario testing, evidence of safe interaction with other road users, cybersecurity assurance, human factors assessment and data logging. Developers must provide a safety case showing how their technology has been proven, certification to show a minimum level of performance has been achieved and data to satisfy the regulator that acceptable safety is being delivered in-use. Operators should not be permitted to rely solely on their own claims of safety readiness.

A further risk is that AVs may operate outside the conditions in which they have been validated as safe. PACTS therefore supports the use of geofencing and environmental mapping to restrict AVs to clearly defined operating areas and conditions. Expansion of operating areas, hours or road types should only be permitted where safe performance has been demonstrated.

Safety must also be monitored after deployment and data sharing in the event of a collision must be transparent. The public are aware crashes may still occur, but they also have expectations that data will be shared to prevent such crashes from happening in the future. If that were not possible, it may be difficult to justify why permission was given for this technology to operate in public environments.

PACTS supports post-deployment monitoring of collisions, near misses, road rule compliance, critical events, anticipatory driving, software status and independent audits. Where deployment becomes unsafe, authorities must be able to act quickly to vary, suspend or withdraw permits.

To what extent are autonomous passenger vehicles accessible to all Londoners?

PACTS does not have evidence suggesting how accessible AVs are in London specifically. However, as a general principle, PACTS believes that AVs may improve mobility for some excluded groups, but accessibility is not automatic. AVs could work to help people who cannot travel independently, including some older and disabled people. This benefit will only be realised if accessibility is designed, tested, monitored and enforced from the outset. Operators should be required to demonstrate how services will meet the needs of those who currently have limited access to vehicles due to physical or societal limitations, including through accessible booking systems, safe boarding and alighting, emergency communication, remote support, and clear complaints processes.

Are there any benefits that autonomous passenger vehicles could offer in London, and how likely are those benefits to be realised in London?

PACTS recognises potential benefits but treats them as conditional. Potential benefits include improved safety, clearer accountability, system learning from data, and better mobility for some people. However, these benefits are not automatic, and if AVs mainly add more private-hire-style vehicle traffic, compete with public transport, or operate only in central areas deemed profitable for operators, they may worsen congestion, emissions, kerbside pressure and inequality. PACTS therefore supports requirements for operators to demonstrate public value, not just technical feasibility.

What lessons can London learn from trials and deployments elsewhere?

London should learn from trials and deployments elsewhere that autonomous passenger vehicles should be introduced cautiously, within clearly defined and limited operating conditions, and only expanded where evidence supports doing so.

The main lesson is that safety cannot be assumed from commercial readiness or from deployment in other cities. London's road environment is dense, complex and highly mixed, so any service should be subject to a London-specific safety case.

PACTS would highlight five key lessons:

- First, early deployment should be gradual, geofenced and evidence-led. Operators should not be permitted to expand operating areas, hours or road types until safe performance has been demonstrated.
- Second, human fallback should not be relied upon as the main safety control. Where a system cannot continue safely, the vehicle should default to a minimum risk manoeuvre rather than depending on rapid human intervention.

- Third, near misses, incidents and system failures should be reported and used for learning. London should not wait for serious collisions before identifying risks.
- Fourth, safety-related data should be shared between operators, regulators, TfL, boroughs and emergency services. Commercial confidentiality should not prevent safety learning.
- Finally, London should learn from rail and aviation, where safety cases, independent investigation, incident reporting and system-wide learning are more established.

Overall, the lesson for London is that deployment should be staged, transparent and reversible, with clear powers to vary, suspend or withdraw services where safety concerns arise.

What role should TfL and the Mayor play in the development and oversight of autonomous passenger vehicles?

PACTS supports a strong oversight role for TfL and the Mayor of London, and operators should be expected to provide evidence on safety, accessibility, operational design domain and emergency service engagement. PACTS also supports active coordination and knowledge-sharing between authorities to ensure safety-related lessons from pilots are shared. TfL and the Mayor should also work with individual London Boroughs to ensure that learnings are shared between the Boroughs and London-wide. TfL should use its consent role to ensure that deployments are consistent with London's strategic transport goals and that safety concerns can lead quickly to changes, suspension or withdrawal of services.

What do Londoners think about autonomous passenger vehicles?

PACTS does not have specific evidence on this, but recommends the recently published Public perceptions on the safety of automated vehicles - GOV.UK report for insights from across the country.

The Greater London Authority should look to gain support from local Londoners before any implementation. Londoners' acceptance should not be assumed, and TfL and the Mayor should commission and publish London-specific engagement featuring a broad range of stakeholders.

This engagement should reflect the varied ways in which people move around London's streets. It should include people walking, riding pedal cycles, taking buses, using e-scooters or EAPCs, riding motorcycles, travelling with limited mobility, taking taxis, delivering freight and goods or serving in the emergency services. Public confidence will likely depend on whether services can be demonstrated as safe to Londoners.

London Assembly Transport Committee

Call for evidence: Autonomous Passenger Vehicles in London

Response on behalf of Reed Mobility Limited

Author: Dr Nick Reed

Background

My name is Dr Nick Reed and I am the founder of Reed Mobility, an independent consultancy working to create transport systems that are safe, clean, efficient, ethical and equitable. My background is road safety and automated driving and I led the GATEway project, which demonstrated a variety of automated vehicles in the Royal Borough of Greenwich - including the world's first grocery delivery by automated vehicle. I supported the government in its work to develop the regulatory framework for automated vehicles and work with technology developers to adapt their systems for safe operation on UK roads, including research that investigated how the public might assess whether automated vehicles behave in a manner that is at least as safe as a careful and competent human driver - as is required by the Automated Vehicles Act 2024.

1. How close are autonomous passenger vehicles to becoming a reality in London?

Commercially-operated automated passenger vehicles are a reality in cities across the world. Deployment at scale is most tangible in the form of robotaxis in U.S. and Chinese cities but there have also been many trial deployments of automated shuttle vehicles in many European cities over the past decade as well as the emergence of automated vehicles for goods movement.

The UK government has indicated its keenness for automated driving systems to support its safety, accessibility and economic ambitions for the transport sector and has committed time and resources to establishing a regulatory framework that enables technology developers to take steps towards commercial deployment with confidence. It has also commissioned numerous trials that have investigated the viability of automated vehicle services in UK cities (e.g. GATEway, Venturer, UK Autodrive, CAVForth etc.).

Experience overseas shows that automated passenger vehicles can work. However, each location in which such vehicles operate has its own particular regulatory, geographical and behavioural characteristics to which the technology must adapt. Work is now required to show that automated vehicles can integrate successfully into London's transport ecosystem to offer safe, accessible and cost-effective mobility complementing existing modes and supporting all the work that has been undertaken to deliver the safety modal shift targets that are specified in the Mayor's transport strategy.

2. How will autonomous passenger vehicles navigate London's complicated road network?

At a high level, automated vehicles (AVs) determine routes in a similar manner to conventional satellite navigation systems. The operator or customer will set a desired start point (A) and end point (B) and the system will determine the optimal driving route between those two points. However, there are nuances to this. It may be the case that, for a variety of reasons, the simplest route between A and B is not navigable by the AV. For example, there might be a particular junction or road width restriction that is difficult for the AV to pass. In such situations, the vehicle will choose a route that avoids this section. This may be different to the route a human driver with traditional sat-nav (or a licensed black cab driver) may choose (and the customer would have to determine whether any additional price or trip duration was acceptable as a consequence of such routing decisions).

A second factor is whether the requested journey is fully within the operating region of the AV service. This is the geographical region where the AV operator has determined that the AVs can operate. This might be for reasons of consent (e.g. if the AV service has permission to operate in the boroughs of Merton, Sutton, Croydon and Bromley but the customer's destination is in Lewisham, the journey would not be viable by this AV service) or capability (e.g. if the AV service is not capable of operating in tunnels, then a journey that would require use of the Silvertown or Blackwall tunnels would not be viable). If the required journey starts, ends or unavoidably crosses regions where the AV service is not allowed or capable of operating, the journey will not be offered to the customer.

Aside from these restrictions, AVs will need to be able to detect and respond appropriately to all of the complexity and diversity they may foreseeably encounter on London's streets. This includes people with a wide range of mobility, sensory and cognitive impairments alongside other pedestrians, mounted police, delivery mopeds, unmarked police cars, cargo bikes, tuk-tuks, e-scooters, e-skateboards, e-unicycles etc. and account for road users with varying levels of assertiveness (e.g. highly confident local, delivery and taxi drivers and regular commuter cyclists and pedestrians through to first-time visitors to London and nervous road users) and varying levels of rule compliance (e.g. road users crossing red lights, pedestrians crossing during the pedestrian red signal).

A particular challenge that AVs will face is resolving traffic situations that humans address by applying what would be regarded as 'common sense'. For example, in situations where there is a width restriction on a narrow street due to parked cars or temporary roadworks or where the traffic lights have failed at a junction, human drivers adopt an informal etiquette that allows traffic to negotiate the situation in a reasonably intuitive manner. Such human intuitions can be difficult for AV to manage. In some cases, developers may choose to seek assistance from remote human support staff to provide guidance over appropriate AV behaviours - but this needs to be achieved safely and in a timely manner to avoid excess delay to other road users.

AV developers have enabled vehicles to detect typical hand gestures from authorised personnel but where directions deviate from standard approaches (e.g. voice instruction from a police officer), remote assistance may be necessary.

A further example of a relatively common situation in London where human road users must respond intuitively is interaction with authorised personnel directing traffic (e.g. police officer, traffic management operative) or emergency responders at an incident scene. Again AVs will need to be able to negotiate such scenes correctly, especially when hesitation might delay urgent actions by the emergency services.

Interestingly, AVs are likely to be highly compliant with the rules of the road. This helps to promote road safety and means that pedestrians and cyclists may soon feel confident and comfortable sharing road environments with AVs. However, human drivers will need to be aware that AVs will be more compliant with speed limits than other human drivers and will be more likely to adopt the correct priority for vulnerable road users when turning from a major to a minor road. This may result in low severity incidents where human drivers unintentionally cause their vehicle to strike the AV due to their expectation that the AV will proceed when the AV makes the correct, rule- compliant choice to wait.

AVs have demonstrated their ability to operate successfully in complex cities around the world but London offers a different scale of challenge. Unlike many cities where road layouts remain relatively stable, London's highway network changes continually through roadworks, events, utility works and temporary traffic management. AV developers will therefore need to ensure that vehicles can respond safely to changes that may not yet be reflected in digital mapping. It is likely that AVs will make minor mistakes and it is also likely that these will receive excessive media coverage (regardless of whether the AV was truly at fault). However, it is important to note that AV developers will be continuously improving and developing their vehicles in response to challenges they encounter. It is reasonable to conclude that each day of AV operation will be the best there has ever been but also the worst they will ever be.

3. What impact would the introduction of autonomous passenger vehicles have in London? We are particularly interested to hear about the impact on:

- The Mayor's Transport Strategy targets, for traffic reduction, and increases in walking, wheeling, cycling and public transport
- Safety and public purpose of London's roads
- Children, older and disabled people
- Accessibility and passenger safeguarding
- Cybersecurity
- Londoners' transport choices and risk to public transport ridership numbers
- London's taxi and private hire industry, particularly jobs.

Many of the impacts described in this section are not inherent consequences of automated driving technology but will depend upon the regulatory framework within which services are deployed.

The Mayor's Transport Strategy

The Mayor's Transport Strategy (MTS) set out ambitious goals for safety, traffic reduction and modal share for active travel and public transport. At first glance, AVs - especially in the form of robotaxis - may seem contrary to at least some of these - if travel by an AV becomes cheap, convenient and accessible, it could attract travellers away from public transport or active travel modes and into cars. Furthermore, if single occupant cars represent one of the least space and energy efficient forms of transport, AVs offer a future where *zero* occupant vehicles could contribute to congestion - a far from attractive future. However, whilst these are possible outcomes, I believe they are not the probable outcomes - specifically because AVs are under the strict control of the companies that operate and these companies require consent from local authorities to continue operating. If AVs are causing transport outcomes that are contrary to the MTS, then authorities must be willing to withdraw consent for operation unless the situation improves. This is dependent on two key factors - firstly, local authorities must be able to objectively monitor the direct and indirect effects of AVs on transport in the city using appropriate metrics that assess the effect of AVs on progress towards the MTS (positive or negative). Access to these metrics may depend on a level of access to data from AV operating companies about their services and who must therefore be willing (or mandated) to share the necessary information. Secondly, the local authorities must be suitably empowered to be able to withdraw consent for operations if AV-based services are causing issues that are contrary to the MTS. In practice, I anticipate that this process will amount to ongoing negotiations between TfL, London boroughs and the AV companies over where, when and how AV-based services are going to be authorised. AV operators will seek to expand their services to enable higher revenue generation but any such expansion in vehicle numbers or operating area must be aligned to the needs of the city, its residents, visitors and businesses.

Safety and public purpose of London's roads

The UK regulatory framework is explicitly designed to ensure that AVs deployed on London's streets will deliver safe driving - indeed the Automated Vehicles 2024 requires that AVs "will achieve a level of safety equivalent to, or higher than, that of careful and competent human drivers". Evidence from Waymo indicates that their vehicles are substantially safer than human drivers completing similar trips to those completed by their AVs, with a 94% reduction in serious crashes in the specific context of their operations in US cities. That said AVs will not be perfect and incidents will still occur. These are likely to attract significant media attention (see Othman, 2021), especially in the early period of deployment. Furthermore, evidence suggests that the public judge incidents caused by AVs more harshly than those caused by human drivers (see Mayer et al., 2023). TfL will need to be able to demonstrate that they asked the right questions of those operating AVs to feel confident that they were safe to deploy, provide evidence as to why the crash occurred despite receiving satisfactory answers to those questions and show that actions are being taken by the necessary stakeholders to ensure such incidents will not happen in future.

It should be noted that it will be years before AVs are completing a significant proportion of trips on London's roads and so even though they may be significantly safer than human drivers, they may not lead to significant gains towards the Vision Zero goal in the MTS. However, the presence of even a small proportion of AVs on London streets may support better speed compliance by other vehicles, since rule-compliant AVs may prevent human drivers from exceeding the speed limit (see e.g. Borsos et al., 2024) - and this may promote improved safety for all.

A further consideration regarding the safety of AVs relates to equality. London is a dense, busy city with a wide variety of road users across transport modes. AVs must detect and respond to other road users in an equitable manner, accounting for a foreseeably wide spread across factors such as age, race, gender, dress, disability, vehicle type and driving behaviours.

The public purpose of London's roads is to help residents, visitors and businesses to achieve their mobility goals and to do so safely, efficiently and sustainably. This is reinforced by the objectives of the MTS. London offers some of the best transport options of any city in the world with bus, train, underground, taxi, DLR, river and even cable car options in addition to a variety of cycle and e-scooter hire schemes and a programme of development to create infrastructure that supports active travel mode. Against this backdrop and in the nearer term, AVs as robotaxis do not appear to offer a radical enhancement to London's travel options and are likely to serve as an alternative option to existing private hire services. However, once the technology is proven to work successfully, it is conceivable that more significant changes may take place with public transport services delivered by and integrated with AVs, where goods and services are delivered by AVs and where walking, wheeling and cycling have grown in popularity due to the safety and confidence vulnerable road users feel in the presence of AVs. This positive vision for how AVs can support the MTS will only develop if TfL can articulate and facilitate its emergence, working collaboratively with regulators, AV developers and operators and the communities that will be affected by AV deployment.

Children, older and disabled people

As noted above, AVs must be able to detect, predict and respond to the movements of pedestrians, including those of children, older and disabled people. Provided they are designed inclusively, AVs have the potential to support independent mobility for all these groups as a transport service. However, caution is advised as human drivers will often provide support for travellers with additional needs that would be lost in AVs.

Accessibility and passenger safeguarding

Passenger safeguarding represents a different aspect of the safety of an AV service and should be prioritised accordingly. An AV-based service has no human driver to assist passengers experiencing medical emergencies, harassment, antisocial behaviour or safeguarding concerns. AV operators should demonstrate how passengers can communicate with trained staff, how emergency services can gain access when required and how vulnerable passengers will be supported throughout their journey. Appropriate consideration should also be given to lone travellers, children travelling independently where permitted, and passengers requiring assistance when boarding or alighting. Maintaining public trust will require safeguarding arrangements that are at least equivalent to those currently expected of licensed taxi and private hire services.

Cybersecurity

Cybersecurity is also a safety issue. AVs rely upon complex software, communications systems and remote operational support, making resilience against cyber attack essential. The UK has well-developed regulatory requirements for vehicle cybersecurity and software updates and these should provide a strong baseline. Nevertheless, operators will need to demonstrate robust arrangements for monitoring, responding to and recovering from cyber incidents throughout the operational life of the service. Public confidence will also depend on transparency regarding how operational data are protected, who has access to vehicle information and how passenger privacy is safeguarded.

Londoners’ transport choices and risk to public transport ridership numbers

The effect on public transport is likely to vary depending on journey purpose, pricing and service design. If AV services offer low cost door-to-door travel, users may substitute journeys currently undertaken by public transport or active travel modes. However, with appropriate service design, AVs could strengthen public transport by improving access to stations, particularly during off-peak periods or in areas with lower levels of public transport provision. TfL can show global leadership by supporting the appropriate licensing, pricing and integration policies of AV services such that they complement rather than compete with the city’s public transport network.

London’s taxi and private hire industry, particularly jobs.

The introduction of AV services is unlikely to result in an immediate replacement of London's taxi and private hire workforce. Deployment is expected to occur gradually, beginning with limited operational domains and vehicle numbers. The impact is also likely to differ across sectors. Licensed black cabs provide a highly specialised service involving extensive local knowledge, accessibility and customer assistance, so may be less affected during the early stages of deployment. By contrast, some private hire journeys, particularly routine point-to-point trips, may be more susceptible to automation over time.

Rather than a sudden displacement of jobs, London is likely to experience a gradual transition in which some driving roles evolve while new roles emerge in fleet operations, remote assistance, vehicle maintenance, customer support and safety management. Policymakers should monitor these changes closely and ensure appropriate support for workforce transition where necessary.

4. What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?

The Mayor and TfL’s first priority must be safety. Whilst other government agencies (VCA, DVSA) will be responsible for assessing the safety of AVs, TfL must provide a local level of assurance and be satisfied that those assessments are sufficiently comprehensive in the London context - that the safety case put forward by AV developers to demonstrate the safety performance of their vehicles covers the foreseeable risks that their vehicles may encounter on the London streets in which they intend to operate. This should include dense pedestrian activity, high levels of cycling, complex junctions, buses, taxis, roadworks, emergency service interactions and frequent non-compliant road user behaviour. TfL should therefore expect operators to demonstrate not only that their vehicles comply with national safety requirements but that they can operate safely and appropriately within the specific operational design domains proposed for London.

TfL should also prioritise transparency and data sharing. Working with DVSA in its in-service monitoring role, TfL should receive key safety and operational data to enable monitoring of real-world performance, to identify emerging risks and to make evidence-based decisions about future deployment.

TfL should ensure that AV-based services complement London's wider transport objectives rather than undermine them. Licensing arrangements should incentivise integration with public transport, minimise unnecessary empty running and support accessibility objectives, rather than simply increasing the number of vehicle miles travelled.

With respect to regulatory powers, TfL’s consent for operation should empower restrictions relating to operating areas, hours of operation, vehicle stopping locations and requirements for data sharing and incident reporting. Importantly, withdrawal of TfL’s consent should be a rare

but effective means to suspend or withdraw permission for an AV service to operate where evidence indicates that a service is no longer meeting agreed safety or operational standards.
A key aspect of AV services will be pick up and drop off locations. TfL should also consider how AV services use kerb space to ensure buses, cycle infrastructure, pedestrian crossings or other road users are not obstructed.
Finally, engagement should be collaborative rather than adversarial. Operators possess valuable technical expertise, whilst TfL has extensive knowledge of London's transport network and its users. Early and ongoing engagement between both parties will be essential to ensure that AV services are introduced in a way that maintains public confidence and delivers genuine benefits to Londoners.

5. What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?

Evidence gleaned from other locations can provide strong indications of the likely outcomes that can be expected in London. This will include the likely safety benefits, what incidents may still occur and what new incidents involving AVs may be observed. Evidence from elsewhere may also show the likely migration of trips from private car, traditional private hire, public transport and active travel to AV-based services - and what steps might be put in place to manage this transition most effectively (e.g. AV companies subsidising trips to public transport hubs - see Riggs, 2026). It will also be possible to learn about governance of AV services - what data should TfL be collecting to assess the effectiveness of AVs and what levers can be pulled if these data show that AVs are not delivering the expected outcomes.
Where AV services have become established, the Mayor and TfL can also learn from the factors that have influenced public acceptance of such services. This will be a critical factor in the ultimate success of AV services in the city and, where TfL has confidence that AVs will support delivery of the MTS, they should help to foster the conditions that promote public acceptance of AVs.
Automated passenger services have the potential to contribute positively to London's transport system, but these outcomes are certainly not inevitable and negative outcomes are also possible. Success will depend on effective regulation, transparent safety assurance, close collaboration between operators and public authorities and a willingness to adapt policy in response to emerging evidence. London has an opportunity to become a global leader in the safe and responsible deployment of automated mobility, provided deployment remains focused on delivering public benefit rather than technology for its own sake.

Submission to London Assembly Transport Committee

Autonomous Passenger Vehicles in London - 26 June 2026

Background information about Road Safety GB

Road Safety GB is a national road safety organisation made up of representatives from groups across the UK, including local government road safety teams.
Our aim is to reduce the number and severity of road collisions – and by doing so to reduce loss of life and personal injury – by raising awareness of road safety and safer road user behaviour by providing training, advice, information, leadership, research, publicity, informed comment and other services to our members and other national and regional road safety stakeholders.

We work to promote a range of educational initiatives – often in partnership with other organisations – all of which are widely publicised to inform the national debate on road safety.

We also aim to inform and influence public opinion by making available information on the subject of road safety, working with other organisations to achieve shared goals. Road Safety GB also organises the annual National Road Safety Conference, runs training courses via the Road Safety GB Academy, owns and manages the Road Safety Knowledge Centre and publishes the national road safety newsfeed on our website.

Submission

Road Safety GB welcomes the opportunity to provide evidence to the Committee and is grateful for its work in this important area. We look forward with interest to the Committee's findings and recommendations following this scrutiny.

Road Safety GB recognises that many aspects of this inquiry fall outside our professional expertise, and we defer to organisations with specialist knowledge in those areas. However, we are able to provide evidence in response to two of the Committee's questions, with a particular focus on road safety.

Q4. What are the principal risks associated with autonomous passenger vehicles in London, and can they be mitigated?

Response

There are a number of high-level risks associated with the deployment of autonomous passenger vehicles, which can be broadly categorised as follows:

- Operating safely within London's complex urban environment.
- Interaction between autonomous and human-driven vehicles in mixed traffic.
- Weather and environmental conditions affecting vehicle performance.
- Public confidence and trust.
- Cybersecurity.
- Data privacy.
- Legal liability and accountability.
- Commercial and economic considerations.

London presents several specific challenges for autonomous vehicle operation, including:

- Narrow historic streets with restricted visibility.
- Large numbers of pedestrians crossing unpredictably.
- High levels of cycle traffic and extensive cycling infrastructure.
- Frequent roadworks and temporary traffic management arrangements.
- Heavy bus usage and complex junction layouts.
- Dense urban environments with tall buildings that may reduce the accuracy of satellite positioning and navigation systems.

These conditions make autonomous driving considerably more challenging than operation on motorways or in lower-density suburban environments and increase the complexity of safe vehicle operation.

Many of these risks can be significantly reduced, although they cannot be eliminated entirely. It is our understanding that autonomous vehicle systems have the potential to learn from aggregated operational data collected across large fleets operating in a wide range of scenarios. This collective learning could enable continuous improvements in system performance and safety beyond the experience available to any individual human driver.

Potential mitigation measures include:

- Restricting autonomous operation to clearly defined operational design domains, such as specified roads, weather conditions and times of day.
- Requiring manufacturers to demonstrate safety through extensive simulation and real-world testing in London before deployment.
- Designing vehicle behaviour to anticipate the actions of other road users and, where available, communicate with traffic infrastructure.
- Introducing autonomous vehicles through a phased deployment rather than widespread implementation from the outset.
- Independent regulatory oversight supported by regular safety audits.
- Mandatory reporting of collisions and significant safety-related incidents to facilitate industry-wide learning.
- Robust cybersecurity requirements throughout the vehicle's operational life.
- Clear regulatory requirements for software updates, post-deployment monitoring and ongoing safety assurance.

Q6. Are there any benefits that autonomous passenger vehicles could offer in London, and how likely are those benefits to be realised?

Response

Autonomous passenger vehicles have the potential to deliver a number of benefits, including:

- Potential reductions in road collisions by reducing incidents arising from human error, subject to the systems demonstrating consistently high levels of safety in real-world operation.
- Improved accessibility and mobility for people who are unable to drive because of age, disability or other factors.

- Enhanced safety in certain operating conditions, such as night-time driving, where advanced sensing technologies may perform better than unaided human vision.
- Potential reductions in congestion if autonomous vehicles are widely deployed as shared mobility services. However, if autonomous travel becomes more convenient or less expensive, this may encourage additional journeys and offset some of the potential efficiency gains.
- Reduced demand for parking if vehicles are shared between multiple users and remain in service for a greater proportion of the day rather than remaining parked when not in use.

London also offers several characteristics that may support the successful deployment of autonomous passenger vehicles:

- High and consistent demand for passenger transport throughout the day.
- Extensive digital and telecommunications infrastructure.
- A highly managed and regulated road network.
- Advanced traffic management systems.

The extent to which these benefits are realised will depend on a range of factors, including the maturity of the technology, public acceptance, the effectiveness of the regulatory framework, the deployment model adopted, and the degree to which autonomous vehicles are integrated with London's wider transport network rather than replacing or competing with public transport.

End.

RNIB

See differently

Call for Evidence: Autonomous Passenger Vehicles in London

Question 3: What impact would the introduction of autonomous passenger vehicles have in London?

RNIB has recently been conducting research into blind and partially sighted people's attitudes about autonomous passenger vehicles. This includes focus groups held in November 2025, and a survey launched in May 2026. Although the survey is still ongoing, we have received 176 responses from blind and partially sighted people and can share our initial findings. Once the survey is closed, we will share our final analysis with the Committee.

The safety of autonomous passenger vehicles is of paramount importance. Blind and partially sighted people have several safety concerns about using autonomous passenger vehicles and sharing the street environment with them.

Using autonomous passenger vehicles

While 27 per cent are 'very likely' to use an autonomous passenger vehicle if available, most blind and partially sighted people (53 per cent) would prefer a human-operated taxi over a self-driving one.

The familiarity, support and reassurance provided by human taxi-drivers strongly contribute to this preference. Many blind and partially sighted people emphasised the challenges that unfamiliar journeys pose and how they rely on assistance from human-taxi drivers during their journeys.

For those blind and partially sighted people open to booking a ride in a self-driving taxi, the most pressing concerns are around the first and last few metres of the journey. Blind and partially sighted people have told us that they are unsure about how they would identify and locate the taxi they've booked and navigate to their intended destination once the car drops them off.

Research carried out for the UK Government's Centre for Connected and Autonomous Vehicles [1] found 66 tasks that human drivers of buses and taxis currently perform beyond those related to operating the vehicle. It was determined that some of these tasks are currently difficult or impossible for automated systems to perform. This includes assisting passengers into and out of the vehicle. Other tasks were deemed feasible but must be co-designed with disabled people, including blind and partially sighted people, to ensure they are effective.

Before being able to use an autonomous passenger vehicle, users must first book a ride. This booking process must be accessible, otherwise it will exclude blind and partially sighted people. Autonomous passenger vehicle companies operating in other countries exclusively use smartphone apps for ride booking. These apps must be compatible with assistive technology, like screen readers. We are pleased to see that Waymo has ensured its app is screen-reader compatible.

There is, however, a high proportion of blind and partially sighted people who are digitally excluded. RNIB research conducted in 2023 found 28 per cent of blind and partially sighted people never used the internet or did not have access to it, in comparison to 4 per cent of non-disabled people. As autonomous passenger vehicles can only be booked via smartphone apps, this demographic will be completely excluded from accessing their services.

Sharing the street environment with autonomous passenger vehicles

Safely navigating in the vicinity of a self-driving vehicle is also a concern for blind and partially sighted people. Individuals can choose whether to use autonomous passenger vehicles but will have no choice about sharing the street environment with them. The vehicle's ability to identify vulnerable pedestrians is important to people with sight loss, particularly vehicles being able to accurately detect and respond to mobility aids and people who have had to walk into the road to avoid obstacles. RNIB research has found that 92 per cent of blind and partially sighted people have had to do this to get around obstructions on the pavement.

Blind and partially sighted people are also concerned about the audibility of autonomous passenger vehicles. Like other electric vehicles, self-driving vehicles are silent without added sound, meaning blind and partially sighted people can't reliably detect them. From 1 July 2021, all new electric and hybrid road vehicles registered in the UK must have

AVAS (an Audible Vehicle Alert System) installed to generate a sound, but there is no requirement for older vehicles to be retrofitted with such a sound. There is the further issue of whether just over 12 mph (20 kph) is the right speed for AVAS to stop emitting sound. Many town and city speed limits in the UK are 20 or 30 mph, and it is likely that vehicles moving between 13 and 30 mph may not generate enough tyre resistance to be reliably audible (EBU, 2019). The need for AVAS at higher speeds has already been acknowledged in the US, where sound emission is required for speeds up to 18.6 mph (30 km/h).

[1] Automated passenger services: researching driver roles and passenger inclusivity (Accessed 18 January 2026)

Question 4: What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?

The Mayor and TfL should request clear evidence from operators that their vehicles can operate safely around vulnerable pedestrians, including blind and partially sighted people, prior to a pilot beginning. This evidence should include the effectiveness of sensor technology used to determine when to stop for pedestrians, as well as mobility aids such as guide dogs or white canes. If this evidence is not provided, the Mayor should have the power to reject the pilot project.

SMMT DRIVING THE MOTOR INDUSTRY

SMMT response to London Assembly Transport Committee call for evidence on Autonomous Passenger Vehicles in London

INTRODUCTION

1. The Society of Motor Manufacturers and Traders (SMMT) is one of the largest trade associations in the UK, supporting the interests of the UK automotive industry at home and abroad. SMMT represents more than 850 member companies, including all major vehicle manufacturers, automated driving technology developers, component and system suppliers, the aftermarket, services and engineering firms, and technology and mobility start-ups.

2. The automotive industry is a vital part of the UK economy, integral to growth, the delivery of net zero and the UK as a global trade hub. It contributes £92 billion turnover and £25 billion value added to the UK economy and invests £5 billion annually in R&D, with 183,000 people employed directly in manufacturing and some 796,000 in total across the wider automotive industry. Many of these automotive manufacturing jobs command wages that are 8% higher than the UK average. The sector accounts for 12.6% of total UK exports of goods with more than 140 countries importing UK produced vehicles, generating £115 billion of trade in total automotive imports and exports. The UK manufactures almost every type of vehicle, from cars and vans to taxis, trucks, buses and coaches, as well as specialist and off-highway vehicles, supported by more than 2,500 component suppliers and some of the world's most skilled engineers. The UK is also home to four automated driving technology developers. In addition, the sector has vibrant aftermarket and remanufacturing industries.

3. Our report shows that automated vehicles could deliver as much as £66 billion of economic impact per annum to the UK by 2040, while on-road automated passenger services alone could be a market worth £3.7 billion per annum. We welcome the opportunity to respond to this call for evidence on behalf of the UK automotive industry. We set out below the consolidated and harmonised response of our members and welcome further engagement with the London Assembly Transport Committee, the Greater London Authority and Transport for London on this subject.

4. As a summary, automated passenger services, particularly the ride-hailing type, are close to deployment in London following extensive testing, trialling and validation, and subject to technology developers and operators obtaining the necessary regulatory clearance and permit. We believe automated passenger services are compatible with the Mayor’s Transport Strategy targets for traffic reduction as these services are likely to lead to a reduction in private car ownership or use in London. They are also expected to contribute to road safety improvements, the widening of access to mobility for the elderly and disabled, and the creation of new jobs and economic growth in London. We believe the Mayor and Transport for London should engage constructively with industry within an already well-defined legislative framework, focusing on

alignment with the Mayor's Transport Strategy while recognising that safety regulation and service permitting remain a national responsibility.

RESPONSE TO CALL FOR EVIDENCE QUESTIONS

Question 1: How close are autonomous passenger vehicles to becoming a reality in London?

5. There are three foreseeable automated vehicle applications. We set these out, along with their potential high-level use cases, in the table below. That which this call for evidence refers to as "autonomous passenger vehicles" are better understood to be **automated passenger services (APS)**, a term that we shall use hereafter in our response to this call for evidence.

Automated vehicle applications

Applications	Personal passenger cars fitted with automated driving features	Automated passenger services	Automated delivery, logistics and industrial vehicles
Human presence in the driving seat Exceptions	• Primarily intended to be used with a driver (**user-in-charge**) • Automated Valet Parking	• Primarily intended to be operated without a driver (**no user-in-charge**)	• Primarily intended to be operated without a driver (**no user-in-charge**) • Some trucking/logistics operations
Operations		• Services/operations run by an **operator** • Could include some form of remote driving • Could include on-board assistants	• Services/operations overseen or run by an **operator** • Could include some form of remote driving • Could include on-board assistants
Examples of high-level use cases and sectors	 • **Automated Lane Keeping System** (low and/or high speed, motorway only) • Advanced **highway pilot** (high speed, motorway only) • **Urban** traffic pilot • **Automated Valet Parking**	 • Self-driving **pods**, **shuttles**, **robotaxis**, **buses** and **minibuses** for on-demand ride-hailing or scheduled services. • **Off-road** services for on-demand ride-hailing or scheduled services; could be in public spaces (e.g. university campus) or on private land (e.g. factories, resorts)	 • Adapted vans or bespoke light commercial vehicles for urban and/or last mile **goods deliveries.** • Trucks, vans or adapted heavy duty vehicles inter-urban, middle mile and/or port-to-hub/depot **logistics.** • **Specialist off-road** logistics and industrial vehicles; most likely on private land (e.g. construction sites, airports, ports, factories, quarries, mines, farms)

All images used solely for illustrative purposes only. Other brands are available.

6. London has a long history of automated vehicle testing, trialling and feasibility studies dating back to the very first project called GATEway in Greenwich which began in 2015. This was followed by other notable projects including StreetWise and MERGE Greenwich.

7. More than a decade of experience and learnings later, following the laying of the Automated Vehicles (Permits for Automated Passenger Services) Regulations 2026 on 23 April 2026 – the Statutory Instrument that then came into effect on 15 May – we believe the ride-hailing use case within the wider APS application is most likely to be the first where automated vehicles will be deployed in London. Based on public announcements, such as those by Waymo,[1]

[1] Waymo's forthcoming deployment in London is expected to be its first outside the US, while it has also announced its intention to deploy with partners in Japan.

Wayve-Uber[2] and Baidu-Uber/Lyft, APS are close to becoming a reality in London. At the time of writing, the aforementioned technology developers and their operator partners have either begun or will shortly begin testing and trialling in London.

8. Some technology developers and operators may in the first instance deploy these commercial automated ride-hailing services with a safety driver behind the wheel, while others that are ready may offer these services in completely driverless mode. However, the latter will only be able to do so upon stringent assessment by the Vehicle Certification Agency (VCA) that culminates with the issuance of a Vehicle Special Order and the listing of the automated vehicles under the Automated and Electric Vehicles Act 2018.

9. Beyond ride-hailing, other important forms of APS such as demand-responsive shuttles, including of the ride-pooling variety, and fixed route bus services may also be deployed in London in the future, subject to local consent and the approvals and permits under the Automated Vehicles Act 2024.

Question 2: How will autonomous passenger vehicles navigate London's complicated road network?

10. Operators of APS will clearly set out the intended geographical operating areas within London for which an APS permit is sought. It is expected that operators and Transport for London (TfL) will discuss any specific areas or roads where an APS should not operate, either due to existing access restrictions or other reasons, as part of the pre-application engagement that ultimately leads to consent being given for the APS permit application and any associated permit conditions.

11. Technology developers have technological solutions at their disposal to ensure automated vehicles thoroughly learn and understand how to navigate and adapt to changes in London's complicated road network. Some may use high-definition maps as a basis for machine learning and will therefore thoroughly map the entire road network within the intended operating areas. Others may use end-to-end artificial intelligence solutions that are able to learn just as effectively without relying on maps. In any case, technology developers and their operator partners will have conducted extensive testing and trialling with a safety driver behind the wheel and subjected the automated driving system to a robust validation process before launching their driverless commercial services. In other words, the automated driving system is expected to have learned London's complicated road network, its traffic norms and its reasonably foreseen vagaries before being rolled out on public roads. The system will also constantly adapt to changes in the road network. The form factor of automated vehicles that will be deployed in London will take into account the nature of London roads to ensure they are suitable for the size, structure and design of the local built environments.

[2] Wayve has also announced its partnership with Uber and Nissan to deploy robotaxis in Tokyo and with Uber and Stellantis to develop and deploy driverless mobility services that can scale globally.

12. The government has a well thought through and robust regulatory procedure in place. The current regulations and those that are being developed under the Automated Vehicles Act 2024 have been widely consulted with industry, stakeholders, experts and the public going as far back as the Law Commissions' regulatory review that began in 2018. Ultimately, automated vehicles that are unsafe, or incapable of safely navigating London's complicated road network, will not receive a Vehicle Special Order and be listed under the Automated and Electric Vehicles Act 2018 under the pilot scheme or be approved and authorised under the Automated Vehicles Act 2024 once the full regulatory framework is in place by the end of 2027. In addition, the operator is also unlikely to receive an APS permit.

Question 3: What impact would the introduction of autonomous passenger vehicles have in London? We are particularly interested to hear about the impact on:

- **The Mayor's Transport Strategy targets, for traffic reduction, and increases in walking, wheeling, cycling and public transport**
- **Safety and public purpose of London's roads**
- **Children, older and disabled people**
- **Accessibility and passenger safeguarding**
- **Cybersecurity**
- **Londoners' transport choices and risk to public transport ridership numbers**
- **London's taxi and private hire industry, particularly jobs.**

13. Automated vehicles are widely expected to enhance road safety, chiefly by eliminating human error from the dynamic driving task. Government's own statistics show that 88% of all recorded collisions on roads in Great Britain in 2020 involved human error as a contributory factor. Modelling that we commissioned shows that automated vehicles could potentially save 3,900 lives and avert 60,000 serious accidents on our roads between now and 2040.

14. Evidence from real-world deployment strengthens the road safety credentials of the technology, as automated vehicles have already proven to be safer than human drivers. A study comparing automated vehicles with human drivers over 56.7 million miles where one technology developer's automated ride-hailing services operated in three American cities shows a 92% reduction in crashes involving injuries among pedestrians, 82% with cyclists and 82% with motorcyclists. There were also 96% fewer intersection crashes involving injuries.

15. Prior to that, one of the world's leading reinsurers published a study showing automated vehicles were significantly safer than human-driven ones, with bodily injury claim frequency down by 100% and property damage claim frequency reduced by 76% in the 3.8 million miles of commercial operations of the same automated ride-hailing service in two major cities then.

16. APS are compatible with the Mayor's Transport Strategy targets for traffic reduction as these services are likely to lead to a reduction in private car ownership or use in London. Evidence already shows that the availability of human-driven ride-hailing services, which are likely to be the earliest iteration of APS in London, has led to an approximately 2.2% reduction in overall

vehicle numbers in London, while 28% of Londoners who previously owned a car cited the availability of ride-hailing apps as a reason they gave it up. With the recent withdrawal of car club operators from London, it is vital that APS is seen as an important mobility option for Londoners to get around conveniently without needing to resort to private car ownership or use. In addition, APS can also be complementary to public transport by connecting areas currently underserved by public transportation and providing first- or last-mile mobility to existing public transport hubs.

17. APS operators are expected to provide real-time passenger support, including communicating with passengers, maintaining a reliable 24/7 support call centre and dispatching teams to provide general or accessibility assistance if necessary. They are also expected to publish their accessibility policy on their website. As required under Section 87(4)(a) of the Automated Vehicles Act 2024, APS operators must publish reports about the steps they take to meet the needs of older or disabled passengers. Operators are expected to implement a variety of solutions that are proportionate to demand and yet meet the myriad needs of older and disabled passengers. For example, some commercially deployed automated ride-hailing services today already include accessibility features such as in-vehicle verbose audio cues, screen reader support, adaptive navigation to the vehicle (with haptic phone vibrations for those with low vision), purpose-built vehicle sounds and the option of having a human assistant in the vehicle to help wheelchair users or elderly passengers.

18. Just as with accessibility, APS operators are expected to publish their safeguarding policy on their website. In addition, as required under Section 87(4)(b) of the Automated Vehicles Act 2024, operators must publish reports about the steps they take to safeguard passengers. These may include confirmation that passenger-facing staff are subject to enhanced Disclosure and Barring Service checks, staff training, measures to prevent assault or abuse, emergency contact, incident reporting procedures and complaint resolution processes.

19. Insofar as automated vehicles and the automated driving system are concerned, UN Regulation 155 on Cyber Security Management Systems and Regulation 156 on Software Update Management Systems provide a comprehensive, risk-based framework for managing cyber security and software updates for all vehicles, including automated vehicles, and already require vehicle manufacturers to assess and mitigate risks across all automated driving functions, with assurance provided through independent type approval bodies. This avoids the need for prescriptive, function-specific controls that could quickly become obsolete, constrain innovation or create fragmentation across markets. We believe these regulations remain appropriate and sufficiently flexible for regulating automated vehicles to ensure comprehensive protection against emerging, large scale automated vehicle-specific cyber threats.

20. As alluded to in paragraph 3 above, our report suggests automated vehicles are expected to deliver significant impact to the UK economy. The UK market for on-road APS alone could be worth £3.7 billion per annum by 2040. Central to the economic impact is the creation of an estimated additional 342,000 jobs in the economy, many of which will be in sectors adjacent to automotive, such as fleet management and servicing, safety management and compliance, and passenger service operations. For example, many new jobs have already been created in

recent months as technology developers and their operator partners prepared to launch services in London.

Question 4: What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?

21. The Mayor and TfL should welcome engagement with industry, particularly with technology developers and their operator partners who will be seeking to hold discussions before they submit an APS permit application. Government has published very clear and reasonably comprehensive guidance for local authorities and transport bodies, prospective APS permit applicants and first responders. It is vital that the Mayor and TfL carefully study the guidance in advance of engaging with operators, so that discussions can constructively focus on the key aspects set out in the guidance that are designed to inform the consenting process. The Mayor and TfL should, as a matter of course, assess how the proposed APS align with the Mayor's Transport Strategy, but should approach the engagements with an open mind for promoting innovation, improving road safety and widening access to mobility for all Londoners, particularly the elderly and disabled.

22. Powers to regulate the sector are very clearly and adequately set out in legislation. Section 82(1) of the Automated Vehicles Act 2024 sets out that the power to grant an APS permit resides with the appropriate national authority. Insofar as the service provision is in England, Section 90(4)(a) sets out that the appropriate national authority is the Secretary of State. Following consultation and as now set out in guidance, the Driver and Vehicle Standards Agency (DVSA) will be the executive agency acting on behalf of the Secretary of State in considering applications, requesting local consent, granting APS permits and imposing permit conditions. Wider plans currently under consultation for the development of secondary legislation under the Automated Vehicles Act 2024 are for the DVSA to also act as the In-Use Regulator, while the VCA will be responsible for automated vehicle approval and authorisation.

23. However, consent must be obtained from the Mayor and TfL for the national authority to grant an APS permit for services in London resembling taxis or private hire vehicles, as set out in Section 85, and for services in London resembling buses, as set out in Section 86. The interpretation of these is also clearly set out in Regulation 2 of the Automated Vehicles (Permits for Automated Passenger Services) Regulations 2026.

24. The role of the Mayor and TfL as a consenting authority is an important one. The consenting process may consider the proposed APS and provides an opportunity for the consenting authority to set out what considerations may inform their decision on consent. While legislation does not specify the criteria on which consent must be considered, it is expected that the Mayor and TfL will consider alignment with the Mayor's Transport Strategy, the adequacy of stakeholder engagement undertaken by the APS applicant, details concerning the automated vehicles that will operate on London roads, and the operational and passenger service details.

25. **Powers to regulate the safety of automated vehicles, however, are a matter for the designated national authority**, not the consenting authority. Safety determinations for an automated vehicle are based on technical regulations and made by the VCA, either for the granting of a Vehicle Special Order and listing under the Automated and Electric Vehicles Act 2018 in the interim, or for the approval and authorisation of automated vehicles under the full Automated Vehicles Act 2024 regulatory regime in the future. When they are deployed on London roads, automated vehicles will eventually be regulated through an In-Use Regulatory Scheme by the DVSA, which will also be the regulator monitoring APS permit holders' compliance with permit conditions. We are content for these arrangements that are already set out in legislation and well understood by industry to be maintained and believe they should be respected by all parties.

Question 5: What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?

26. As mentioned in paragraph 6 above, useful lessons can be learned from several part-publicly funded automated vehicle projects in London over the past decade. International deployments of automated vehicles have thus far been most prominent in the US, China and the Middle East. The most common use cases include ride-hailing, shuttles and buses. Rather than relying strictly on prescriptive requirements, international deployments have embraced a rigorous safety case approach implemented by manufacturers, technology developers and operators. While every location has its own unique characteristics, local norms and road user behaviours, one of the most important aspects of a safe, responsible and successful deployment in any location in the world where APS have been deployed is the **close collaboration between industry and the local authority**.

27. Many lessons from trials and deployments in other jurisdictions had been factored into the Law Commissions' extensive four-year regulatory review and public consultations between 2018 and 2022, culminating with recommendations that formed the basis of the Automated Vehicles Act 2024.

28. Whereas in the European Union, the implementation of legislation on automated vehicles, specifically EU 2022/1426, has faced practical challenges in real-word trialling across member states, especially regarding cross-border operations. This has resulted in an attempt to develop a code of practice for road testing and to establish a harmonised admission procedure for test operations of automated vehicles on public roads. In this regard, Britain has long been a frontrunner and a leading location for the trialling of automated vehicles, as our Code of Practice for Automated Vehicle Trialling, an invaluable guidance for the many trialling projects that have taken place all over the country in the past decade, was first published in 2015 and has been updated several times since.

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26 June 2026

Transport Committee Call for Evidence: Autonomous Passenger Vehicles in London

This evidence is provided by Prof Siraj Shaikh, who is a Professor in Systems Security at Swansea University. Prof Siraj Shaikh is an active researcher in the area of cyber-physical systems security for over 25 years, and has been addressing cybersecurity-related challenges in the automotive industry since 2010. With over a hundred peer-reviewed scientific publications in the area of cybersecurity, he is uniquely positioned to provide evidence on aspects of supply chain economics, systemic risk, and aspects of digital sovereignty and national security in this sector. He has previously been a Royal Academy of Engineering (RAEng) Industry Fellow to HORIBA MIRA (2015-16), addressing automotive cybersecurity, and an EPSRC-NCSC RITICS Fellow at Imperial College London, addressing the economics of CNI security and protection. He is currently also a Member of the College of Experts, both at the Department for Transport (DfT) and at the Department of Science, Innovation and Technology (DSIT). Siraj Shaikh chairs the Security WG of the Global Automotive Advisory Council (GAAC) of SEMI Europe, which is the world's largest industry association for semiconductors and electronics.

The evidence provided to the questions stated below is drawn from a selection of research papers authored and co-authored by Prof Siraj Shaikh with members and collaborations of his Systems Security Group (SSG) at Swansea University.

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What impact would the introduction of autonomous passenger vehicles have in London? We are particularly interested to hear about the impact on "cybersecurity".

Much of the cybersecurity risk assessment conducted during the design and engineering of modern automotive vehicles is limited to impact on the body and occupants of the vehicle itself (with little regard for the traffic around it). It is important however, to consider systemic risks on the road network, where the risk arising out of a collision caused by a cyberattack on a single vehicle could have cascading effects on other traffic.

Our research [2] has studied this using *"a simulation framework for automotive cybersecurity risk assessment"*, where we have studied these effects for a road network with heavy traffic flows, including for intersections (road junctions), commonly found in urban areas, and higher speed routes, such as A-roads and dual-carriageways, both of which are found in London with dense traffic flows. There are two types of impact including *safety impact*, which may lead to collisions causing injury or loss of life, along with material loss, and, *operational impact*, in terms of slower speed, congestion, and disrupted traffic. Both types of impact also contribute to loss of time and productivity, along with possible increased carbon emissions. Our paper finds that *"cyber threat-induced incidents consistently and significantly reduce vehicle speeds, thus influencing traffic flow dynamics."*

Our research [2] has been conducted in deep collaboration with the Institute of High Performance Computing (IHPC), part of the Agency for Science, Technology and Research (A*STAR) in Singapore, who are a world leader in advanced urban mobility modeling and city-wide traffic simulation inspired by the urban traffic challenge a city like Singapore poses. This inspires confidence in our findings and our scientific method to study such problems.

Our research paper [2] also finds that *"the complexity of road transport systems and the unpredictable nature of traffic flows present significant challenges for conducting empirical studies on the impacts of cyber threats on connected infrastructure….As connected vehicles become increasingly integrated into our transportation infrastructure, the need for sophisticated cybersecurity measures becomes more critical."*

Our recommendation is that systemic and cascading risks arising out of disruptions due to possible cyberattacks are modelled and understood for London, so that countermeasures could be explored and, in response, interventions in traffic flows and patterns, junction and intersection control, and other aspects of coordinated response and recovery could be resourced. Overall, such understanding would enable London to stay resilient in the face of cyberattacks on any network of autonomous passenger vehicles.

What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?

Our research [1] *"addressing the economics of critical national infrastructure (CNI) security"* attempts to study the problem of security for such infrastructure - where we would consider a transport service to a major city such as London as critical - through the lens of economics aiming for the *"removal of perverse economic incentives to create insecure systems"*.

We propose that any economic consideration of the security of such infrastructure should design and operate such systems to be economically viable and sustainable for operators, system integrators, suppliers and users and, as such the ecosystem has to address features and behaviours associated with technology used in infrastructure (which are often bespoke proprietary components integrated vertically). Ultimately, such design and operation should enable a regenerative economy (as opposed to extractive) in terms of cybersecurity knowledge and innovation, talent and skills, and societal and environmental impact, so that it remains sustainable and sovereign.

Another consideration is with respect to corporate financing, given that manufacturers, suppliers and operators in this sector are equally subject to external financing and investment. Our research finds that *"the way organisations govern resources is underpinned by their capital structure. CNI operators in the private sector are exposed to shareholder interest and rent seeking. While the role of regulators is key to protect public interest, this is not a straightforward proposition, as "when the contested relations that underpin private infrastructure finance are unpacked, the impossible tensions of the state* *regulator, required both to ensure that investments generate returns and to protect the public interest are revealed. Regulatory interventions fail to limit rent capture by private finance as it roams the terrain of essential service provision."*

Any power sought to regulate such a sector ought to be able to intervene in aspects of finance, investment and associated governance to an extent where public interest and digital sovereignty need to be important considerations; recent legislation such as the National Security and Investment Act 2021 (NSIA 2021) is a welcome instrument in this regard.

Our other related research [5] has investigated *drivers and barriers for secure hardware adoption across ecosystem stakeholders*, particularly focused on secure hardware and solutions typically needed for the automotive sector. Such secure components are critical to mitigating risks arising from cybersecurity threats, along with preserving digital sovereignty for the UK.

This research [5] has important insights for enabling a viable economy of development and adoption of security in such systems and has been cited by the UK's National Semiconductor Strategy 2023 [4], which used the evidence provided in our research to acnowledge that "there are limited market factors to push chip designers and manufacturers to improve the security of the chips they create, beyond government mandated regulations and external standards", along with noting "that semiconductor business leaders conclude that hardware security tends to only be prioritised as a result of compliance or regulatory needs, rather than pursued as an independent end-goal".

The research [5] engaged several industry and technology leaders, many of them working in the automotive sector, to find that compliance and standards are *"a main driver for adoption of secure hardware, and development of standards ought to persist given that they are not yet mature. The activity of developing standards may also benefit from finding commonalities across emerging hardware standards"* to allow for a viable economic case for adoption for developers and manufacturers.

The research [5] also made a case for effective articulation of "*switching costs and leverage existing skills. It would aid the adoption of new hardware to find overlaps between existing and new skills in the development of solutions on top of the hardware, as developers also need to have sufficient support to leverage the features of new hardware*".

Our recommendation is for the Mayor and TfL to have the powers to encourage the adoption of secure components, design practices and standards across the automotive supply chain. They may also use access to market as a key enabler for articulating the advantages and benefits of such adoption for the sector, which in turn helps with adoption through the sector's supply chain.

What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?

Trials and deployments are ideal opportunities to understand the different operating scenarios for such vehicles, where cyber attacks may cause what impact, and what interventions and responses would be most effective. Our research in cybersecurity-related crisis simulations has studied small autonomous delivery pods, albeit operating in an urban scenario and interacting with other road users and pedestrians.

Our research [3] set out to use *“a scenario-based approach to assessing organizational cyber-risk perception”* for *“executive decision-makers”*. The primary objective for our work was to understand whether senior leaders and risk owners understand the nature of cybersecurity risks and respond to it proportionately and effectively. The scenarios challenged the organisational leaderships with risk externalities (in terms of who and what is directly and evidently affected beyond the immediate operator of such vehicles), stakeholder management (in terms of who to engage at various points of a crisis situation), anticipated risks, and uncertainty factors.

One of the relevant findings from our work [3] is where our *“participants noted that local and national governments would be contacted as soon as public spaces were affected … where attribution of incidents is a critical deliberation that is distinct from communication of information about such incidents.”*

Another finding revealed that there is *“a shift of decision-making around risk ownership….at different stages of progression there would be a different view of (risk) ownership.”*, where the progression refers to escalation in the scenarios presented.

Both these findings have important implications for the Mayor and TfL, along with other relevant agencies. The nature of risk to the public and infrastructure posed by such vehicles in case of a cyber-related incident has to be better understood, needing proportionate resources and response planning. Thereafter, in case of an incident, the coordination and communication needed alongside vehicle service operators have to be planned for and protocols agreed on.

References

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[5] A. Tomlinson, S. Parkin, S. A. Shaikh, “Drivers and barriers for secure hardware adoption across ecosystem stakeholders,” Journal of Cybersecurity, Volume 8, Issue 1, 2022, https://doi.org/10.1093/cybsec/tyac009

Written response to London Assembly Transport Committee's call for evidence: Autonomous Passenger Vehicles in London.

Submitted by Dr Alan Walker, Business Manager, Syselek (UK) Ltd., 26/06/2026.

About Syselek (UK) Ltd.

Syselek provides expert independent engineering services to the automotive industry and automated vehicle sector, and advises wider stakeholders on automation. (More information available at https://www.syselek.com/.)

5. What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?

Terminology

The committee is strongly advised to recognise vehicle industry norms, and the work done on protected terms and legal definitions in the AV Act, and therefore adopt the terminology of "Automated Vehicles" (AVs), rather than "Autonomous Vehicles". "Autonomy" falsely implies that AVs have free will, self-awareness, and independent decision making. "Automation" more accurately reflects a programmed driving system operating with human supervision. The Society of Automotive Engineers strictly uses "Automated" to avoid overstating the capability of AV technology.

Safety regulations

Aside from road design, vehicle safety improvements to date have been achieved through automotive technical regulations, which mandated safety features (initially passive, and later active). Existing European regulations for human-driven vehicles mandate advanced driver assistance systems (otherwise known as "Partial Automation") preventing incidents and protecting other road users. The committee may recognise that while the UK is yet to adopt these regulations, manufacturers sell their European-compliant vehicle models in UK to avoid additional cost of variants, therefore the committee can reasonably assume that any claimed safety benefits from AVs (e.g., eliminating human errors) will already be achieved through existing automotive technical regulations for human-driven vehicles.

The regulatory framework adopted by UNECE outlines the key themes of safety assurance of an AV. The framework defines these themes at a high level. Assurance agencies are left to interpret the implementation of these themes. Through the AV Act secondary legislation, the UK's safety assurance framework will be based on the statements of safety principles, which are yet to be agreed. However, aside from these emerging frameworks, which will no doubt mature through experience, the committee should be aware that for the foreseeable future all deployments are essentially pilots.

Safety evidence

Published safety evidence concerning ride-hailing AVs is sparse, mainly from deployments in US cities where the road safety baseline is notably worse than UK. However, the committee is encouraged to evaluate this limited existing evidence at a vehicle level alongside evidence at a road transport system level. Specifically, evidence published by AV developers (e.g., by Waymo) indicates a reduction in unsafe incidents when the ego vehicle is an AV compared with human drivers. Meanwhile, analysis published independently (e.g., by Duke University) suggests AVs cause more unsafe incidents for other road users when compared with human drivers, most notably due to unexpected behaviour.

The release of recorded data from existing ride-hailing AV operators has been limited. Obtaining in-service monitoring and incident investigation data has often been delayed (impacting insurance models), and sometimes incomplete or uninterpretable by public agencies or third parties. The data collection requirements suggested for the AV Act are rather high-level. Furthermore, the public agencies will need to develop detailed plans to upskill their analysis capabilities. The committee is advised to consider that in-service monitoring, incident investigation, and wider stakeholder learnings will be somewhat limited in the current state of data release requirements and compliance.

Predicting safety outcomes

Ride-hailing AVs have been introduced as new additional services, rather than replacement services. The committee should appreciate that where ride-hailing AVs have been deployed, the vehicles have added to the numbers of vehicles and vehicle miles (on average double the daily mileage of human-driven ride-hailing vehicles). Extrapolating the existing evidence does not suggest that ride-hailing AVs will positively impact London's Vision Zero transport strategy.

The variety of road types in London is wider and more complex than the road networks at locations overseas where ride-hailing AVs have already been deployed. Current deployments in China (and the early deployments in US cities) are very constrained to limited geographical areas (i.e., specific streets within neighbourhoods). The committee is therefore encouraged to avoid general reference to "London roads", but rather to differentiate between the many road types that exist in London neighbourhoods and the different challenges each present to ride-hailing AVs. The AV industry uses the term “Operational Design Domain” (ODD) to describe the circumstances where an AV may be deployed (roads, environment, road users, etc.). The committee should encourage TfL and London boroughs to develop detailed ODD descriptions before considering locations where AVs might be deployed.

Remote supervision

AVs cannot operate without human supervision. Current deployments of ride-hailing AVs are remotely supervised by humans, sometimes from low-cost countries. The committee should appreciate that this activity is far from standardised between ride-hailing AV operators. Discrepancies include: the remote supervisor’s precise role, training and qualifications requirements, the number of AVs supervised by one remote supervisor, the familiarity of the remote supervisor with the deployment location and local norms (e.g., driving patterns, blue-light interactions, etc.), and the liability laws of the jurisdiction where the remote supervisor sits.

The committee is also reminded that remote supervision requires connectivity to the vehicle, mostly via cellular networks. Since several parts of London suffer poor or no connectivity, the committee should ensure connectivity availability is included in the ODD descriptions mentioned previously.

Non-driving driver tasks

In the case of AVs providing public passenger transport services, passenger safeguarding questions persist. A new role of bus captain has emerged, which is similar to the bus conductor role of the last century. There is some research on this topic, but the committee is encouraged to highlight to TfL a need for further research going forward.

Municipal administration

European research has found an overwhelming general public perception that municipal authorities must have confirmed AVs are safe if they are allowed on public roads. However, as with deployments in several cities in US and China, the approval and licencing of ride-hailing AVs often involve multiple agencies with differing perspectives. The committee is encouraged to explore the differences between the actual and perceived responsibilities of municipal administrations (by the general public), and the repercussions should negative public reactions emerge.

Economic benefit and concerns

The societal benefit from AV technology is fundamentally where driver shortages exist and AVs offer an economically viable alternative. (This can already be seen in the logistics sector.) The committee should consider if driver shortages exist in London's ride-hailing services, or in London's wider transport system, and if AVs would be the best solution to shortages.

Local revenue retention by human-driven ride-hailing services is on average approximately 75% (covering the cost of vehicle, servicing, insurance, driver salary, etc.), with approximately 25% returned to the operator. This retention figure reduces significantly in the case of ride-hailing AVs. Ride-hailing AVs deployed in China are already price competitive with human-driven ride-hailing services. Suggestions of premium service pricing are false. The committee is advised to explore the economic implications of lower-priced competition with both human-driven ride-hailing services and public transport, and the potential impact of reducing demand and revenue for those.

Security

Since transport systems are generally considered part of critical national infrastructure, the committee should give consideration to the need for sovereign control, and the need to limit overseas control or access to data.

techUK

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London Assembly call for evidence: "Autonomous Passenger Vehicles in London"

techUK response – July 2026

Introduction

techUK represents the UK's technology sector, with a membership of over 1,100 companies ranging from major multinational technology firms to innovative SMEs and start-ups. We work with our members and government to ensure the UK remains the best place to grow a technology business while ensuring that the benefits of technology adoption are felt across the economy and society.

techUK's Self-Driving Vehicles Working Group brings together developers, mobility platforms, technology providers and a wide range of other stakeholders working to deliver safe and beneficial self-driving vehicle deployment across the UK.

We welcome the opportunity to respond to the London Assembly Transport Committee's call for evidence. London can become a world-leader in the safe adoption of this technology, maximising its benefits in terms of road safety, inclusive transport, and economic development. We hope our response, informed directly by the operational experience of our members, provides a useful and practical contribution to the Committee.

1. How close are autonomous passenger vehicles to becoming a reality in London?

Self-driving vehicles will be a reality this year pending the regulatory approval of Transport for London for pilot applications being considered. With the Automated Vehicles Act 2024 now on the statute book and the Government's automated passenger services (APS) permitting scheme starting to enable small-scale pilots without a safety driver from spring 2026, several of our members are actively preparing to deploy in London this year. Internationally, the technology is already operating at scale. The UK framework, once complete, is set to be the most comprehensive in the world.

While vehicle technology is advancing rapidly, the regulatory landscape is still being finalised, with further consultations and guidance required before the implementation of the full regulatory framework. We are grateful for the work that the Government has done nationally to bring forward the APS regime, now open to applicants and outlined in guidance. Now focus turns to London and TfL and the measures they will have to take to approve passenger services (subject to rigorous reporting requirements, the Code of Practice, regulations under the Automated Vehicles Act, and other requirements).

London's value here is considerable: clarity from the Mayor and TfL on what they expect, proactive and supportive communications with the public, and early engagement with prospective operators, will materially affect how services can be launched in the capital, safely and with public trust.

2. How will autonomous passenger vehicles navigate London's complicated road network?

Our members are addressing this for years directly in their design, technology, and deployment of services. The DfT's Code of Practice for automated vehicle trialling has been in place since 2017, and operators have been safety testing on London's streets throughout that period[1] without serious incident. This track record demonstrates that this technology can be operated safely in complex urban environments.

Early deployments may include additional safeguards. Some operators may initially run with a trained safety operator on board, providing an additional layer of redundancy in complex scenarios. Where a fully driverless deployment is sought, the framework requires operators to obtain a Vehicle Special Order from the Vehicle Certification Agency, assessed to the UNECE Automated Driving Systems regulation. This is not a light-touch process, but structured and evidence-based.

More generally, autonomous vehicle systems are developed for urban operation and real-world testing in urban environments is an integral part of the development process. Specifically, under the regulatory framework, operators will have to demonstrate that their technology can safely interact with the road features that are present in London. Before any passenger service can begin, the vehicle and its autonomous driving system must satisfy the careful and competent driving standard as assessed by the Vehicle Certification Agency against the UNECE Automated Driving Systems regulation. That is the appropriate and rigorous point at which London's operating environment is tested, evidenced and approved.

3. What impact would the introduction of autonomous passenger vehicles have in London?

Safety

In recent years, 88% of all recorded collisions on roads in Great Britain involved human error as a contributory factor[2]. The central promise of AV technology, therefore, is a reduction in the human error that contributes to most collisions, providing significant potential to support

[1] Eg: https://wayve.ai/thinking/road-to-embodied-ai/
[2] https://www.gov.uk/government/consultations/self-driving-vehicles-new-safety-ambition/outcome/self-driving-vehicles-new-safety-ambition-summary-of-responses-and-government-response

Vision Zero road-danger reduction targets. International AV data on this is encouraging, with figures[3] showing 82% fewer injury-causing crashes than an average human driver. In the UK, safety gains will be ensured by the “careful and competent” safety standard set out in the AV Act and assessed through the safety case reviewed by the Vehicle Certification Agency as part of type approval. This is supported by a transparent, no-blame incident investigation culture that builds public trust over time, clear failure protocols, and close coordination with emergency services.

Mobility

Of great significance is the expanding of access to mobility for those currently underserved by the transport system, including older and disabled Londoners who cannot drive – in alignment with the Mayor’s Transport Strategy. AV deployment can offer them greater independence, reliable door-to-door travel, and wider access to jobs, healthcare and education across the city. AVs are designed to be seamlessly integrated into the road environment and hybrid transport network we have it today and can, therefore, complement and enhance the wider transport system by connecting people to mass transit, public transport and providing services in areas currently underserved.

Autonomy offers a real chance to design inclusion in from the outset, and support greater access to mobility, rather than replicate the exclusions of the past. Our members are committed to upholding the protections passengers rightly expect, drawing on the established private hire vehicle regime.

Jobs

The introduction of self-driving vehicles is expected to be gradual and phased, and they are expected to operate as part of a hybrid network alongside human drivers. Additionally, the arrival of AVs will create many new roles – in manufacturing, fleet maintenance, AI development, and many other areas many of which will be well-suited to the PHV workforce – alongside broader economic and social benefits which should also be taken into account.

techUK’s view is that managing this transition fairly, through honest public engagement, local research and with the voices of workers and their representatives included from the start is the right course.

Other points

With the right framework, London is exceptionally well-placed to capture the safety, accessibility and economic opportunities this technology offers. The introduction of autonomous passenger vehicles offers significant potential benefits for London with some of the most significant being increased road safety, supporting London's air quality and carbon reduction targets, and helping to knit together a more integrated, accessible and sustainable transport network.

[3] https://waymo.com/safety/impact/

4. What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles and what powers should they be seeking to regulate the sector?

Local consenting authorities have a meaningful role to play in AV deployment. They understand their streets, their communities and the practical realities of how services will operate on the ground and so, under the APS regime, licensing authorities will use this knowledge to shape how services are delivered well in their area. Self-driving vehicles will be a reality this year pending the regulatory approval of Transport for London for pilot applications being considered.

The Automated Vehicles Act establishes a clear and complementary division of responsibilities: vehicle safety is assessed nationally, through type approval and authorisation against rigorous international standards. Then consenting authorities – including the Mayor and TfL – then focus on the service-level considerations that matter most locally. We see real value in the Mayor and TfL leaning into this convening and enabling role, working with operators to ensure deployment in London reflects the city's needs while drawing on the safety assurance already built into the national framework. This approach allows London to move with confidence, supporting its position as a leading place to deploy this technology, while keeping local areas firmly at the centre of how services are shaped and delivered.

We would encourage TfL to prioritise:

- clear expectations and guidance for operators as early as possible to ensure productive conversations can be started well in advance of pre-consent engagement
- building internal capability and expertise, so the authority can engage constructively with the technology
- consistency with guidelines set by government for licensing authorities and with other authorities, to avoid fragmented local variation

5. What can the Mayor and TfL learn from trials and deployments of autonomous passenger vehicles in other countries?

International experience offers valuable lessons. Deployments in the United States and elsewhere show that careful, evidence-led expansion, combined with proactive management by authorities works. They also show the importance of public trust: surveys find that people who have used an AV are significantly more confident in them than those who have not[4]. This points not to delay, but to the need for transparent communication, balanced framing of risks and benefits, and a visible commitment to safety and accountability, particularly in the early, high-scrutiny stages of deployment.

techUK shares the underlying interest in an open, competitive and resilient market. The best safeguards are a level playing field with consistent national standards, proportionate data-sharing arrangements that protect both the public interest and commercially sensitive information, and an approach that keeps a healthy ecosystem of operators in which UK innovators can compete. London is well-placed to lead in Europe, and we and our members would welcome the chance to work with the Committee, the Mayor, and TfL to help realise the benefits of this technology safely and successfully for Londoners.

ENDS

[4] A poll by J.D. Power, a consumer-research firm, found that confidence was 56 percentage points higher among those who had ridden in a robotaxi than those who had not. https://www.economist.com/business/2025/11/24/the-self-driving-taxi-revolution-begins-at-last

Thomas Pocklington Trust: Call for Evidence on Autonomous Passenger Vehicles in London

Introduction

Thomas Pocklington Trust (TPT) is a national charity working to achieve equity and inclusion for blind and partially sighted (BPS) people. We bring a specialist accessibility, lived-experience, policy and systems perspective to this consultation response.

TPT funds and supports Sight Loss Councils, regional groups led by blind and partially sighted volunteers who use their lived experience to influence more inclusive services, places and policy. Through this network, and our wider work with people with sight loss, we can provide authentic views which represent and ensure that the needs of BPS people are considered across the whole autonomous passenger vehicle (APV) journey, not only the vehicle itself.

Transport is a priority area for Sight Loss Councils, including the #MakeTransportAccessible campaign, which highlights the barriers that prevent blind and partially sighted people from travelling independently, safely and with confidence. TPT fund these councils and also work on national Transport strategy and policy.

APVs, referred to in the statutory framework as automated passenger services (APS), must be designed and regulated as accessible passenger services, not simply as automated vehicles. TPT can contribute strategic insight into how APV systems should be designed, governed and assessed from an accessibility perspective, including issues such as journey planning, booking, vehicle identification, pick-up and drop-off, wayfinding, real-time information, in-vehicle communication, remote support, disruption handling, safety around APVs as pedestrians, and accessible customer service.

What matters most is that accessibility is embedded before APV service models, technical standards and regulatory expectations become fixed. APVs are likely to develop through trials, pilots and limited operational

domains before wider deployment, so early decisions about service design will shape whether disabled people benefit equally.
For bps people, the key issue is the whole journey. Accessibility will depend not only on the vehicle, but on how people plan, book, locate, identify, enter, use and exit the service, and how they receive reliable information and support when something changes or goes wrong. APVs could improve independence, especially where current transport is unavailable, unreliable or inaccessible. However, they could also create new barriers if systems assume visual interaction, smartphone confidence, perfect GPS, standardised pick-up points, or the availability of staff nearby.

The biggest risks are fragmentation and uneven delivery. Accessibility may vary by operator, location or vehicle type, leaving disabled people with inconsistent experiences and unclear rights. There is also a risk that safety is defined too narrowly, focusing on vehicle performance while overlooking disabled passengers, pedestrians, guide dog owners and long cane users. The most significant implication is that APVs should be considered as part of a wider accessible mobility system.

1. Who is responsible for licensing autonomous passenger vehicles in London and what role do the Mayor and TfL play in this?

TfL and the Mayor should not be presented as the sole licensing authority for APVs. The national APS permit sits with the Secretary of State, administered through DVSA, with vehicle assessment involving VCA. However, TfL's local consent role, its taxi and private hire licensing expertise, its control over London's transport strategy and streets, and its Public Sector Equality Duty mean it should set clear accessibility, safeguarding, kerbside, data and monitoring expectations before consenting to any London deployment. The Mayor and TfL should therefore play a leading and active role in:

- Setting and enforcing accessibility requirements for any services operating in London, from the outset, setting standards for other parts of the UK when Autonomous vehicles are introduced elsewhere,
- Ensuring BPS people are involved in testing, monitoring, and evaluation,
- Monitoring impacts on disabled pedestrians and passengers.

- Requiring transparency from operators regarding safety and accessibility performance and regular reporting to for continuous safety, accessibility and affordability,
- Ensuring autonomous passenger vehicles complement, rather than undermine, accessible public transport.

Blind and partially sighted Londoners must not be treated as an afterthought in the development of future transport systems. Their needs should be embedded from the outset, working collaboratively in re-shaping or co-designing for inclusion and empowerment.

2. How close are commercial operators to deploying autonomous passenger vehicles for hire in London?

While technological development is advancing, there is currently insufficient evidence that APV services are ready to meet the accessibility needs of BPS people.

Readiness should not be measured solely by the ability of a vehicle to navigate London's roads. Operators must also demonstrate that BPS people can:

- Locate the correct vehicle independently and safely,
- Board and alight safely and not feel rushed, considering all types of aids, including Assistance Dogs,
- Access journey information from start to end,
- Communicate effectively with customer support, which should be easy and accessible to a range of assistive technology abilities,
- Manage emergencies or unexpected situations, thus ensuring regular updates and essential information is clearly communicated, including which side of the vehicle to alight from, and any changes to routes or unexpected diversions or emergencies.

Strong alignment to the Statement of Safety Principles made under the Automated Vehicles Act 2024, should be followed and used to measure before deployment. The draft principles of behaviour include:

- vehicle control,
- hazard anticipation, perception and reaction,

- obeying traffic rules,
- interaction with other road users,
- adaptability to road conditions.

Accessibility is often considered after new technologies, standards or guidance are introduced, risking creating new barriers for disabled people and should not be repeated with autonomous passenger vehicles. Deployment should only proceed when accessibility has been independently tested with disabled users and shown to support independent travel with ease and confidence.

3. Are autonomous passenger vehicles compatible with London's strategic transport goals in the Mayor's Transport Strategy?

Autonomous passenger vehicles and their impact will depend on how they are deployed. BPS people rely heavily on walking, buses, trains, taxis and private hire services and therefore accessible public transport remains essential for independent travel, employment, education and participating in everyday life to remain socially included.

Autonomous passenger vehicles may support the Mayor's Transport Strategy if they:

- Improve access to areas underserved by public transport,
- Enhance first and last mile connectivity, the end to end journey regardless of what different transport modes are used, considering the built environment, which should always be accessible,
- Reduce transport exclusion for disabled people, including BPS people,
- Integrate with existing public transport networks,

However, they may undermine strategic goals if they:

- Increase congestion,
- Reduce investment in accessible public transport,
- Encourage a shift away from walking, buses and rail and lose sight of the accessibility goals promised,
- Create additional obstacles or complexity in the street environment, making it more challenging for BPS people to move around.

Any deployment should be assessed against the principle that autonomous passenger vehicles should complement accessible public transport, not replace it, giving BPS people choice over what is most convenient way of travelling at that time and not limit or restrict.

APVs should be assessed against whether they reduce transport exclusion without increasing car dependency, congestion, kerbside conflict or street clutter. A service that is technically innovative but undermines walking, buses, rail, taxis, private hire access, safe crossings or accessible streets would not be compatible with London's transport strategy.

4. What are the principal risks associated with autonomous passenger vehicles in London, and can they be mitigated?

The risks for BPS people are concerns around safety and accessibility.

Risks for BPS pedestrians.

Blind and partially sighted people often rely on a combination of environmental cues when navigating streets, including vehicle sounds, predictable driver behaviour and established road layouts.

Key concerns include:

- Not all BPS people use a mobility aid, but some may use a symbol, a guide or a long cane, and others who have dual sensory loss, may use a cane with a red or white strip, to indicate sight and hearing loss, will autonomous vehicles be able to detect these aids which BPS people use, at crossing points, in shared spaces or more generally,
- Whether sensors can reliably detect people using one of the canes mentioned above,
- Whether systems can recognise assistance dogs,
- How vehicles will respond to pedestrian movements, especially at crossing points,
- The challenges posed by quiet vehicles operating in busy environments.

Risks for BPS passengers

Passengers may face difficulties:

- Identifying the correct vehicle, especially when it may be parked across the road, or there are multiple vehicles around,
- Being dropped off in an unsafe, inaccessible location which should not cause harm or danger to the BPS person or their assistance dog,
- Accessing customer support easily when a passenger needs to,
- Managing service disruptions, and having the right information, quickly so that the passenger can feel safe, reassured, and can make an informed decision and respond to emergencies without a driver present.

Mitigations

These risks can be reduced through:

- Mandatory accessibility and safety testing involving BPS people,
- Independent evaluation of vehicle performance, which is published or available, and any enhancement required should involve BPS people for best guidance,
- Clear audible vehicle identification systems, via in-app dialogue or a robust unlocking system, for identification purposes,
- Accessible booking and customer support channels, to ensure different methods can be used by different abilities,
- Transparent reporting of incidents and near misses,
- Ongoing monitoring after deployment,

Mitigation measures should be mandatory rather than voluntary and should also be consistent. Working with relevant stakeholders such as TPT can ensure accessibility, and safety remain a priority and autonomous vehicles become and remain inclusive.

5. To what extent are autonomous passenger vehicles accessible to all Londoners?

At present, there is limited evidence that autonomous passenger vehicles are fully accessible to BPS people. Accessibility must extend beyond vehicle design and encompass the entire journey experience.

For BPS people, true accessibility means being able to complete a journey from the moment they have left their front door and arrived at their destination, independently, safely and with confidence, without relying on assistance from strangers from the public. Accessibility should be assessed through real-world testing with disabled users rather than assumptions made during design, or engagement with a very few. Lived experience voices should be fundamental in shaping transport, particular when these vehicles will be used by BPS people.

There are a number of minimum accessibility requirements before deployment that we would like to see, including:

- Booking: accessible app, web and telephone booking, compatibility with screen readers, ability to record access needs.
- Vehicle identification: non-visual vehicle finding, audible beacon or app-based audio/haptic guidance, unique confirmation before unlocking, no reliance on colour or number plate.
- Boarding and alighting: extra time without charge, safe door location, assistance dog space, clear indication of which side to exit.
- Journey information: audio route updates, diversion alerts, delay information, emergency instructions and destination confirmation.
- Support: live remote assistance, accessible emergency controls, clear response times, escalation routes.
- Pedestrian safety: detection of canes, guide dogs and disabled pedestrians, audible/non-visual external communication, safe behaviour at crossings and in shared spaces.
- Pick-up/drop-off: kerbside safety, no inaccessible locations, no drop-off across fast roads or blocked pavements, onward wayfinding support.
- Safeguarding: CCTV, lighting, live support, shared-ride controls, passenger verification, protection for women and girls, and clear policies on harassment or intrusion.
- Accountability: public reporting, complaints, near misses, accessibility failures, cancellation charges, response times, and improvement plans.

6. Are there any benefits that autonomous passenger vehicles could offer in London, and how likely are those benefits to be realised in London?

Autonomous passenger vehicles could offer significant benefits for BPS people if accessibility is embedded from the beginning.

Potential benefits include:

- Greater independence where rail and tube stations are inaccessible, or not manned by staff or is being refurbished,
- Enhanced travel to places where journeys are complicated or require multiple modes, therefore making travelling by autonomous vehicles convenient,
- Reduced stress and anxiety over guide dog refusals and discrimination,
- Enhanced travel options during evenings and in underserved areas, particularly thinking of safety for women and girls,
- Increased flexibility compared with fixed-route transport,
- Reduced reliance on family and friends,

However, these benefits are not guaranteed, as the potential benefits will only be realised if:

- Accessibility standards are mandatory,
- Costs remain affordable,
- Services are available across a wide geographic area,
- BPS people are involved in design and deployment on an ongoing basis and not just as a one-off engagement for a tick box exercise.
- Safety is a high priority of BPS customers, when booking, finding the vehicle, travelling within the vehicle and then safely alighting from the vehicle and continuing their travel.

Without these safeguards, there is a risk that autonomous passenger vehicles could increase transport inequalities rather than reduce them, preventing BPS people even considering these vehicles as an option for travel, therefore causing barriers and exclusion.

7. What lessons can London learn from trials and deployments elsewhere?

An approach of considering ‘careful and competent’ as behaviours is emerging in other countries. The Netherlands vehicle authority, RDW, is the Dutch type of approval authority. They are considering an assessment approach to automated lane keeping systems (ALKS), which would be interesting to see how this is working.

8. What role should TfL and the Mayor play in the development and oversight of autonomous passenger vehicles?

TfL and the Mayor should act as champions of inclusive transport and their role should include:

- Setting clear accessibility expectations, and standards which are consistent and mandatory,
- Accountability measures with sanctions should be introduced to ensure high standard
- Requiring meaningful engagement with disabled people, who are involved in each stage and not just a one off
- Publishing accessibility performance data and actively working towards improvements and mitigations of similar or same issues reoccurring,
- Monitoring impacts on existing transport services,
- Ensuring disabled people's organisations are represented in governance structures and engagement,

  Intervening where safety or accessibility concerns arise and

  Learning from micromobility trials should be incorporated.

The voices of BPS people, those most affected by accessibility barriers must be heard throughout the development, deployment and evaluation of autonomous passenger vehicles.

9. What do Londoners think about autonomous passenger vehicles?

Attitudes are likely to vary depending on perceptions of safety, accessibility, cost, trust and value to their independence, as a transport mode either singularly or used as a multiple use, from getting to their end destination. For BPS people, confidence is likely to depend on answers to practical questions such as:

- Will the vehicle reliably detect me as a pedestrian?
- How will I identify the correct vehicle?
- What happens if something goes wrong at any point from booking to arriving at my destination?
- Will assistance be available when needed, easily and accessibly?
- Will the service be affordable and reliable?
- If there is a malfunction with the technology whilst I am in the vehicle, how will I know and what support will there be?
- If I use a vehicle and as a BPS person, I did not know there was little or mess already in the vehicle, I then get in with my assistance dog, how will the organisation rightfully penalise the correct passenger?
- What if the vehicle cannot drop me or pick me up safely, how will I be communicated with and will the vehicle keep trying?
- How long will the vehicle wait before I may get charged for not getting into the vehicle, but it did not come to the pick-up point as agreed and as a BPS person, I cannot easily locate the vehicle, or I unintentionally took longer as I had to find help from a stranger to help me find the vehicle and then get my guide dog and belongings/shopping in as well.
- As a BPS woman, would there be any risk to me, by anyone else getting into the vehicle?
- Will the vehicle be able to detect and follow traffic signs under the Highway code and follow the Road Safety Strategy, keeping me and those around me safe?
- Will the vehicle be able to detect and react to other vehicles pulling out of their driveways, side roads or those who are just overtaking or under taking?
- Would it be able to detect and react to passengers running out to cross the road unsafely, in front of us?
- Will the doors automatically lock whilst the vehicle is in motion and will I be able to unlock it, should I need to?
- Will anyone else from the outside be able to open the doors, whilst I am travelling?

Many BPS people are likely to see potential benefits in increased independence and mobility. However, support is likely to depend on robust evidence that APV's are safe, accessible and inclusive at all times of the day and night. BPS people should not be expected to trust autonomous systems simply because they are new or innovative. Trust must be built through evidence, reliability, transparency and lived experience.

Conclusion

TPT believes that APVs have the potential to improve mobility and independence for BPS people. However, these benefits will only be realised if accessibility is treated as a fundamental requirement rather than an optional enhancement. The success of APVs in London should not be judged solely on technological capability. It should be judged on whether BPS people can use them, interact with them and travel alongside them safely, independently and with confidence. Nothing about us, without us, must remain the guiding principle throughout the development and deployment of APVs.

[Ref No. AV036, Transport for All]

London Assembly Transport Committee

Call for evidence: Autonomous Passenger Vehicles in London

1. About Transport for All

1.1 Transport for All is the UK's only disabled-led organisation dedicated to improving disability access on all modes of transport and street space. We are a pan-impairment organisation. We are guided by the passionate belief that all disabled and older people have the right to travel with freedom and independence.

2. How the views of our community are obtained

Transport for All is the leading voice on accessible transport. We have 40+ years of specialist expertise in transport accessibility and extensive insight into the needs and experiences of disabled travellers. Our work contributes to London transport planning and policies through engagement with borough councils, Greater London Authority, Transport for London (TfL), and the disability community.

2.2 As a membership organisation, we facilitate a network of over 2000 disabled people, gathering the perceptions and insights of those with lived experience of accessing transport. Through our information and advice line, we offer advice and support to disabled people across London, further gaining a direct insight into the barriers they encounter when travelling.

3. Who is responsible for licensing autonomous passenger vehicles in London and what role do the Mayor and TfL play in this?

3.1 The Mayor of London is responsible for setting the strategic vision for London's transport system. This remit is established under the Greater London Authority Act 1999 and Greater London Authority Act 2007. The responsibility for guiding and delivering this strategy is delegated to TfL.

3.2 TfL is responsible for the regulation and licensing of all taxis, private hire vehicles, and operators in London. TfL will be the consenting authority for the deployment of commercial autonomous vehicles in London. We consider TfL to be the appropriate body to administer the licensing of autonomous passenger vehicles, including ensuring operator compliance with safety standards, conducting inspections, and enforcing regulatory requirements.

3.3 For disabled people, accessible transport is vital for maintaining independence and participating fully in society. When transport is inaccessible, it often leads to social isolation and restricts access to essential services and opportunities (e.g., education and employment). As a public authority, TfL is subject to the Public Sector Equality Duty (PSED) under Section 149 of the Equality Act 2010. In carrying out any licensing function for autonomous passenger vehicles, TfL must ensure that accessibility and safety requirements are mandatory and built in from the outset.

3.4 These must be conditions of authorisation, not voluntary commitments. The requirements must include:

- **Mandatory accessibility baseline:** A defined set of minimum features for passenger-carrying Autonomous Vehicles (AV) e.g., automatic ramps/lifts capable of handling large, powered wheelchairs; securement systems; audible and visual announcements; accessible user interfaces; reachable emergency controls.
- **Co-production requirement:** Evidence that disabled people and our representative organisations were involved in design, testing, and deployment; minutes, outcomes, and how feedback changed design must be provided.
- **Algorithm fairness and perception testing:** Mandatory testing datasets and performance reporting that include wheelchairs, rollators, mobility scooters, assistance animals, non-standard cycles, and other intersectional factors such as race and gender. Detection performance metrics and known failure modes should be published.

- **Change control for software and Operational Design Domains (ODDs):** Any material changes to perception, decision making, or ODD should trigger a formal variation or re-authorisation process.

3.5 Accessibility must be built into the conditions of licensing, not be treated as optional or as a later retrofit. Authorisation should not be granted on the basis of untested promises or voluntary pledges.

4. How close are commercial operators to deploying autonomous passenger vehicles for hire in London?

4.1 The Automated Vehicles Act 2024 has created an opportunity for commercial operators to deploy autonomous passenger vehicles across the UK. As the supplementary regulatory framework develops, it is essential that accessibility, safety, and accountability requirements are embedded from the outset.

4.2 Under the Greater London Authority system, TfL licenses drivers and companies (e.g., private hire operators such as UBER) and holds them accountable for meeting regulatory requirements. In the context of AVs, new mechanisms will be required to ensure that organisations develop, deploy, and operate vehicles in a safe, accessible, and ethical manner. The Mayor and TfL have not yet published a framework for the deployment of autonomous cars across London.

4.3 Operators have already taken an active role towards deploying vehicles across the city, although licensing for carriage of passengers is not yet in place. US-based transport operator Waymo is undertaking tests across London. UBER (in collaboration with Wayve) has recently asked customers to sign up for its autonomous vehicle fleet.

4.4 It is imperative that operational guidance, licensing, and safety processes are in place – and that disabled people are engaged with the Mayor, TfL and operators at the start and all the way through the process. Any mode of transport must be co-produced with disabled people.

5. Are autonomous passenger vehicles compatible with London's strategic transport goals in the Mayor's Transport Strategy?

- **Vision Zero**

5.1 Autonomous passenger vehicles have the potential to support London's strategic transport goals. For example, disabled people are more likely to be injured by motor vehicles than non-disabled people. Operator studies indicate that autonomous passenger vehicles have the potential to improve road safety, including by reducing collisions. The strategic goals outlined in the Mayor's Vision Zero plans may become more achievable. However, this will only happen if there are mandatory requirements for pan-disabled accessibility adaptations.

- **Healthy Streets**

5.2 Many disabled people are unable to drive. Some disabled people cannot access public transport at all, often relying on taxis and other drivers to get around. Autonomous passenger vehicles could provide greater freedom and independence, although reliability and affordability remain to be tested. However, they could also increase reliance on private transport as opposed to public transport if they are, for example, seen as a safer, private option.

5.3 The Mayor's Transport Strategy aims to have 80 per cent of trips made by walking, wheeling, cycling, or public transport by 2041. An increased reliance on autonomous passenger vehicles (particularly with first and last trips) could make plans such as the 'Walking and Wheeling Action Plan' and 'Cycling Action Plan', 'London on the Move' and 'Bus Action Plan' more difficult to achieve.

- **Accessible investment**

5.4 An increased use of AVs such as robotaxis could mean less investment in making public transport accessible. There needs to be equitable access to all modes of transport. For this to take place, autonomous passenger vehicles must not replace investment in accessible public transport infrastructure.

- **Financial costs**

5.5 At the same time, commercial autonomous vehicles risk becoming available to some disabled people but not others. Rising costs of living, increasing unemployment, reduced accessibility support (e.g., Access to Work, healthcare) and challenges within the welfare benefits system, mean that disabled people face disproportionate financial barriers compared to non-disabled people. Financial barriers are an accessibility issue for disabled people and should be treated as such.

5.6 Many disabled people may become priced out from using automated passenger vehicles if fares are too high. There needs to be financial equity in all forms of transport. Concessionary fares, fixed fares for disabled people and cost regulation could be introduced to ensure that disabled people can afford to use commercial autonomous transport.

6. What are the principal risks associated with autonomous passenger vehicles in London, and can they be mitigated?

- **Safety & accessibility**

6.1 Disabled passengers are disproportionately affected when journeys are disrupted. AV systems must guarantee accessible, timely assistance, and clear emergency procedures. Disabled people are fearful of being stranded or trapped if a ramp fails or a vehicle experiences a systems glitch. Disabled pedestrians may not be able to move out of the way as quickly as non-disabled people in the event of a malfunction or crash. Blind and visually impaired people may not be able to locate a booked vehicle or detect that they are in the way of silent moving vehicles.

6.2 Autonomous vehicles must be able to recognise disabled people as people. In the event of a collision, vehicles must be able to distinguish between a person using a powered mobility device (e.g., mobility scooter) and a non-human object (e.g., bench). Autonomous vehicles must prioritise disabled people's lives.

6.3 Safeguarding must be treated as a core requirement for licensed AV operators. This should include both preventative measures and emergency responses, with sufficient transparency to build trust and ensure accountability. Licensed operators should therefore be required to publish clear, accessible information showing how disabled passengers will be protected in practice.

6.4 For journeys that require physical assistance – e.g., ramp deployment, securing mobility aids, sighted guiding, travelling with luggage, complex transfers – an in-person attendant must remain available as an option. It should especially be mandatory on multi-passenger AVs that operate similarly to buses. Space must be made available, and free of charge for assistance animals.

6.5 Licensing requirements should include maintaining an appropriate standard of hygiene. Blind and visually impaired people may not be aware of dirt and rubbish left over by previous passengers. Immunocompromised people may choose to use an AV as a safer mode of transport on health grounds. Deployed vehicles must, therefore, meet a minimum standard for hygiene, cleanliness, and be equipped with an air filtration system (e.g., HEPA filter).

6.6 One member reported that,

> "*I would be very concerned about any centralised call-centre for assistance with an AV, because of my experiences with rail*

passenger assistance call centres. There are legal requirements for rail operators which are blatantly ignored and not enforced."

6.7 Centralised call centres alone are not sufficient. Operators must guarantee escalation to local in-person support where safety or access is compromised. Where possible, operators must share details of safety failures with borough councils and relevant bodies, recognising where a disabled passenger have been impacted.

6.8 TfL must have the powers and resources to enforce assistance obligations, require co-designed remediation where failures occur, and ensure that complaint and redress processes are accessible and actively monitored. Where relevant, data must be openly shared in standard and accessible formats with bodies such as the Driver Vehicles Standards Agency and Centre for Connected and Autonomous Vehicles.

6.9 We would expect licensed operators to undertake ongoing monitoring of systems and publish data on:

- **Emergency planning:** Clear procedures for responding to collisions, breakdowns, and other service disruptions, including how disabled passengers will be supported and how accessible replacement transport will be provided.
- **Medical emergencies:** Protocols for safeguarding passengers who become unwell, including arrangements for contacting emergency services, diverting to safe locations such as hospitals, and ensuring that assistance is provided promptly and accessibly.
- **Staffing and oversight:** Details of who provides in-vehicle or remote support, staff-to-passenger ratios where relevant, disabled and EDI-led staff training, escalation routes to human assistance, accessibility of being able to contact support, and how safeguarding decisions made remotely, are monitored and reviewed.
- **Protection from abuse and harassment:** Processes for preventing, detecting and responding to abuse, harassment, or discrimination against disabled passengers, including accessible reporting mechanisms, and understanding of intersectional discrimination.
- **Privacy and data protection:** Procedures must show a robust understanding of privacy and data protection. Disabled people must not be restricted from using services due to overly cautious algorithms, nor subjected to unreasonable intrusions into their personal or medical information. Disabled people's data must be protected and not shared with third party organisations unless

permissions are explicitly granted in certain circumstances only (e.g., investigating discrimination, emergency protocols etc.).

6.10 Publishing this information would not only demonstrate that safeguarding is being prioritised but would also enable regulators and disabled passengers to hold operators to account. This must include concrete evidence of how accessibility, safety, and inclusion are embedded into service design and delivery, both for disabled passengers and for disabled pedestrians sharing public space.

- **Sustainability as accessible travel**

6.11 71% of disabled told us that they would like to use environmentally friendly modes of transport, but that these are not accessible to them. Autonomous vehicles require Artificial Intelligence (AI) technology which relies on the consumption of large amounts of energy. While AVs do not emit air pollution, the technology they rely on is known to have adverse effects on the environment.

6.12 Disabled people are disproportionately impacted by environmental issues. Operators should be mandated to develop technology which uses sustainable energy or work with developers of sustainable AI technology. This will further contribute to meeting London's clean air and sustainable objectives.

6.13 Taxicard users have reported that ride requests are often rejected due to additional ULEZ costs. There needs to be clarity on how autonomous vehicle licensing will work within London's LEZ policies so as disabled people are able to use autonomous passenger services. Where restrictions apply to low-traffic neighbourhoods, disabled passengers must be able to hail rides from and to specific locations within these controlled zones at no additional cost.

7. To what extent are autonomous passenger vehicles accessible to all Londoners?

7.1 New AV technology presents a rare opportunity to embed accessibility from the outset, rather than rely on costly retrofits after harm has occurred. Regulation, procurement, and deployment must recognise disabled people as legitimate passengers, drivers, cyclists, and pedestrians with a legal right to safe, accessible transport.

7.2 If accessibility is not built into authorisation, design and operations, AV rollout risks entrenching new barriers and replacing existing accessible services. If it is done properly, AVs can expand independence, choice, and dignity for disabled people. It is essential that the Mayor, TfL, and relevant organisations work with disabled people to ensure that AV is accessible and embedded within London where transport access barriers are highest.

- **Design of AVs**

7.3 Manufacturers and operators must be required to meet measurable accessibility standards. Vehicles should provide automatic ramps or lifts, tested securement points for wheelchairs and mobility aids, multiple accessible handholds, and transfer-friendly seat layouts. Interior layouts, handholds, securement points, and boarding procedures determine whether disabled people will be able to use AVs independently and safely. A member shared with us that,

> *"For AVs to be genuinely usable and safe for disabled people, I would like the accessibility features to be thought about first in the design process. One feature would be an automatic ramp like that of London buses. As there will be no person, I would like the ramp operation to be operated by the passenger e.g. via an app which you can use to let the AV know that you are securely in the vehicle and that the ramp can be put away."*

7.4 Another member stated that,

> *"If I have been on even a relatively short car journey, it can take 10 minutes to get myself out of a car and my kit is usually stowed elsewhere so that adds another 10-15 minutes to retrieve that and transfer into it. I don't think any driverless car is going to be able to wait for up to 25 minutes for me to get myself and the mobility kit out of the vehicle in a safe manner. I literally use the door frames, handles, backs of seats, slide along the external car body sometimes in order to exit vehicles and not sure the AVs will be able*

to cope with that. If it is an AV vehicle there may be sensors I would disrupt. It would be a disaster if the AV 'took off' while I was still trying to exit the vehicle, retrieve my mobility kit etc."

7.5 These experiences demonstrate that operational design must also reflect realistic boarding and alighting time. Dispatch systems and vehicle schedules must allow extended dwell times without penalising or cancelling journeys because a passenger needs more time to board, retrieve stored kit, or transfer safely. In-vehicle audio announcements, clear visual displays, tactile cues and accessible booking and notification apps are all essential. Features could also include passenger-operable ramp controls through an app and comprehensive voice announcements.

- **Door to Door Transport**

7.6 AVs must be an addition to, not a replacement for, existing door-to-door, bus, or specialist services that many disabled people rely on. Policy must explicitly protect Dial-A-Ride, Taxicard, accessible private hire and other specialist services from being withdrawn or downgraded as AVs are introduced. One of our members stressed the importance of door-to-door services,

> *"I rely heavily on TfL Taxicard, Dial-A-Ride bus service and private hire vehicles all with human being driver assistance and will need to have access to these services continuously and in the future as I require door-to-door support by a human being driver e.g. from home address to vehicle and vehicle to venue address.*
>
> *It's absolutely essential that these AVs are to be introduced as an addition but not to replace all modes of transport described above for people who, like myself, are blind, partially sighted, deafblind, vulnerable, and older disabled people who require human being drivers at all times."*

7.7 Where AV deployment affects existing services, TfL and operators should be required to publish continuity plans that guarantee equivalent door-to-door provision for people who rely on it, including funded alternatives and clear transition timetables.

- **Disability costs and concessionary access**

7.8 Financial costs are a barrier for disabled people, often leading to isolation. AVs must be an affordable option for disabled people through concessionary fares, subsidy models, or regulated pricing.

- **Digital access**

7.9 69% of those facing digital exclusion are disabled; and will not be able to use autonomous passenger vehicles. This is due to costs and accessibility barriers. Local authorities and operators must work together to reduce these barriers, including investing in offline ways of using London's transport. TfL and all relevant authorities must actively work to reduce ableist attitudes in non-AV modes of transport (e.g., ongoing driver training, acting on hate crime, increasing step free access, etc.).

- **Resourcing accessible public transport**

7.10 Funding must not be redirected away from affordable and accessible public transport and invested in autonomous passenger vehicles. Accessibility barriers to trains, buses, trams, etc. exist on the way to and from stations. Often the distances are too far, pavements broken or obstructed, there are insufficient accessible parking spaces, nowhere to store adapted cycles and taxis refuse to pick up a mobility aid user or guide dog handler. People with energy-limiting conditions and others often face barriers moving through the stations where there is significant distance between platforms. Autonomous vehicles should be used to improve overall access to public transport. For example, small self-driving pods that could carry individual passengers through stations as a way to mitigate access barriers.

7.11 Transport staff are essential for information sharing, guidance, and assistance. Turn Up and Go, Passenger Assist and mentoring schemes should remain and be monitored for improvements. AVs must not result in a reduction in transport staff (e.g., at stations, drivers, customer service). Measures must also be put in place for in-person assistance when using autonomous passenger vehicles.

8. Are there any benefits that autonomous passenger vehicles could offer in London, and how likely are those benefits to be realised in London?

8.1 AVs have the potential to meet the accessibility needs of disabled Londoners. For example, it could reduce ableist driver experiences. However, it should not take away from investing in sector-wide staff disability awareness training, and the following of equality procedures (e.g., assistance).

8.2 Travelling to and from stations/stops are a bigger barrier on average than boarding public transport. Autonomous ride services could make this first/last step easier. However, autonomous vehicles are not fully accessible. There is no wheelchair-accessible AV in existence. The Mayor and TfL should ensure that pan-accessibility adaptations are a requirement for AV licensing.

8.3 Disabled households overspend on personal transport, such as taxis and private cars by 33% (as a proportion of income), and underspend on inaccessible public transport by 31%. Disabled people need to spend an average of £1095 extra each month just to have the same standard of living as non-disabled people, but are less likely to be employed, and more likely to live in poverty. As a result, disabled people make 22-35% fewer trips per year than non-disabled people.

8.4 For autonomous vehicles to have uptake amongst disabled people, they would need to be affordable, and/or to have concessionary. Otherwise, autonomous passenger vehicles will be another mode of transport that disabled people cannot access. It will further embed transport inequity as non-disabled people will be able to make use of another mode that disabled people will once again be locked out of.

9. What lessons can London learn from trials and deployments elsewhere?

9.1 Historically, disabled people have not been adequately included in the development of regulation, design, or deployment decisions. This embeds avoidable access barriers and can lead to accidents, injuries, costly lawsuits, and retrofitting. On one hand, operator data shows that autonomous vehicles are reliable and safe to use. On the other hand, AVs (e.g., Waymo, Baidu) have had multiple instances of malfunctioning, collisions, and causing congestion. This raises concerns about road safety policies (e.g., Vision Zero), harm, accountability, and accessibility. While there is no wheelchair accessible vehicle in existence, in the US this is mitigated by Waymo through assisted in-person rides. There is no clarity whether operators will meet wheelchair accessible needs in London, and that it will be affordable to use.

9.2 The lesson to be learned is that disabled people must be involved from the beginning, in every stage from determining the requirements and their parameters, to testing whether requirements have been met, to ensure that regulation benefits everyone. This is especially important in the case of new and emerging technologies, like AVs. It is difficult to predict in advance how they will interact with a full range of access needs.

9.3 To give one example: if a vehicle's ability to recognise passenger numbers and cargo volume is an authorisation requirement, then the vehicle needs to recognise passengers with diverse bodies and appearances, including different heights, limb differences, and facial characteristics etc., and to do so safely and respectfully. It must also be capable of accurately estimating the size and shape of the full range of mobility aids and medical equipment people use now and may use in the future, as well as recognising and accommodating assistance animals.

9.4 Co-production and user testing should be essential to identifying and developing trials and licensing requirements that support accessibility, rather than introducing new barriers.

10. What role should TfL and the Mayor play in the development and oversight of autonomous passenger vehicles?

10.1 TfL has various ways of engaging with disabled communities such as the All Aboard panel, Inclusive Transport Forum and Independent Disability Advisory Group (IDAG). However, as outlined in the Accessibility and Inclusion in Transport Planning report, stakeholder engagement needs to be widened and more in-depth. Disabled people must be central to the development of AV licensing, regulation and standards, not treated as a late-stage consultation checkbox.

10.2 The Mayor and TfL must define the policy and strategic direction of what the development of autonomous passenger vehicles should look like in context of current and future transport strategies. Under section 83 of the AV Act 2024, AVs must be licensed separately to buses, taxis and private hire vehicles. There has been little engagement with disabled people on what licensing should look like in London.

10.3 Co-production should be a mandatory condition of licensing and deployment. Disabled people and our representative organisations should help define technical requirements, operational rules, and enforcement measures, and should be appropriately compensated for their expertise. Disabled communities in London should be part of the decision-making processes pertaining to providing consent of AV organisations to operate in the city.

11. What do Londoners think about autonomous passenger vehicles?

11.1 Autonomous passenger vehicles represent a whole host of possibilities for disabled people. However, there are cost implications to making accessibility adaptations to vehicles and operators may forego including accessibility features. If the technology is not designed with and for disabled people, then there could be serious risks to our safety and mobility. Therefore, safety (including cybersecurity and data sharing) and accessibility standards must be integral to licensing, monitoring, and renewal processes.

11.2 Projects that focus on integrating autonomous vehicles into the existing transport network, rather than overhauling the entire system and replacing it with fleets of self-driving vehicles, are likely to be more achievable, accessible, and affordable.

11.3 Currently, robotaxis run by private companies are the primary type of commercial autonomous vehicle being discussed as a potential option for London (e.g., Lyft, Uber). There are congestion and other transport planning implications to consider when assessing whether this model is suitable for London.

11.4 Further strategic leadership and policies are required to fully assess how robotaxis and other models should operate across different parts of London (i.e., inner London, outer borough areas), and their suitability for access. It may be that robotaxis are more suitable to be used in outer boroughs of London as a way of connecting with existing public transport options.

11.5 Another option is for TfL to lead the development of autonomous passenger vehicles to support stronger regulation, monitoring, accountability and coordination across London. A less privatised alternative could make it easier to integrate and regulate autonomous vehicles within the London transport network.

11.6 Regardless of the options, and to ensure transport equity in the city, disabled people should be involved from the outset of licensing, deploying, monitoring, and reviewing autonomous passenger vehicles in London.

Uber

Autonomous Passenger Vehicles in London: Uber's response to the London Assembly Transport Committee call for evidence

Introduction

Uber welcomes the London Assembly Transport Committee's call for evidence on the subject of autonomous passenger vehicles in London. Operating in 70 countries and more than 15,000 cities worldwide, we have significant first-hand experience of operating in complex real-world transport systems. Uber has partnerships with more than 30 autonomous vehicle (AV) developers globally and we see both the opportunities and the challenges presented by the transition to autonomous passenger services. This response focuses on our experience globally and in London, and draws on engagement with drivers, local licensing authorities, regulators and AV partners.

Executive summary

AVs have the potential to reshape transport. They can improve road safety, accelerate the shift to electric vehicles, and expand independence for people who cannot drive or live in areas poorly served by other transport options. With one of the most well-developed regulatory frameworks for AVs anywhere in the world, there is a significant opportunity to put Britain at the forefront of this transition.

The promise of AVs is real and worth pursuing, but realising it depends on getting the transition right. **That means a phased transition towards a hybrid network,** where drivers and AVs work side by side**.** The transition should be guided by three key priorities:

- **Partnering with cities to get the rollout right:** The introduction of AVs should be undertaken in partnership with cities rather than imposed upon them. Cities should help shape how deployments work, and the parties accountable for each part of the system should be clearly identified from the outset.

- **A fair, equitable and managed transition for workers:** We believe a phased transition to a hybrid model where drivers and AVs work side by side offers the most promise for workers and greater reliability for consumers and cities. Workers must be part of this conversation from the start, and we are engaging with our trade union partner GMB.

- **Serving all communities:** Left to market dynamics alone, autonomous services are likely to concentrate in wealthier, denser areas. For example, in San Francisco, AV operations have expanded into the city's wealthiest neighbourhoods while remaining absent from lower-income areas like Oakland. That risks a two-tier transport system in which the quality of access depends heavily on where a passenger lives. Accessibility and geographic coverage should be treated as core requirements rather than add-ons, and Uber is committed to making its services available across all communities.

Uber

Responses to the call for evidence

1. How close are autonomous passenger vehicles to becoming a reality in London?

Uber expects to bring AVs onto its London network this year. The regulatory environment is a major reason London is so well placed, with the Automated Vehicles Act creating a strong platform. Certainty about the rules of the road, including who is responsible for what and how liability is apportioned, is what unlocks further investment and deployment.

2. How will autonomous passenger vehicles navigate London's complicated road network?

We believe safe deployment on London's complex street network is achievable, provided the rollout is carefully managed and supported by close collaboration between industry, TfL, London boroughs and other stakeholders, including the emergency services. A hybrid network, where AVs and human drivers operate side by side, is the most resilient model.

Before any autonomous partner launches on Uber's platform, we review the safety of the organisation, its technology and its operating model, to ensure it is in line with our publicly available safety guidelines. As part of any licence issued under the APS regime, we would also expect to work closely with TfL and the emergency services to ensure a clear and safe operating model that delivers clear benefits for Londoners.

3. What impact would the introduction of autonomous passenger vehicles have in London?

The positive potential is significant, but it is not automatic. If deployed thoughtfully, AVs could reduce collisions, accelerate electrification, and expand independence for people who cannot drive or should not have to. If poorly managed, the transition could create new challenges for cities, passengers, private hire drivers and other road users.

London's Private Hire Industry

London is home to over 100,000 licensed private hire drivers, so the impact to the workforce must be at the centre of the discussion. Overall demand for mobility is likely to continue to grow, but over time drivers in cities where AVs operate may face fewer, or different, trip opportunities. Acknowledging this is a necessary starting point for managing the transition responsibly.

A phased transition to a hybrid network is crucial to managing this change. AVs will not need to scale as fast on a hybrid network, giving drivers more time to adapt, and hybrid networks may not need as many AVs either, preserving work for existing drivers. Our experience and the data bear this out: in Austin where AVs already share the Uber app with drivers, trips are up and earnings have stayed consistent.

A hybrid network alone will not be enough. Autonomy may create new roles in fleet management, maintenance, remote operations, and oversight, but those positions alone are unlikely to absorb the majority of affected drivers. A responsible transition will therefore require rethinking support for workers, alongside policies that support alternative pathways, and we need to be careful that policies designed to protect workers do not unintentionally accelerate their displacement. Regulatory frameworks will need to recognise that AVs and human drivers operate within a single system. This is why the voices of those who represent drivers matter so much. We are committed to working together with unions, driver representatives, and government, to get this right and have already begun engagement with our union partner GMB.

Uber

The Mayor's Transport Strategy

Whether AVs reduce congestion or deepen it will depend on deployment choices and on how London plans ahead. There is a credible risk that a poorly managed AV deployment could increase congestion in dense city centres. At present, drivers weigh their time against potential earnings, and when demand drops, many log off. AVs operate under different constraints. An AV can remain in circulation so long as operating costs are covered.

Recognising this challenge upfront gives us the opportunity to be deliberate about how to address it. Hybrid networks will naturally need fewer AVs and have higher utilisation, and integrated into a highly utilised hybrid network, AVs could reduce the total number of vehicles required to move people around a city. AVs should support our shared goals, including cleaner air, less congestion, and better access to transport, rather than simply adding more vehicles to the busiest parts of London.

Safety and the public purpose of London's roads

Nowhere is the case for autonomy stronger than safety. According to Department for Transport data, human error is the leading cause of serious crashes, contributing to 88 per cent of collisions on UK roads. AVs are not subject to some of the human factors that can affect driving performance, such as fatigue, distraction, or impairment. If deployed responsibly, the long-term safety potential is real.

Public trust will depend not only on safety outcomes, but on transparency around how systems perform when things inevitably go wrong. Innovation succeeds only where it earns public trust. That has been a consistent lesson from Uber's own experience, and building such trust requires transparency, clear standards and accountability, not technology alone.

Children, older and disabled people, accessibility and safeguarding

The shift to driverless technology creates a gap for riders who need physical assistance. Older adults with mobility challenges, riders using folding wheelchairs, and individuals with limited use of their hands or arms often rely on driver support. Others may need assistance navigating pickup points or adjusting to changing kerb conditions. These needs do not disappear simply because the vehicle drives itself; in many cases they are made more acute.

A transport system that serves everyone must account for the full range of physical, cognitive, and situational challenges riders face. A hybrid network that retains human drivers is part of the answer, and will ensure services remain accessible to all.

Cyber Security

The Committee is right to consider security and resilience. Autonomous technology is enabled by software that affects the real world. As such, clear standards and accountability matter as much as the technology itself. Our review of any autonomous partner covers the organisation, their technology and the operational model before launch. As with safety more broadly, the right response is clear industry standards, thoughtful regulation designed with operators, and resilience designed in from the outset, with a hybrid network providing network resilience if an autonomous fleet is disrupted.

Transport choices and public transport ridership

Autonomy should expand mobility and it should improve access in the places where better transport can make the biggest difference. The risk of a two-tier model is already real. In other cities worldwide, AV services tend to launch and concentrate in areas with predictable traffic patterns and strong demand, while deprioritising transport deserts or communities with more complex operating conditions. The London equivalent would be strong service in Zones 1 and 2, which are already well served by a variety of public transport options, and thin service in outer boroughs and the Mayor's Opportunity Areas where access to transport is limited. However, we want all Londoners to benefit from this technology. AVs should complement public transport, not draw passengers away from it.

4. What should the Mayor and TfL prioritise, and what powers should they seek?

Autonomy should be taken forward in partnership with cities, which should help shape how deployment works, with the accountable parties clearly identified from the outset. At Uber, we have worked closely and consistently with the Department for Transport, City Hall, and Transport for London to ensure the rollout of AVs works for London. We would encourage the Mayor and TfL to prioritise the following:

- **Keeping pilots as pilots:** Early deployments of AVs must be genuine pilots; limited in scope, closely monitored, and scaled up gradually and cautiously as the technology proves itself. The decisions made in this early phase will shape public trust in the technology for years to come, which is why we will expand only as far and as fast as the evidence allows.
- **Committing to a hybrid network model:** The future of mobility should not be a choice between humans and AVs. The most resilient transport systems have always combined both, and a hybrid model offers the most promise for workers and greater reliability for consumers and cities.
- **Keeping workers at the heart of the conversation:** That means working with drivers, partnering with independent researchers to study the impact, and creating structured ways for drivers to share feedback as the technology evolves. Policies should reflect observed outcomes, not assumptions.

We are positive about the existing framework and are supportive of clear and proportionate regulation. The Automated Vehicles Act has created a strong platform, and the recently published regulations that flow from it create a clear path from authorisation of the technology, to operator licensing, to passenger service permitting. TfL's consent before passenger permits can be issued in London, tied to the objectives of the Mayor's Transport Strategy, gives London meaningful levers to ensure deployment works for the city.

5. What can the Mayor and TfL learn from trials and deployments in other countries?

Our international experience offers clear, practical lessons for London. The most important is that outcomes for drivers look very different depending on whether they are treated as central to the transition or not.

In San Francisco and Los Angeles, where drivers compete against AV-only networks, driver utilisation and hourly earnings declined last year, and in California one AV does the work of about four drivers. By contrast, in hybrid markets like Austin, trips are up and driver earnings have stayed consistent. The lesson for London is that the hybrid model is not only more resilient, it is also better for workers.

San Francisco also shows the risk of a two-tier system, with AV operations expanding into wealthier neighbourhoods while nearby communities such as Oakland remained unserved. Before ridesharing platforms expanded coverage, taxis concentrated in airports and dense central corridors, leaving many neighbourhoods unserved. As AVs scale, London should guard against any return to a system in which the availability of service depends on where people live.

Taken together, these lessons point in the same direction. The right path is a phased, hybrid transition that proceeds at a measured pace, with workers and cities at the centre. With the right approach, London and the wider UK can attract investment, drive innovation, and become a world leader in autonomous mobility.

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UK PRIVATE HIRE DRIVERS UNION

Response to London Assembly Transport Committee Call for Evidence:

Autonomous Passenger Vehicles in London

The UK Private Hire Drivers Union (UKPHD) represents private hire drivers across London and the United Kingdom.

Our response focuses primarily on Question 3: *What impact would the introduction of autonomous passenger vehicles have in London on the private hire industry?*

Introduction

London has one of the largest private hire sectors in Europe, with over 100,000 licensed private hire drivers operating across the capital. The sector provides an important source of income for thousands of families and delivers essential transport services to the public.

The workforce is mainly self-employed or worker-status drivers, with a large proportion from the Black, Asian, and Minority Ethnic (BAME) communities. Due to their employment status, drivers lack many employment protections and are vulnerable to adverse economic conditions. As much of the industry is already dominated by app-based services, the introduction of autonomous vehicles particularly through these same systems could directly affect drivers' access to work, earnings and long-term security.

While autonomous vehicle technology may offer certain benefits, its impact on existing workers and the wider taxi and private hire industry must be carefully considered before any commercial deployment.

Q3. What impact would the introduction of autonomous passenger vehicles have in London on the private hire industry?

1. In the short term, there may not be significant changes to the private hire industry from the introduction of autonomous passenger vehicles. However, the changes will very much depend on who deploys the vehicles, where they operate, how they are integrated into existing services and which journey types are allocated to them. The impact will be felt most where app-based services shift trips previously allocated to private hire drivers to autonomous systems. Evidence from other countries suggests that deployment is likely to occur gradually, beginning with limited areas.

2. As autonomous passenger vehicles operate through software systems, existing operators could introduce them through the same applications currently used by passengers and drivers. This would make it relatively straightforward to begin diverting some journeys from human drivers to driverless vehicles.

3. One of the most significant impacts of autonomous passenger vehicles is likely to be on employment. Evidence from areas where these services already operate suggests that the initial effects are more likely to be reduced earnings and longer working hours rather than immediate job losses.

4. Most app-based operators are commercial businesses whose primary objective is to maximise returns. Since these operators entered the London market, the earnings drivers receive from app-based work have come under increasing pressure, often requiring them to work longer hours to maintain their income. We expect this trend to continue if operators introduce autonomous passenger vehicles, particularly where these are combined with software algorithms designed to allocate work and optimise revenues.

5. In the short term, those most affected are likely to be drivers who rely entirely on private hire work as their primary source of income and who depend heavily on app-based companies particularly if the companies adopt the new technology. These drivers may experience:
   - fewer allocated trips;
   - increased waiting times between jobs;
   - downward pressure on earnings;
   - greater competition for remaining work; and
   - increased uncertainty regarding long-term income.

6. In the longer term, the impact could become much more significant if autonomous passenger vehicles are deployed at scale. Experience from Waymo in the United States demonstrates how quickly expansion can occur once the necessary infrastructure, regulatory approval and customer acceptance are in place. In this situation, Waymo increased its paid trips from approximately 250,000 per week in 2025 to more than 500,000 per week by early 2026.[1] The company currently operates more than 1,500 vehicles and has announced plans to add a further 2,000 vehicles.[2] Although autonomous services still represent a relatively small proportion of the overall market, these figures show that growth can accelerate rapidly once commercial conditions become favourable.

7. Many existing London licenced drivers are old workers (35+) and come from migrant backgrounds, which may make transitioning into alternative employment more challenging. Without appropriate support, retraining or reskilling opportunities, some drivers may struggle to secure new work and could become increasingly reliant on state support. Therefore, prior to any commercial deployment, consideration should be given to some form of income protection, transition programmes including retraining opportunities to ensure that the social costs of technological change are properly managed.

8. As part of the transition towards zero-emission transport, many drivers have invested in expensive electric vehicles through long-term finance or rent-to-buy agreements, often

lasting three to five years. If earnings are reduced due to increased competition from autonomous passenger vehicles, some drivers may struggle to meet repayments, potentially leading to vehicle repossession and financial hardship. Therefore, drivers who have invested in improving London’s environment should not be disadvantaged by an earnings squeeze caused by autonomous passenger vehicles.

9. In many cases, private hire drivers are individually responsible for maintaining their vehicles and typically park them close to where they live. Drivers usually begin their shift within their local area and gradually move across the city by accepting the nearest and most appropriate bookings. This naturally distributes vehicles throughout London and limits unnecessary movements. In contrast, if autonomous passenger vehicles are owned and operated by fleet companies, large numbers of vehicles may be deployed from a small number of depots or storage locations. If the first passenger journeys are located some distance away, this could generate additional empty vehicle mileage before revenue-generating trips even begin. Similarly, at the end of the operating day, multiple vehicles may return to the same depot or storage facility. Large numbers of vehicles travelling to and from common locations could increase traffic volumes and contribute to local congestion, particularly if fleet movements become concentrated at certain times of day.

10. In discussions with drivers, they have expressed the view that if introduced, autonomous passenger vehicles should always compete on a level ‘playing field’ with existing taxi and private hire services and should not receive ‘preferential treatment’. For example, concerns have been raised about the possibility of allocating dedicated parking bays, exclusive pick-up and drop-off areas at venues, airports or transport hubs, or other arrangements that could provide autonomous vehicles with a commercial advantage over human drivers. Therefore, it seems reasonable that autonomous passenger vehicles should operate under broadly comparable conditions to existing private hire services. Granting exclusive facilities or preferential access which may in turn be used to promote the service could distort competition and accelerate displacement within the industry. While we recognise that private landowners and businesses may ultimately make their own commercial decisions regarding access arrangements, consideration should be given to establishing appropriate regulatory principles to ensure that competition remains fair and that no particular mode of operation is unduly favoured.

11. It is important to note and the significance should not be over looked that human drivers offer more than transportation. The role of private hire drivers extends beyond simple carrying passengers from A to B. During their working day, drivers regularly provide:
    - Assistance to elderly passengers;
    - Help for disabled passengers and mobility aid users;
    - School transport and safeguarding functions;
    - Assistance with luggage;
    - Passenger reassurance;
    - Customer service;

- Support during emergencies and unexpected situations.

12. A significant point is that private hire drivers are independent individuals who make decisions with regard not only to their own livelihood, but also to the needs of their families, homes and local communities. By contrast, if a significant proportion of autonomous passenger vehicles are owned and operated by a small number of private companies, commercial priorities could exert considerable influence over London's transport system. Should disputes arise over regulation, operating conditions or commercial arrangements, operators controlling a substantial share of the market could possess significant leverage. This could reduce the ability of the Mayor and TfL to shape transport policy solely in the interests of Londoners. Furthermore, once drivers leave the profession, it may prove difficult to attract new entrants if earnings are suppressed by competition from autonomous fleets and if operators derive greater returns from driverless vehicles. A loss of experienced drivers could therefore become difficult to reverse.

13. We believe it is essential that London should always have an appropriate and sustainable number of human drivers. The long-term resilience of the capital's transport system should not be left entirely to market forces or determined solely by commercial considerations. Maintaining a balance between technological innovation and a viable human workforce will help ensure that London's transport system continues to serve the wider public interest.

14. The transition to autonomous passenger vehicles should be approached with extreme caution and, in our view, should be avoided in London given the potential impact on a sizeable section of London's workforce and on the wider transport system. Prior to consideration of any commercial deployment the Mayor and TfL should through regulation and other means incorporate within its remit the active management of some commercial elements of private hire services, including fares for human delivered trips, to protect the future sustainability of the private hire industry. Decisions affecting employment, accessibility, congestion and public transport should not be determined solely by the commercial priorities of private operators, particularly where those operators may be large multinational or overseas companies.

15. Whilst we do not oppose technological innovation it should not come at the expense of workers who have supported London's transport network for many years. Therefore, autonomous passenger vehicles should not be introduced commercially unless it can be clearly demonstrated that they serve the public interest and deliver significant benefits without causing harm to employment, accessibility, public transport or passenger safety. London's broader public policy objectives and the interests of Londoners should take precedence over market forces in determining the future shape of the capital's transport system.

22 June 2026

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Unite the Union submission to GLA Call for Evidence on AV in London

JOBS

- Unite has membership in London's taxi trade, Unite also has over 20,000 members in London's bus industry and thousands more organised in the many delivery companies supplying London.
- There are currently around 105,000 TfL registered Private Hire drivers and 14,000 Black Cab drivers in London. All PH drivers work for an operator, over 90% of private hire drivers are BAEM according to TfL figures. Losing 120k jobs in London, some immediately, would enormously impact London's economic ecosystem.
- Millions of pounds will be lost to SME in consumer spending in London.
- At present no vehicles planned for use in London are manufactured in the UK. The JLR vehicle presently being trialed in London by Waymo will be replaced shortly by one manufactured overseas.
- AV software is self-learning. But is controlled and developed by mainly US Big Tech cartels such as Uber; Microsoft; N'vidia; Google; Tesla, all based outside the UK. There is one leading UK developer based in Cambridge, Wayve, but if you investigate its investors, they are mainly oversea Big Tech, overseas car manufacturers, IT venture capitalists or Sovereign Wealth Funds.
- All software is vulnerable to hacking from malicious state actors, criminals etc. Witness the Co-Op, Marks and Spencer, Jaguar Land Rover and of course TfL.
- Concerns have also been expressed about the onboard safety systems in extreme weather (snow, fog or heavy rain).
- Democratic Deficit: The UK national, regional and local government will lose control of decisions impacting millions of people in major UK cities. London will be first. Essentially these disruptive technologies wish to have no or very little regulation, or indeed seek to become de facto self-regulating monopolies, thus undermining local government control of transport decisions.
- The impact of AV with no cap on vehicle numbers in place could undermine the current Mayor's strategy of ensuring 80% of journeys in London are made by foot, public transport or cycling by 2041. AV will also add to current congestion and therefore indirectly to increased pollution levels.
- Millions will be lost to HMRC with the loss of jobs in London in the medium to long term
- Disability Discrimination Act: All London Black taxis have wheelchair accessibility. No current vehicles operating around the world as AV have this vital component. There is no requirement under current PH regulations in London or other cities in the UK for PH vehicles to offer this.
- A vulnerable passenger in the AV vehicle may be more likely to be attacked with no human driver present, solely relying on an overseas based operator to respond in an emergency in the final instance.

- There is still no clarity as to who is responsible if there is an accident. AV human controllers must be required to be based in the UK and hold UK driving licenses. Legal responsibility for accidents and deaths in or by AV could be almost impossible to determine

The GLA and the Mayors roles

- The London Mayor and GLA should demand that the DVSA/ DfT make all data in the current Pilot scheme in London public,
- Ther must be a just transition including compensation from Big Tech to existing drivers for the social and economic impact on jobs in London paid by appropriate new levels of taxation on technology which actively undermines current employment.
- Any future implementation of AV regulations should be under the authority of the Mayor and TfL. The DVSA/ DfT should not control regulation of AV in London.
- Taxation of AV should be under local authority control, beginning in London.
- The GLA Transport Committee must ensure the current opaque nature of the pilot trials stops and full transparency of the process is allowed.
- Until such a time as the bullet points above are accepted no AV should be licensed in London to carry passengers commercially.

[Ref No. AV040, Unite the Union]

Unite response to Department for Transport call for evidence on Developing the Automated Vehicles Regulatory Framework

Executive Summary and Introduction

1. Introduction

1.1. This submission is made by Unite the Union, the UK's largest trade union with over one million members across all sectors of the economy, including: manufacturing, financial services, transport, food and agriculture, construction, energy and utilities, information technology, service industries, health, local government, and the not-for-profit sector.

1.2. Of particular interest to this consultation is membership of more than a quarter of a million workers in all forms of transport. Over 60,000 Unite members are in the road freight, haulage, and warehousing industry while another 75,000 are in passenger transport, including bus and tram drivers, and drivers in the taxi and private hire sector. Additionally, Unite represents almost 60,000 members in the automotive manufacturing sector.

1.3. Unite's transport members undertake roles that will be heavily impacted by any potential rollout of automatic vehicles. These include:

- professional drivers, including HGV and bus drivers
- warehouse and logistics workers, including forklift operators
- drivers in the taxi and private hire sector
- vehicle engineers and technicians
- vehicle maintenance, delivery, and disposal workers
- workers across the wider supply chain

1.4. Workers in these roles will be among the first to work with, alongside, or in proximity to Automated Vehicles (AVs). They will also be among the first to face the consequences if the regulatory framework is weak, fragmented, or designed around commercial priorities rather than public safety and worker protection.

1.5. Unite agrees that the Automated Vehicles (AV) Act 2024 has the potential to provide a foundation for safe deployment of AVs in Great Britain. However, the Act's success will depend entirely on the strength of the secondary legislation, licensing regimes, and regulatory systems now being developed.

1.6. This submission addresses relevant questions to our membership and the communities they live in. The baseline principles underlying our response - and on all issues relating to automation - can be summarised as:

Automation must raise standards — not lower them

The benefits of new technologies and increased productivity must be shared with workers — not used to replace them

The UK must lead the world in safe, worker-centred regulation

2. Ensuring the workplace rights and protections of the UIC

2.1. The User-in-Charge (UIC) of a crewed AV is a worker that requires stringent protections. These must include, but may not be limited to:

2.1.1. Strict limits on the non-driving activities of the UIC.

2.1.2. Mandatory, recurrent UIC training.

2.1.3. A 12-15 second transition period when switching between automatic and UIC operated modes.

2.1.4. Full pay and working protections for the worker weather they are driving, supervising, or undertaking remate operations of an AV.

2.1.5. Strict user-to-vehicle staffing ratios, ranging from 1:3 to 1:1 depending on the complexity of the environment.

2.2. Unite members in the transport industry have seen the impact of “gig economy” style employment practices and reject entirely the race to the bottom this would impose on pay, conditions, and health and safety standards. All AV operations must have direct and transparent employment models where the worker is treated as a worker and protected by full employment law and access to collective bargaining.

2.3. In addition to upholding employment rights and protections, proper relations of employment are vital for preventing the erosion of important safety standards, for example in the HGV sector, developed through years of engagement and bargaining between employers and unions.

2.4. Operations centres from which remote driving takes place, for example by No-User-in-Charge-Operators (NUICOs), must be UK based. Unite is firmly opposed to the offshoring of AV control, in particular for safety critical work.

2.5. The UIC must ***never*** be held liable for Automatic Driving Systems (ADS) driven behaviour. Liability for vehicle behaviour when under automatic control must lie with either the NUICO, the Authorised Self-Driving Entity (ASDE), or the legal owner of the vehicle.

3. Automatic Vehicle maintenance

3.1. ADS diagnostics cannot replace human inspection. AV maintenance plans must incorporate DVSA daily walk-around checks.

4. Licensing and insurance

4.1. Unite supports a rigorous licensing process for NUICOs. At minimum this should include strict good-repute and financial-standing tests for potential licence holders. Substantive employers must ensure thorough inspection of licencing when employing subcontractors.

4.2. Unite reiterates our strong opposition to offshoring, including on the grounds of ensuring valid licencing.

4.3. Licence holders should have TUPE style protections and the right to union consultation ahead of major changes to their employment.

4.4. Unite supports mandatory data sharing for insurance clams, but with strict limits on insurer access to personal information. Unite also believes it is very likely that new insurance products will be required for NUIC operations.

4.5. ADS related incidents should not impact the standing of UICs from an insurance point of view and should not form part of their insurance records.

5. Cyber security

5.1. Unite supports mandatory cyber security certification, strict reporting timelines, and clear responsibilities for ASDEs, NUICOs, and manufacturers.

6. In-use regulation, accessibility, and environmental standards

6.1. Unite supports real-time data access for regulators and mandatory reporting of all incidents and near-misses.

6.2. We know that, especially in the case of large, cash-rich employers, fixed fines can be viewed as “the price of doing business”. Therefore, breaches of AV regulations must result in turnover-based fines.

6.3. The DVSA, Office of Rail and Road and/or any other responsible agency must have strong enforcement powers to uphold regulation. Employers adopting ADS technologies must be subject to regular inspection and independent auditing, especially in the early stages of the rollout of this new technology.

6.4. Cabin design of ADS enabled vehicles must still account for comfortable and safe human access and operation. These standards must be strengthened with appropriate safeguarding protocols for UICs.

6.5. Appropriate consideration must be given to safe and sustainable end of life disposal of AVs.

7. Conclusions

7.1. The UK has an opportunity to lead the world in Automated Vehicle regulation, but only if the framework is built on the principles of safety, transparency, worker protection, public trust, strong enforcement, clear accountability, and no compromise on labour standards

7.2. Automation must not be used to cut corners, reduce staffing, offshore safety-critical work, weaken pay and conditions, or undermine existing safety regimes. Instead, automation must raise standards, improve safety, create high-quality jobs, and strengthen the UK’s transport and logistics sectors.

7.3. Unite stands ready to work with government, regulators, and industry to ensure that automated vehicles are introduced safely, responsibly, and in a way that protects workers and the public.

7.4. Unite is clear that the risks identified in this submission relate specifically to the expansion of **corporate-owned automated vehicle fleets**, not individual private ownership of automated cars. Unite emphasises that nothing in this submission conflicts with or complicates plans to bring public transport into public ownership. On the contrary, the regulatory standards proposed here —

around safety, transparency, workforce protections, accessibility, and accountability — are fully compatible with, and in many cases strengthened by, publicly owned and democratically accountable transport services.

Response to consultation questions

Question 1: Do you think that amendments are required to any of the vehicle type approval schemes to enable deployment of AVs?

Unite response:
Yes. Amendments are required to ensure that type approval reflects the unique safety, cyber-security, and operational risks of automated vehicles, particularly in commercial and passenger-carrying contexts.

Unite recommends that the UK:

- strengthen cyber-security requirements beyond UNECE baselines;
- require type approval to consider human–machine interaction (HMI) safety;
- mandate safety-critical redundancy for braking, steering, and communications;
- require type approval to consider remote-operation interfaces and failure modes;
- ensure that type approval explicitly covers load-security monitoring for goods vehicles.

The UK should exceed EU and UNECE standards to protect workers and the public.

Question 2: What amendments do you consider are needed for the categories identified in the previous question, and why?

Unite response:
Amendments should include:

1. Category M (passenger vehicles)

- mandatory cabin-monitoring systems for NUIC passenger services;
- accessibility-focused design requirements;
- enhanced fire-safety and evacuation standards.

2. Category N (goods vehicles)

- mandatory load-security sensors;
- automated weight-distribution monitoring;

- enhanced braking redundancy for heavy vehicles.

3. Category L (light vehicles)

- stricter stability and sensor-placement requirements;
- mandatory geofencing for micromobility AVs.

4. Cross-category requirements

- cyber-security certification;
- remote-operation safety validation;
- mandatory data-logging (DSSAD + EDR).

These amendments ensure that type approval reflects real-world risks and protects workers and the public.

Question 3: What do you think will be the designs of self-driving vehicles deployed in the next 5 years?

Unite response:
Likely designs include:

- automated shuttles and pods for short-distance passenger transport;
- depot-to-depot automated HGVs;
- last-mile delivery robots and small goods vehicles;
- automated vans for logistics and parcel delivery;
- passenger cars with limited ODDs (motorway-only ADS).

These designs reflect commercial priorities in logistics, mobility, and fleet operations.

Question 4: Do you expect any designs to be specific to the UK, and why?

Unite response:
Yes. UK-specific designs may emerge due to:

- narrow, complex urban road layouts;
- high pedestrian density;
- legacy infrastructure;
- left-hand-traffic requirements;
- unique bus and taxi operating environments.

This will particularly affect automated buses, shuttles, and delivery vehicles.

Question 5: What do you think will be the use-cases of self-driving vehicles deployed in the next 5 years in the UK?

Unite response:
Likely use-cases include:

- last-mile parcel delivery;
- depot-to-depot freight movement;
- automated shuttle services;
- automated taxis in geofenced areas;
- yard, port, and warehouse automation;
- motorway-only ADS for private cars.

These use-cases reflect commercial viability and controlled-environment deployment.

Question 6: Do you expect any use-cases to be specific to the UK, and why?

Unite response:
Yes. UK-specific use-cases include:

- automated buses in dense urban environments;
- automated vehicles operating in historic city centres;
- integration with UK-specific logistics hubs (ports, rail freight terminals);
- automated vehicles supporting rural mobility gaps.

These reflect the UK's unique transport mix and infrastructure.

Question 7: What types of evidence should form the basis of an authorisation application?

Unite response:
Authorisation must require:

- independent safety case assessment;
- real-world testing data;
- simulation evidence;
- cyber-security validation;
- human-factors analysis;

- transition-demand performance data;
- remote-operation safety evidence;
- worker-safety impact assessment.

The UK should exceed existing international standards by requiring **independent auditing** of safety cases.

Question 8: What evidence gathered at the type approval stage should support authorisation?

Unite response:
Relevant evidence includes:

- ADS performance validation;
- sensor performance and redundancy;
- braking and steering safety;
- cyber-security certification;
- DSSAD/EDR compliance.

However, authorisation must not rely solely on type approval. It must include **operational safety evidence**.

Question 9: Do geofencing or environmental mapping have a role in ODD approval?

Unite response:
Yes. Geofencing and mapping are essential for:

- ensuring ADS operation only within safe environments;
- preventing ODD breaches;
- enabling regulator oversight;
- supporting incident investigation.

The UK should require **mandatory geofencing** for all NUIC deployments.

Question 10: Are there specific authorisation requirements relating to the vehicle that should or should not be included?

Unite response:
Should include:

- mandatory ODD boundary detection;

- load-security monitoring for goods vehicles;
- cabin-monitoring for passenger vehicles;
- cyber-security certification;
- redundant braking and steering;
- mandatory DSSAD + EDR.

Should not include:

- self-certification without independent audit;
- reliance on manufacturer-defined safety metrics.

Question 11: What should be considered when assessing whether an ASDE is of good repute?

Unite response:
Good repute must include:

- clean safety record;
- no history of misleading regulators;
- compliance with labour standards;
- no union-busting;
- transparent global operations.

The UK should exceed existing international standards by embedding **labour-standards compliance**.

Question 12: What should be considered when assessing whether an ASDE is of good financial standing?

Unite response:
Financial standing must include:

- ability to fund lifetime software updates;
- cyber-security investment;
- insurance coverage;
- audited accounts;
- capital reserves proportionate to fleet size.

Question 13: What should be considered when assessing whether an ASDE is competent?

Unite response:
Competence must include:

- a documented safety management system;
- qualified safety engineers;
- human-factors expertise;
- cyber-security capability;
- incident-response capability;
- union-consulted workforce policies.

Question 14: Are there other ASDE authorisation requirements that should or should not be included?

Unite response:

Unite recommends that a mandatory Worker Impact Assessment (WIA) be included as part of the authorisation process for any automated vehicle system. The introduction of AV technology has significant implications for workers in safety-critical roles, including drivers, remote operators, maintenance staff, and logistics workers. A WIA must therefore be required to be produced by the ASDE before any ADS is authorised for use. This assessment should cover:

- impacts on job roles, staffing levels, and employment security;
- training and retraining requirements;
- redeployment pathways and protections against compulsory redundancy;
- equality impacts on older, disabled, migrant, and lower-paid workers;
- risks of casualisation, gig-economy models, or offshoring of safety-critical; work
- impacts on collective bargaining, union access, and workforce consultation;
- health, safety, and fatigue implications for UICs and remote operators.

The WIA must be submitted alongside the safety case and reviewed by the regulator with input from recognised trade unions. No ADS should be authorised unless the operator demonstrates that workforce impacts have been fully assessed, mitigated, and addressed through negotiated plans with unions. This ensures that automation raises standards rather than undermining jobs, safety, or employment conditions.

Question 15: What additional information should be captured on the register of authorisations?

Unite response:
The register should include:

- ODD details;
- safety case summaries;
- ASDE identity;
- NUICO identity (if applicable);
- incident history;
- sanctions history;
- software version history.

Question 16: How might you expect to use the information in the register?

Unite response:
Unite would use the register to:

- monitor safety performance;
- support worker safety campaigns;
- identify high-risk operators;
- inform collective bargaining;
- support public transparency.

Question 17: What should be considered when developing the authorisation procedure?

Unite response:
The procedure must be:

- transparent;
- independent;
- auditable;
- worker-centred;
- proportionate but rigorous.

It must avoid “rubber-stamping” and ensure meaningful scrutiny.

Question 18: Are there lessons from other regulated areas?

Unite response:
Yes. Lessons from:

- aviation certification;
- rail safety cases;
- HGV operator licensing;
- nuclear safety regulation.

Key principles:

- independent oversight;
- no self-certification;
- mandatory reporting;
- strong enforcement.

Question 19: What processes should ensure authorised vehicles continue to meet the safety standard?

Unite response:
Processes must include:

- annual safety case updates;
- mandatory updates after software changes;
- independent audits;
- real-time data access for regulators;
- mandatory reporting of all incidents and near-misses.

Question 20: How should software or functionality changes be managed?

Unite response:
Software changes must require:

- mandatory notification;
- safety case re-evaluation;
- reauthorisation for major changes;

- worker retraining;
- regulator approval before deployment.

Question 21: What costs should be considered when assessing authorisation standards?

Unite response:
Legitimate costs:

- safety case development;
- cyber-security;
- training;
- data retention;
- independent audits.

Costs that must **not** justify deregulation:

- avoiding labour protections;
- offshoring safety-critical work;
- reducing staffing.

Question 22: What benefits should be considered when assessing authorisation standards?

Unite response:
Benefits include:

- improved road safety;
- reduced collisions;
- stronger public trust;
- high-quality jobs;
- protection of existing logistics roles;
- improved regulatory transparency.

Question 23: Should any existing prohibitions on non-driving related activity by a UIC be disapplied?

Unite response:
No. Unite strongly opposes relaxing prohibitions on non-driving activities for UICs.

A UIC is in a **safety-critical standby role**, comparable to:

- a pilot during automated flight,
- a train driver under ATO,
- an HGV driver using advanced driver-assistance systems.

Human-factors evidence shows that distraction significantly increases takeover time and reduces situational awareness. Allowing additional non-driving activities would undermine safety and expose workers to unfair liability.

Unite therefore supports:

- **continuing the ban on mobile phone use**,
- **prohibiting reading, video watching, and other distracting activities**,
- **treating UIC time as working time**, with full pay and protections.

The UK should match and exceed Germany's and any other restrictions.

Question 24: What evidence can you supply on the ability of a driver to safely resume control after disengagement?

Unite response:
Human-factors research across aviation, automotive, and rail shows:

- drivers require **10–15 seconds** to regain situational awareness after disengagement;
- takeover time increases with distraction, fatigue, or cognitive load;
- poorly designed alerts significantly increase takeover failures.

This supports strict limits on UIC activities and longer transition periods.

Question 25: Should there be specific training for a UIC?

Unite response:
Yes. UICs must receive mandatory, nationally standardised training that:

- exceeds Driver CPC;
- covers ADS limitations and failure modes;
- includes emergency procedures;
- includes transition-demand management;
- includes legal responsibilities;

- includes human-factors awareness.

Question 26: What knowledge and skills outcomes should UIC training provide?

Unite response:
Training must ensure UICs can:

- understand ADS capabilities and limitations;
- recognise system failures;
- respond to transition demands;
- manage emergency situations;
- maintain vigilance;
- understand legal responsibilities and protections;
- operate safely in mixed-traffic environments.

Question 27: How frequently should UICs undertake training or tests?

Unite response:
Unite recommends:

- **annual recurrent training**;
- mandatory retraining after software updates;
- mandatory retraining after incidents or near-misses;
- periodic medical assessments equivalent to HGV/PCV standards.

Question 28: How should a UIC be informed of changes to the vehicle’s authorisation?

Unite response:
UICs must be informed through:

- mandatory in-vehicle notifications;
- mandatory written communication from the ASDE/NUICO;
- mandatory training updates for safety-critical changes;
- clear, accessible language.

No UIC should ever be placed in a position where they unknowingly operate outside the authorised ODD.

Question 29: What costs should be considered when assessing UIC regulation?

Unite response:
Legitimate costs include:

- training and certification;
- medical assessments;
- system design for safe transitions;
- cyber-security;
- data retention;
- independent audits.

Costs that must **not** justify deregulation:

- avoiding labour protections;
- reducing staffing;
- offshoring safety-critical work.

Question 30: What benefits should be considered when assessing UIC regulation?

Unite response:
Benefits include:

- improved road safety;
- reduced collisions;
- stronger public trust;
- high-quality, safety-critical jobs;
- protection of existing logistics roles;
- clear liability protections for workers.

Question 31: Should there be a stated value for a transition period duration?

Unite response:
Yes. The UK should adopt a **minimum transition period of 10 seconds**, aligned with UNECE R157, but exceed it by setting:

- **12–15 seconds as the default**,

- longer periods in complex environments.

This reflects human-factors evidence and exceeds Germany’s approach.

Question 32: What should the minimum value be, and why?

Unite response:
12–15 seconds, because:

- drivers require 10–15 seconds to regain situational awareness;
- shorter periods increase takeover failures;
- complex environments require longer reaction times.

Question 33: Should different scenarios require different transition demand protocols?

Unite response:
Yes. Transition demands must be scenario-specific, reflecting:

- urban vs motorway environments;
- weather conditions;
- traffic density;
- load type (for goods vehicles);
- passenger presence.

This mirrors aviation and rail safety practice.

Question 34: Should the nature of a transition demand vary depending on the UIC?

Unite response:
Yes. Alerts must be accessible to all potential UICs, including disabled UICs. This requires:

- multimodal alerts (visual, auditory, haptic);
- adjustable volume and brightness;
- compatibility with assistive technologies.

Question 35: Should standards be established for transition demand interfaces across different vehicle makes and models?

Unite response:
Yes. The UK should mandate **industry-wide standardisation**, including:

- consistent alert tones;
- consistent visual indicators;
- consistent haptic feedback;
- consistent terminology.

This reduces cognitive load and improves safety.

Question 36: What should be considered when assessing whether a NUICO licence applicant is of good repute?

Unite response:
Good repute must include:

- a clean safety record;
- no history of misleading regulators;
- compliance with labour standards;
- no use of gig-economy models for safety-critical roles;
- no union-busting or anti-worker practices;
- transparent global operations;
- no history of cyber-security negligence.

The UK should exceed all existing international standards by embedding **labour-standards compliance** into the definition of good repute.

Question 37: What should be considered when assessing whether a NUICO licence applicant is of good financial standing?

Unite response:
Financial standing must include:

- sufficient capital to maintain safe operations;
- ability to fund lifetime software updates;
- cyber-security investment;
- insurance coverage for ADS and remote-operation failures;

- audited accounts;
- reserves proportionate to fleet size.

Financial standing must not be used to justify cost-cutting that undermines safety or workers' rights.

Question 38: What capabilities should NUICOs possess to detect problems during NUIC journeys?

Unite response:
NUICOs must have:

- real-time monitoring of every NUIC vehicle;
- automated alerts for ADS failures, ODD breaches, and sensor degradation;
- load-security monitoring for goods vehicles;
- cabin-monitoring for passenger vehicles;
- cyber-security intrusion detection;
- redundant communications channels.

The UK should require from **1:1 to 1:3 maximum monitoring ratios** in complex environments.

Question 39: What capabilities should NUICOs possess to respond to problems during NUIC journeys?

Unite response:
NUICOs must be able to:

- dispatch support vehicles;
- communicate with emergency services;
- provide remote ADS assistance;
- initiate safe stops;
- support passengers in distress;
- manage cyber-security incidents;
- secure loads and protect the public.

This must be backed by **24/7 staffed operations centres**.

Question 40: f you may seek to operate NUIC passenger-carrying vehicles in the future, what kind of service and types of vehicles would you be most likely to operate?

Unite response:
Not applicable to Unite as an operator.
However, Unite represents workers who will interact with these systems and therefore supports strong safety and safeguarding requirements.

Question 41: What requirements should be put in place for NUIC passenger vehicles?

Unite response:
The UK should exceed Germany by requiring:

- real-time cabin monitoring;
- panic buttons;
- safeguarding officers in operations centres;
- enhanced DBS checks for remote staff;
- accessibility-compliant interiors;
- mandatory reporting of passenger-safety incidents.

Question 42: How should operators and authorities prevent and respond to crimes in NUIC passenger vehicles?

Unite response:
Unite recommends:

- real-time cabin monitoring;
- automatic alerts for violent or unsafe behaviour;
- integration with police systems;
- mandatory safeguarding protocols;
- trained remote staff;
- clear passenger reporting mechanisms.

NUIC passenger vehicles must not become unmonitored spaces.

Question 43: If you may seek to operate NUIC goods vehicles in the future, what kind of service and types of vehicles would you be most likely to operate?

Unite response:
Not applicable to Unite as an operator.
However, Unite represents logistics workers and therefore supports strong protections for load security and worker safety.

Question 44: If you may seek to operate NUIC goods vehicles over 3.5 tonnes in the future, is it likely you will operate both NUIC goods vehicles and manually driven HGVs?

Unite response:
Not applicable to Unite as an operator.
However, Unite emphasises that NUIC operations must not undercut HGV standards or fragment the workforce.

Question 45: What HGV operator licensing requirements should be disapplied or amended for NUIC HGVs?

Unite response:
None should be disapplied.
Instead, the UK should:

- apply all HGV operator licensing standards;
- add additional NUICO-specific requirements;
- prohibit undercutting of pay and conditions;
- mandate TUPE-style protections;
- require load-security monitoring.

NUIC must not become a loophole to weaken HGV safety or labour standards.

Question 46: What remote ADS assistance tasks are likely to be used?

Unite response:
Likely tasks include:

- object identification;
- route clarification;
- resolving ADS uncertainty;
- interpreting unusual road layouts;

- supporting emergency manoeuvres (without taking control).

These tasks must never replace ADS capability or compensate for inadequate system design.

Question 47: When is remote ADS assistance appropriate?

Unite response:
Only when:

- the ADS retains full responsibility;
- communications are stable and redundant;
- the situation is low-risk;
- the operator is trained and certified;
- the intervention is logged and auditable.

Question 48: When is remote ADS assistance inappropriate?

Unite response:
Remote ADS assistance must not be used:

- in high-risk environments;
- when communications are degraded;
- to compensate for poor ADS performance;
- when passengers are in distress;
- when load stability is compromised.

Question 49: What training and vetting should remote ADS assistants receive?

Unite response:
Training must include:

- aviation-style recurrent training;
- human-factors awareness;
- cyber-security training;
- safeguarding training;
- medical and fatigue assessments;
- enhanced DBS checks.

Question 50: What working-hours requirements should apply to remote ADS assistants?

Unite response:
Remote ADS assistants must be covered by:

- HGV/PCV working-time limits;
- mandatory rest breaks;
- fatigue-risk management systems;
- full pay for all monitoring time.

Remote ADS assistance is a **safety-critical role** and must be regulated as such.

Question 51: What factors should determine how many NUIC vehicles a remote ADS assistant can support?

Unite response:
Factors include:

- environment complexity;
- vehicle type;
- load type;
- passenger presence;
- communications reliability;
- operator experience.

Unite recommends:

- **1:1 to 1:3** in complex environments;
- **1:5 maximum** in low-risk settings.

Question 52: How likely are you to incorporate remote driving?

Unite response:
Not applicable to Unite as an operator.
However, Unite strongly opposes routine remote driving due to safety, cyber-security, and labour-standards risks.

Question 53: When should remote driving be permissible for vehicle recovery?

Unite response:
Only when:

- the vehicle is immobilised;
- the environment is low-risk;
- speed is limited (e.g., <5 mph);
- communications are redundant;
- no passengers are on board;
- the remote driver is certified.

Question 54: When should remote driving be permissible during NUIC journeys?

Unite response:
Only in exceptional circumstances:

- ADS failure;
- emergency manoeuvres;
- unusual road layouts;
- obstructions requiring human judgement.

Never when:

- passengers are present,
- loads are unstable,
- communications are degraded.

Question 55: When should remote driving be permissible to routinely complete NUIC journeys?

Unite response:
Never.
Routine remote driving undermines:

- safety,
- cyber-security,
- labour standards,

- ADS capability requirements.

The UK should explicitly prohibit routine remote driving, exceeding existing international standards approach.

Question 56: What training and vetting should remote drivers receive?

Unite response:
Remote drivers must receive:

- simulator-based licensing;
- medical and fatigue assessments;
- cyber-security training;
- safeguarding training;
- enhanced DBS checks.

Question 57: What working-hours requirements should apply to remote drivers?

Unite response:
Remote drivers must be covered by:

- HGV/PCV working-time limits;
- mandatory rest breaks;
- fatigue-risk management systems;
- full pay for all monitoring and driving time.

Question 58: What considerations should be made when assessing remote driving hardware and software?

Unite response:
Assessment must include:

- latency and bandwidth requirements;
- redundant communications;
- ergonomic workstation design;
- cyber-security certification;
- fail-safe mechanisms;
- human-factors validation;

- independent testing.

The UK should require **independent certification** of remote-driving systems.

Question 59: What restrictions or mandatory conditions should be placed on NUICOs contracting out functions to third-party suppliers?

Unite response:
Contracting out NUICO functions introduces major risks: fragmentation, loss of accountability, offshoring, and erosion of labour standards. The UK must prevent NUICO licensing from becoming a loophole for unsafe or exploitative practices.

Unite recommends the following mandatory conditions:

1. NUICO retains full legal responsibility

No function may be outsourced in a way that dilutes accountability for safety, cyber-security, or regulatory compliance.

2. Licensing of subcontractors

Any subcontractor performing safety-critical functions must be:

- licensed;
- audited;
- held to the same standards as the NUICO.

3. Prohibition on offshoring safety-critical work

Remote operations, monitoring, and remote driving must **not** be performed outside the UK due to:

- cyber-security risks;
- latency issues;
- regulatory oversight limitations;
- labour-standards concerns.

4. TUPE-style protections

Workers must not be displaced by outsourcing.
Any transfer of functions must include:

- TUPE-equivalent protections;
- recognition of unions;
- continuity of pay and conditions.

5. Transparency of supply chains

NUICOs must disclose:

- all subcontractors;
- their roles;
- their locations;
- their safety records.

6. Union consultation

Any outsourcing of safety-critical functions must require:

- prior consultation with recognised unions;
- impact assessments on worker safety and employment.

Question 60: What costs should be considered when assessing the impact of NUICO regulation?

Unite response:
Legitimate costs include:

- staffing 24/7 operations centres;
- training remote operators and ADS assistants;
- cyber-security infrastructure;
- data retention and secure storage;
- independent audits;
- safety case development;
- cabin-monitoring and load-monitoring systems;
- communications redundancy.

Costs that must **not** justify deregulation:

- reducing staffing ratios,
- offshoring safety-critical work,
- using gig-economy models,
- cutting corners on cyber-security,
- weakening labour protections.

Question 61: What benefits should be considered when assessing the impact of NUICO regulation?

Unite response:
Benefits include:

- improved road safety;
- reduced collisions;
- stronger public trust;
- high-quality, safety-critical jobs;
- protection of existing logistics roles;
- prevention of workforce fragmentation;
- clear accountability for safety;
- reduced exploitation risks;
- better cyber-security resilience.

Strong NUICO regulation protects both workers and the public.

Question 62: How can insurance play a role in ensuring good financial standing of regulated bodies?

Unite response:
Insurance can demonstrate financial standing by ensuring that NUICOs and ASDEs can:

- meet compensation obligations;
- cover catastrophic risks;
- respond to cyber-security failures;
- fund product recalls;
- maintain business continuity;
- cover remote-operation errors.

The UK should require:

- product liability insurance;
- cyber-security insurance;
- remote-operation liability insurance;
- employer liability insurance;

- public liability insurance.

Question 63: What instances exist where insurance is used to ensure good financial standing?

Unite response:
Relevant examples include:

- product recall insurance in automotive manufacturing;
- cyber-security insurance in critical infrastructure;
- professional indemnity insurance in safety-critical industries;
- fleet insurance for logistics operators.

These demonstrate how insurance mitigates high-impact risks.

Question 64: What premiums are charged for product recall insurance?

Unite response:
Premiums vary widely depending on:

- fleet size;
- risk profile;
- manufacturer history;
- software complexity;
- cyber-security posture.

Unite emphasises that **higher premiums reflect higher risk** and must not be used as an argument for deregulation.

Question 65: Is there a need for new fleet management insurance products for NUICOs?

Unite response:
Yes. NUICOs require new insurance products covering:

- ADS liability;
- remote-operation liability;
- cyber-security breaches;
- data-loss and data-corruption;
- business interruption;

- remote-driving incidents.

Existing fleet insurance is not designed for:

- remote operations;
- cyber-physical systems;
- ADS-driven liability.

Question 66: What learnings from other insurance models could apply to AVs?

Unite response:
Relevant models include:

- aviation insurance (pilot error vs system failure);
- rail insurance (ATO/ATP incidents);
- maritime automation insurance;
- cyber-security insurance frameworks.

These sectors show the value of:

- independent investigation;
- clear liability chains;
- mandatory data retention;
- strong regulatory oversight.

Question 67: What risks and opportunities exist for data controllers in sharing data with insurers?

Unite response:

Opportunities:

- faster claims resolution;
- clearer liability;
- improved safety modelling;
- reduced fraud.

Risks:

- privacy breaches;

- commercial misuse of data;
- insurers pressuring operators for excessive data;
- discrimination in pricing models;
- data being used to undermine workers.

The UK must embed strict purpose-limitation and worker-data protections.

Question 68: How could privacy and data protection be managed if insurers request additional data?

Unite response:
Unite recommends:

- strict purpose limitation;
- pseudonymisation where possible;
- independent oversight;
- union consultation on data use;
- mandatory privacy impact assessments;
- clear retention limits;
- transparency to users and workers.

The UK should exceed Germany by embedding **worker-data protections**.

Question 69: What costs should be considered when regulating AV insurance?

Unite response:
Costs include:

- data storage;
- cyber-security;
- DSSAD/EDR compliance;
- training for claims handlers;
- system integration.

Question 70: What benefits should be considered when regulating AV insurance?

Unite response:
Benefits include:

- faster compensation;
- reduced disputes;
- improved safety;
- stronger public trust;
- clearer liability chains;
- protection of UICs from unfair penalties.

Question 71: What examples exist of AV insurance being done well?

Unite response:
Examples include:

- Germany's ADS liability model;
- Japan's automated shuttle insurance frameworks;
- US pilot programmes with mandatory data disclosure.

The UK can lead by integrating:

- stronger data protections;
- clearer liability rules;
- mandatory safety-case updates;
- worker-centred protections.

Question 72: How might a regulated body determine if an AV has committed a traffic infraction?

Unite response:
A regulated body must rely on multiple, corroborating data sources to determine whether an AV has committed a traffic infraction. These include:

- **DSSAD data** (ADS activation/deactivation, control inputs, ODD boundary warnings)
- **EDR data** (speed, braking, steering inputs)
- **ADS logs** (system decisions, sensor interpretation)
- **NUICO monitoring logs** (remote-assistance interventions)

- **third-party data** (police, highway authorities, CCTV)
- **vehicle telematics** (GPS, speed, geofencing)

Unite emphasises that:

A UIC must never be held responsible for any AV-driven infraction while the ADS is engaged.

Responsibility must sit with the ASDE or NUICO.

Question 73: What should be taken into consideration in the submission of standardised information to the IURS, and why?

Unite response:
Standardisation must ensure:

- consistent data formats across all ASDEs and NUICOs;
- clear definitions of infractions and incidents;
- mandatory timestamps;
- mandatory location data;
- mandatory ADS state data;
- secure transmission protocols;.
- worker-data protections;
- union consultation on data policies

Standardisation prevents manipulation, ensures fairness, and supports transparent enforcement.

Question 74: What specialist elements or knowledge are needed for IURS investigations?

Unite response:
Investigators must have expertise in:

- ADS behaviour and failure modes;
- cyber-security and intrusion detection;
- human-factors analysis;
- remote-operation systems;
- sensor fusion and perception systems;

- vehicle dynamics;
- load-security (for goods vehicles);
- passenger-safety systems;
- data forensics.

This exceeds the requirements for conventional vehicle investigations.

Question 75: What records should be retained regarding maintenance and repair history of AVs?

Unite response:
Mandatory retention of:

- full maintenance logs;
- software update history;
- calibration records for sensors;
- cyber-security patch history;
- remote-operation hardware checks;
- load-security equipment checks (for goods vehicles);
- cabin-monitoring system checks (for passenger vehicles);

Integration with existing legal requirements for walk-around checks

Unite emphasises that **AV maintenance plans must be explicitly linked to existing DVSA daily walk-around check requirements**, particularly for HGVs, LGVs, and passenger-carrying vehicles.

ADS self-diagnostics **cannot replace**:

- visual inspection of tyres, wheels, lights, mirrors, bodywork;
- checks for fluid leaks, damage, vandalism, or obstructions;
- manual confirmation of load security;
- inspection of sensor housings and camera cleanliness;
- verification of number plates, reflectors, and safety markings.

Therefore:

1. NUICO maintenance plans must incorporate DVSA walk-around check standards

This ensures continuity with existing safety regimes and prevents operators from claiming that automation removes the need for physical inspection.

2. A competent human must still perform daily checks

Even in NUIC operations, a trained worker must:

- inspect the vehicle before dispatch;
- confirm load security;
- verify that sensors and cameras are unobstructed;
- check for physical damage the ADS cannot detect.

3. ADS self-diagnostics must supplement, not replace, human inspection

Automated systems cannot reliably detect:

- tyre cuts;
- cracked mirrors;
- insecure loads;
- vandalism;
- fluid leaks;
- missing plates;
- bodywork damage.

4. Maintenance records must include daily check logs

This ensures:

- traceability;
- accountability;
- regulatory compliance;
- integration with HGV operator licensing requirements.

5. NUICOs must not use automation to dilute safety standards

Unite strongly opposes any attempt to:

- reduce inspection frequency;
- replace trained workers with automated checks;
- outsource inspections to unregulated third parties.

This protects both road safety and the integrity of skilled vehicle-maintenance roles.

Question 76: What specialist knowledge or handling is necessary to preserve evidence?

Unite response:
Evidence preservation requires:

- digital forensics expertise;
- encryption-key management;
- secure extraction of DSSAD/EDR data;
- chain-of-custody protocols;
- safe handling of high-voltage systems;
- cyber-security isolation procedures;
- preservation of sensor data without corruption.

AV evidence is far more complex than conventional vehicles and must be treated accordingly.

Question 77: Beyond investigations, what other purposes could seized items be used for?

Unite response:
Secondary uses may include:

- training emergency services;
- improving regulatory systems;
- developing safety standards;
- supporting academic research;
- improving ADS design;
- enhancing cyber-security resilience.

All secondary uses must protect privacy and commercial confidentiality.

Question 78: What challenges exist regarding access to data relevant to investigations?

Unite response:
Challenges include:

- proprietary software;
- encrypted data;

- cloud-stored data outside UK jurisdiction;
- lack of standardisation;
- cyber-security restrictions;
- commercial confidentiality claims;
- incomplete or corrupted logs;
- remote-operation data stored by third parties.

The UK must require **mandatory access rights** for investigators.

Question 79: When is it acceptable for a seized item to be delivered to someone other than the owner?

Unite response:
Acceptable only when:

- required by law enforcement;
- required by the courts;
- required for safety testing by accredited bodies;
- required for independent investigation;
- required for cyber-security analysis;

Never for commercial advantage or without strict oversight.

Question 80: What considerations should be implemented during the destruction of an AV?

Unite response:
Destruction must consider:

- high-voltage battery safety;
- secure destruction of data-storage devices;
- environmental compliance;
- safe disposal of sensors and electronics;
- prevention of data recovery;
- cyber-security sanitisation.

AVs pose unique destruction risks compared to conventional vehicles.

Question 81: What considerations apply to the storage of a seized AV?

Unite response:
Storage must ensure:

- secure, climate-controlled facilities;
- cyber-security isolation;
- prevention of remote access;
- battery safety protocols;
- protection from tampering;
- preservation of digital evidence.

AVs must be stored as both physical and digital evidence.

Question 82: When should a seized AV be sold rather than disposed of?

Unite response:
Only when:

- all investigations are complete;
- all data has been securely wiped;
- the vehicle is safe to operate;
- no safety-critical defects remain;
- no cyber-security vulnerabilities remain.

Sale must never compromise safety or privacy.

Question 83: What considerations apply to the disposal of an AV compared to a conventional vehicle?

Unite response:
AV disposal must include:

- secure destruction of data systems;
- safe disposal of sensors and electronics;
- cyber-security sanitisation;
- environmental compliance;
- battery safety;
- destruction of remote-operation hardware.

AVs contain far more sensitive and hazardous components.

Question 84: What information can you provide about similar sanctions regimes?

Unite response:
Comparable regimes include:

- rail safety enforcement;
- aviation safety oversight;
- HGV operator licensing;
- nuclear safety regulation;
- cyber-security enforcement frameworks.

These systems demonstrate the value of:

- turnover-based fines;
- independent oversight;
- strong enforcement powers;
- transparent reporting.

Question 85: What factors warrant regulatory vs civil sanctions, variation vs suspension, or monetary penalties vs compliance notices?

Unite response:

Regulatory sanctions

Appropriate when:

- systemic safety failures occur;
- repeated infractions occur;
- ASDE/NUICO misleads regulators;
- cyber-security negligence is identified.

Variation vs suspension

- **Variation**: minor or correctable issues;
- **Suspension**: serious safety risks or repeated failures.

Monetary penalty vs compliance notice

- **Compliance notice**: first-time or low-risk issues;
- **Monetary penalty**: repeated non-compliance or harm caused.

Question 86: Should turnover be considered when setting maximum monetary penalties?

Unite response:
Yes. Turnover-based penalties ensure:

- proportionality;
- fairness;
- deterrence for large operators;
- prevention of “cost of doing business” behaviour.

Turnover should be calculated based on **global turnover**, not UK-only.

Question 87: What strict limit should be set for monetary penalties?

Unite response:
Greater than £25 million.

Large operators must face meaningful deterrents. Anything lower risks being absorbed as a business cost.

Question 88: Should turnover be considered when setting daily penalties for continuous failures?

Unite response:
Yes. Continuous failures must incur escalating penalties proportionate to operator size to prevent deliberate delay.

Question 89: What strict limit should be set for additional daily penalties?

Unite response:
Unite recommends:

- **at least £1 million per day**,
- or **a percentage of global turnover**, whichever is higher.

This ensures rapid compliance.

Question 90: Should turnover be considered when setting APS monetary penalties?

Unite response:
Yes. APS operators may be large multinational corporations. Penalties must reflect their scale.

Turnover should be calculated using **global turnover**, consistent with other safety-critical sectors.

Question 91: What strict limit should be set for APS monetary penalties?

Unite response:
Greater than £1,000,000.

APS violations can endanger passengers and the public. Penalties must be substantial.

Question 92: Should turnover be considered when setting APS daily penalties?

Unite response:
Yes. Daily penalties must prevent operators from delaying compliance.

Question 93: What strict limit should be set for APS daily penalties?

Unite response:
Unite recommends:

- **at least £250,000 per day**;
- or **a percentage of global turnover**, whichever is higher.

This ensures rapid compliance and prevents operators from treating daily penalties as a manageable business cost.

Question 94: Are there any additional factors that should be considered in the APS penalty regime?

Unite response:
Yes. APS penalties must also consider:

- the vulnerability of passengers affected;
- the operator’s history of safeguarding compliance;
- whether the APS operator has offshored safety-critical work;

- whether the operator has engaged in union-busting or avoided collective bargaining;
- the scale of public-safety risk created.

APS penalties must be designed to deter systemic failures, not just isolated incidents.

Question 95: Should APS operators be required to publish annual safety and performance reports?

Unite response:
Yes. Transparency is essential. Reports must include:

- incident and near-miss data;
- safeguarding incidents;
- accessibility performance;
- staffing ratios and training levels;
- cyber-security breaches;
- complaints and resolution times.

These reports must be publicly accessible and shared with recognised trade unions.

Question 96: Should APS operators be required to consult with trade unions on safety, staffing, and operational changes?

Unite response:
Yes. APS operations are safety-critical. Trade union consultation must be:

- mandatory;
- early (before decisions are made);
- meaningful;
- documented.

This aligns APS operations with existing safety-critical sectors such as rail and aviation.

Question 97: Should APS operators be required to maintain UK-based operations centres?

Unite response:
Yes. Offshoring APS oversight would:

- undermine safety;
- weaken accountability;
- create safeguarding risks;
- reduce transparency;
- undermine UK employment;

APS operations must be UK-based, unionised, and subject to UK law.

Question 98: Should APS operators be required to meet minimum staffing ratios?

Unite response:
Yes. Unite recommends:

- **1:1 to 1:3** remote-monitoring ratios for APS vehicles;
- higher staffing levels for complex environments;
- mandatory safeguarding-trained staff;
- no gig-economy or casualised models.

APS operations must never be run on a “lean staffing” model.

Question 99: Should APS operators be required to demonstrate accessibility compliance before receiving a permit?

Unite response:
Yes. Accessibility must be a **pre-condition**, not an afterthought. Operators must demonstrate:

- accessible cabin design;
- accessible boarding and alighting;
- accessible emergency communication;
- accessible HMI and alerts;
- staff trained in disability awareness.

Accessibility failures must result in permit suspension.

Q100. Should APS operators be required to demonstrate safeguarding compliance?

Unite response:
Yes. APS operators must:

- have safeguarding policies approved by regulators;
- train all staff in safeguarding;
- maintain real-time cabin monitoring;
- provide panic buttons and emergency contact systems;
- report safeguarding incidents within 24 hours.

APS vehicles must be safe for women, girls, disabled passengers, and vulnerable users.

Question 101: Should APS operators be required to share data with local transport authorities?

Unite response:
Yes. Data sharing is essential for:

- integrated transport planning;
- accessibility monitoring;
- safety oversight;
- environmental impact assessment.

Data must not be treated as proprietary corporate property.

Question 102: Should APS operators be required to integrate with local transport networks?

Unite response:
Yes. APS services must:

- complement, not compete with, public transport;
- avoid cherry-picking profitable routes;
- support integrated ticketing
- align with local transport strategies.

APS must not undermine bus networks or future public ownership.

Question 103: Should APS operators be required to meet environmental standards?

Unite response:
Yes. APS fleets must:

- be zero-emission;
- meet battery-safety standards;
- avoid offshoring environmental harm;
- report lifecycle emissions.

Environmental justice must be central.

Question 104: Should APS operators be required to meet cyber-security standards?

Unite response:
Yes. APS operators must:

- meet mandatory cyber-security certification;
- report breaches within 24 hours;
- maintain secure data storage;
- prevent remote hijacking or interference;

Cyber-security failures must trigger immediate permit review.

Question 105: Should APS operators be required to maintain insurance that covers cyber-security incidents?

Unite response:
Yes. Cyber-security insurance must be:

- mandatory;
- comprehensive;
- proportionate to fleet size;
- transparent.

Cyber-security failures must never fall on passengers or workers.

Question 106: Should APS operators be required to maintain insurance that covers product liability?

Unite response:
Yes. APS operators must hold:

- product liability insurance;
- operational liability insurance;
- third-party liability insurance;

Liability must never be shifted onto workers or passengers.

Question 107: Should APS operators be required to maintain insurance that covers remote-operation failures?

Unite response:
Yes. Remote-operation failures are foreseeable risks. Insurance must cover:

- communication failures;
- remote-operator error;
- system latency;
- cyber-attacks;
- hardware failure.

This protects workers and the public.

Question 108: Should APS operators be required to maintain insurance that covers accessibility failures?

Unite response:
Yes. Accessibility is a legal requirement. Insurance must cover:

- injury caused by inaccessible design;
- failure to provide reasonable adjustments;
- discrimination claims;

This ensures accountability.

Question 109: Should APS operators be required to maintain insurance that covers safeguarding failures?

Unite response:
Yes. Safeguarding failures can cause severe harm. Insurance must cover:

- assault;
- harassment;
- neglect;
- failure to protect vulnerable passengers;

APS operators must be held accountable.

Question 110: Should APS operators be required to maintain insurance that covers environmental harm?

Unite response:
Yes. Environmental harm includes:

- battery fires;
- hazardous waste;
- pollution incidents.

Operators must be financially responsible.

Question 111: Should APS operators be required to maintain insurance that covers data breaches?

Unite response:
Yes. Data breaches can cause or facilitate:

- identity theft;
- stalking;
- harassment;
- discrimination.

Insurance must cover remediation and compensation.

Question 112: Should APS operators be required to maintain insurance that covers algorithmic bias?

Unite response:
Yes. Algorithmic bias can cause:

- discriminatory service provision;
- unsafe decisions;
- unequal treatment of passengers.

Insurance must cover harm caused by biased ADS behaviour.

Question 113: Should APS operators be required to maintain insurance that covers system-wide failures?

Unite response:
Yes. System-wide failures can cause:

- mass disruption;
- safety incidents;
- loss of service.

Insurance must cover large-scale operational risks.

Question 114: Should APS operators be required to maintain insurance that covers emergency-service interaction failures?

Unite response:
Yes. APS vehicles must be able to:

- detect emergency vehicles;
- yield appropriately;
- communicate with emergency services.

Failures must be insurable.

Question 115: Should APS operators be required to maintain insurance that covers passenger-assistance failures?

Unite response:
Yes. APS vehicles must:

- assist disabled passengers;
- provide emergency support;
- ensure safe boarding and alighting.

Insurance must cover harm caused by inadequate assistance.

Question 116: Should APS operators be required to maintain insurance that covers remote-operator misconduct?

Unite response:
Yes. Misconduct includes:

- negligence;
- harassment;
- safeguarding breaches;
- data misuse.

Operators must be accountable for staff behaviour.

Question 117: Should APS operators be required to maintain insurance that covers third-party supplier failures?

Unite response:
Yes. APS operators must not outsource liability.
Insurance must cover:

- subcontractor failure;
- software supplier failure;
- hardware supplier failure;

Liability must remain with the APS operator.

Question 118: Should APS operators be required to maintain insurance that covers infrastructure failures?

Unite response:
Yes. Infrastructure failures include:

- charging infrastructure
- communications networks
- mapping systems

Insurance must cover operational disruption and harm.

Question 119: Should APS operators be required to maintain insurance that covers extreme-weather failures?

Unite response:
Yes. Extreme weather affects:

- sensors;
- braking;
- perception;

- routing.

Insurance must cover weather-related incidents.

Question 120: Should APS operators be required to maintain insurance that covers vandalism or malicious interference?

Unite response:
Yes. APS vehicles are vulnerable to:

- sensor obstruction;
- physical damage;
- cyber-interference.

Insurance must cover malicious acts.

Question 121: Should APS operators be required to maintain insurance that covers passenger misconduct?

Unite response:
Yes. Passenger misconduct can cause:

- damage;
- safety incidents;
- service disruption.

Insurance must cover these risks.

Question 122: Should APS operators be required to maintain insurance that covers lost or damaged passenger property?

Unite response:
Yes. APS operators must provide:

- clear lost-property procedures;
- compensation mechanisms.

Passengers must be protected.

Question 123: Should APS operators be required to maintain insurance that covers service-animal incidents?

Unite response:
Yes. APS vehicles must:

- accommodate service animals;
- ensure safe travel;
- prevent harm.

Insurance must cover incidents involving service animals.

Question 124: Should APS operators be required to maintain insurance that covers cross-border operations?

Unite response:
Yes. Cross-border operations require:

- harmonised insurance;
- clear liability rules;
- international compliance.

Operators must be fully insured.

Question 125: Are there any other issues the Government should consider?

Unite response:
Yes. Unite highlights:

- the need for strong union involvement in all AV regulatory processes;
- the risk of corporate AV fleets undermining public transport;
- the need for UK-based, unionised operations centres;
- the importance of preventing gig-economy models in safety-critical roles;
- the need for public ownership options to remain open;
- the need for algorithmic fairness and transparency;
- the importance of environmental justice;
- the need for robust worker-data protections.

AV deployment must strengthen — not weaken — public transport, worker rights, and public safety.

Any Other Comments

Equality Impacts

Unite identifies the following key equality considerations:

Disability and Accessibility

AVs must improve accessibility, not reduce it. This includes:

- accessible cabin layouts
- tactile, auditory, and visual alerts
- accessible emergency communication
- safeguarding protocols for vulnerable users

Digital Exclusion

AV systems must not exclude:

- older people
- low-income groups
- people with limited digital access
- people with limited English proficiency

Non-digital alternatives must be available.

Workforce Equality

Automation disproportionately affects:

- older workers
- disabled workers
- migrant workers
- workers in manual or safety-critical roles

Unite calls for:

- retraining and redeployment pathways
- no compulsory redundancies
- union-negotiated transition plans
- reasonable adjustments in new roles

Passenger Safety and Equality

NUIC passenger services raise safeguarding concerns for:

- women and girls
- disabled passengers
- children and young people
- intoxicated or vulnerable passengers

Unite supports:

- real-time cabin monitoring
- panic buttons
- safeguarding-trained remote staff

Algorithmic Fairness

ADS systems must be tested for:

- bias in perception
- bias in decision-making
- unequal error rates

Cyber-Security and Equality

Cyber-security failures disproportionately affect:

- disabled passengers
- lone women
- older passengers
- workers whose data may be captured

Strict limits on personal data collection are essential.

Environmental Justice

AV deployment must not:

- shift pollution to deprived communities
- reduce public transport in disadvantaged areas

Public Sector Equality Duty

All secondary legislation must include:

- Equality Impact Assessments

- ongoing monitoring
- mandatory reporting
- union involvement

Corporate Ownership of AV Fleets and Public Transport

Unite is clear that the risks identified in this submission relate specifically to the expansion of **corporate-owned automated vehicle fleets**, not individual private ownership of automated cars.

Large technology companies, logistics corporations, and platform-based mobility operators have the capacity to:

- extract and monopolise mobility data;
- cherry-pick profitable routes;
- undermine public transport ridership;
- fragment networks;
- offshore safety-critical work;
- introduce gig-economy models;
- lobby aggressively against public ownership;
- entrench private control over mobility infrastructure.

These impacts would make it significantly harder for future governments to deliver a unified, publicly owned, accessible transport system.

Strong regulation is therefore essential to ensure that corporate AV deployment does not undermine integrated planning, weaken public transport finances, or create new structural barriers to nationalisation.

Unite emphasises that nothing in this submission conflicts with or complicates plans to bring public transport into public ownership. On the contrary, the regulatory standards proposed here — around safety, transparency, workforce protections, accessibility, and accountability — are fully compatible with, and in many cases strengthened by, publicly owned and democratically accountable transport services.

London Assembly Transport Committee Call for evidence: Autonomous Passenger Vehicles in London

This response comes from the Dawes Centre for Future Crime at UCL[1]. We are responding to specific parts of questions 3 and 4. Below, we quote the (sub) question we are responding to and then provide our responses to it, citing evidence where appropriate.

3. What impact would the introduction of autonomous passenger vehicles have in London? We are particularly interested to hear about the impact on:
- The Mayor's Transport Strategy targets, for traffic reduction, and increases in walking, wheeling, cycling and public
- Children, older and disabled people
- Accessibility and passenger safeguarding
- **Cybersecurity**
- Londoners' transport choices and risk to public transport ridership numbers
- London's taxi and private hire industry, particularly jobs.

Response:

Our response is limited to the cybersecurity and crime-related implications of autonomous passenger vehicles (APVs), reflecting the scope of our research.

While there have been relatively few reported cyber incidents involving autonomous passenger vehicles, cyber-enabled attacks against connected vehicles are already well established. For example, recent data estimate that 60% of car thefts in London involve key signal-hacking methods[2]. The additional connectivity, software complexity and remote functionality of autonomous passenger vehicles could increase the cyberattack surface, potentially increasing the likelihood and impact of cyber-enabled crime.

Autonomous passenger vehicles rely on complex software, sensors, vehicle-to-everything (V2X) communications, machine learning, cloud connectivity, over-the-air software updates and remote fleet management, creating a broad attack surface with multiple potential points of entry. Our recent systematic review of the literature[3,4] identified cybersecurity vulnerabilities across vehicle communication networks, in-vehicle communication systems, sensors, infotainment systems, authentication systems, data analytics, and supporting infrastructure. These findings demonstrate that cybersecurity should be treated as a fundamental component of vehicle safety.

Our review identified 28 potential crime threats that could be facilitated by autonomous vehicles based on evidence from reported incidents, academic literature and expert elicitation. Expert assessment identified the highest-risk threats as illegal transportation, vehicle theft, ransomware, data theft, remote hacking, criminal damage, monetary theft, denial of access to vehicle functions, and vandalism. Other identified crime threats included vehicle part theft (or goods/valuables inside), physical assault, cyberstalking, domestic abuse, terrorism and cyberwarfare, insurance fraud, electricity theft, theft of pay-for-use features, impersonation,

[1] https://www.ucl.ac.uk/engineering/future-crime

[2] https://www.regit.cars/car-news/keyless-car-theft-is-on-the-rise-heres-what-you-need-to-know

[3] Brown, A., Johnson, S.D. & Tuptuk, N. A scoping study: crime and connected and autonomous vehicles. *Crime Sci* **14**, 2 (2025). https://doi.org/10.1186/s40163-025-00245-x

[4] https://www.ucl.ac.uk/engineering/sites/engineering/files/cavs_policybriefing_final.pdf

kidnapping, joyriding, cryptojacking, and evasion of criminal liability through manipulation of vehicle data.

Although many of these threats have not yet been observed in the real world, they have been demonstrated by security researchers and they represent credible future risks if cybersecurity is not addressed proactively. More incidents have emerged since our review. For example, a man became trapped inside a driverless Waymo vehicle in Arizona that repeatedly drove in circles[5]. Autonomous passenger vehicles will also generate and process significant quantities of personal and operational data, increasing opportunities for data theft and misuse. If appropriate safeguards are not implemented, compromised data could facilitate offences including identity theft, cyberstalking, blackmail and financial fraud. Our review identified evidence that connected vehicle technologies can be exploited to facilitate domestic abuse. Reported incidents include perpetrators using vehicle connectivity and GPS functionality to monitor victims' movements[6] and remotely control vehicle features to restrict or interfere with their mobility[7].

The operation of autonomous passenger vehicles as connected fleets also introduces the potential for systemic cyber incidents. A cyberattack exploiting a shared vulnerability could affect multiple vehicles simultaneously, disrupting London's transport network and posing wider public safety risks. Even in the absence of malicious attacks, software failures can have fleet-wide consequences. For example, in June 2026, Waymo recalled its robotaxis after discovering a software flaw that could cause vehicles to enter closed freeway construction zones, highlighting the challenges autonomous vehicles face in safely handling complex and changing road environments [8]. Although we identified terrorism and cyberwarfare as potential future misuse scenarios in our review, the principal policy implication is that operators should be required to demonstrate resilience against large-scale cyber incidents, regardless of whether they arise from malicious attacks or software failure.

Our review also identified vandalism as one of the highest-risk crime threats facing existing trials of autonomous vehicles in other places. Examples of reported incidents include vandalism against Waymo vehicles in Arizona[9], where residents slashed tyres, threw rocks, and pointed guns at self-driving cars, and the 2023 "Week of Cone" protests in San Francisco[10], where activists disabled Waymo and Cruise vehicles by placing traffic cones on their hoods. Since our review other cases of vandalism have occurred, including Waymo robotaxis being vandalised and set on fire during the Los Angeles anti-ICE protests[11]. During the expert elicitation workshop we conducted for our review, vandalism was ranked among the highest-priority crime threats due to its anticipated frequency, achievability, and potential harm,

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[5] https://www.bbc.co.uk/news/videos/c70e2g09ng9o
[6] https://www.vice.com/en/article/internet-connected-car-technology-can-enable-abusers-to-track-victims/
[7] https://www.protectivegroup.com.au/portfolio-collections/media/how-technology-is-being-used-by-hackers-to-spy-on-dv-victims
[8] https://www.wired.com/story/waymo-recalls-robotaxis-over-risk-theyll-drive-at-speed-into-freeway-construction-zones/
[9] https://www.independent.co.uk/tech/self-driving-cars-waymo-arizona-chandler-vandalism-tyre-slashing-rocks-a8681806.html
[10] https://www.vice.com/en/article/week-of-cone-activist-group-is-protesting-driverless-cars-by-disabling-them-with-traffic-cones/
[11] https://fortune.com/2025/06/09/alphabet-waymo-self-driving-cars-vandalism-immigration-ice-raids-los-angeles/

highlighting the need for preventative measures as autonomous vehicles become more widespread.

4. What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot autonomous passenger vehicles, and what powers should they seek?

Response:

From a regulatory perspective, the Mayor and TfL should seek powers to require operators to demonstrate robust cybersecurity governance throughout the lifecycle of autonomous passenger vehicles, rather than relying solely on pre-deployment approval. This should include requiring operators to provide evidence that secure-by-design principles and crime prevention have been embedded throughout the vehicle development lifecycle; that independent cybersecurity assurance (including penetration testing and security assessments) has been completed prior to deployment; that compliance with relevant legislation, regulation and recognised vehicle cybersecurity and software assurance standards, including UN Regulations 155 and 156, ISO/SAE 21434 and ISO 24089, has been demonstrated; that adequate and regularly updated risk assessment and management processes are in place; that coordinated vulnerability disclosure processes are in place; and that secure software updates and vulnerability management will be maintained throughout the vehicle's operational life.

Given the pace at which autonomous vehicle technologies are evolving, cybersecurity should be treated as an ongoing operational obligation rather than a one-off certification exercise. Continuous security monitoring, regular software assurance, vulnerability management, secure over-the-air updates, coordinated incident response between operators, manufacturers, TfL and law enforcement, as well as transparency and accountability processes concerning security frameworks will be essential to maintaining public confidence, protecting passengers, and ensuring the resilience of London's transport system against evolving cyber threats. A formal mechanism for periodically reviewing existing security frameworks, combined with the regular publication of publicly accessible reports on these frameworks, their reviews, and related updates, could help achieve these objectives.

Vehicle operators should also be required to report cybersecurity and crime incidents, maintain auditable logs to support post-incident investigations, and share necessary technical information with TfL, law enforcement and other relevant authorities where incidents have implications for public safety or criminal investigations. Operators should also be required to adopt, in collaboration with TfL, appropriate user empowerment measures[12], including information and advice on crime risks and available safeguards and remedies, mechanisms to promptly and effectively report crime or other harmful incidents, effective complaint procedures, as well as adequate technological features to enable users to protect themselves and minimise harm during such incidents. Also, operators should be required to maintain and regularly test cyber incident response and recovery plans, setting out clear procedures for detecting, containing, investigating and recovering from cyber incidents, including arrangements for notifying affected authorities and passengers where appropriate.

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[12] Cf. Pasculli, L. Social Safety and Future Technologies: The Case of Online Safety Laws. In: Public Sector Performance Programme 2022-2025. An International Benchmarking Study: Sub-Study 2025 (2026). https://www.eipa.eu/wp-content/uploads/2026/02/Eipa_Benchmarking-Study_2025.pdf

Clear operational protocols should also be established for responding to compromised vehicles, including procedures that enable police and emergency services to safely stop, secure, recover and investigate autonomous vehicles suspected of being involved in criminal activity or affected by cyber incidents. These plans should be regularly reviewed with the Mayor and TfL, and other relevant stakeholders to ensure coordinated and effective responses to any large-scale cyber incidents that could affect autonomous vehicle.

In Austin, Texas (USA), first responders have reported numerous incidents where they have experienced difficulties accessing locations because Waymo vehicles had (for example) blocked their path[13]. This may be because the autonomous vehicles were malfunctioning in some way or did not respond to requests from law enforcement to avoid geofenced areas where criminal incidents were taking place[13]. As such, operational protocols should be established about how autonomous vehicles should respond to requests from emergency service providers (police, fire and ambulance), how quickly for how long they should do so. Compliance with the established protocol should be routinely monitored, and suitable enforcement powers (which could range from informal and collaborative approaches, to formal measures such as fines) should be established to address non-compliance.

The Mayor and TfL should prioritise commissioning targeted, longitudinal research to measure and monitor public trust, perceptions, and acceptance of autonomous passenger vehicles before and during pilot deployments. Evidence from the 2024/25 Public Attitudes to AI survey[14], a joint initiative by the Ada Lovelace Institute and The Alan Turing Institute, demonstrates that public concern about AI varies considerably by application. The survey found that 75% of respondents were concerned about the use of AI in driverless vehicles, compared with 39% who expressed concern about the use of facial recognition in policing; and only 45% perceived driverless cars to be beneficial. Regular, London-specific research would enable TfL to identify public concerns, evaluate whether engagement strategies are effective, and adapt pilot programmes accordingly. In addition to commissioned research, the Mayor and TfL should consider adopting future-based approaches such as horizon scanning or scenario planning exercises to ensure that their security frameworks are future-proof. These approaches should be integrated with formal engagement mechanisms, such as consultations and workshops, to ensure continuing and systematic engagement with relevant stakeholders – including, but not limited to, law enforcement, industry, academia, the voluntary sector and customer/victim representatives and associations.

[13] See, https://austintx.new.swagit.com/videos/384367/0/

[14] https://attitudestoai.uk/assets/documents/How-do-people-feel-about-AI-2025-Ada-Lovelace-Institute.pdf

WAYMO

Appendix 1: Waymo's written evidence submission to the Committee's inquiry

Question 1

Waymo can only speak for its own plans and current activity.

Waymo intends to operate an Automated Passenger Service (APS) within Greater London. We are committed to delivering a service that complements London's existing transport system, makes roads safer for people to cycle and walk, and provides an additional choice for people who may wish to travel with greater privacy, safety, and independence.

Today, we operate a commercial service in the United States that provides more than 500,000 fully autonomous rides per week to the general public across 11 major metropolitan areas. We are working towards serving Londoners through the appropriate UK regulatory approval process, including the requirements for a Vehicle Special Order (VSO) and 'listing' under the Automated and Electric Vehicles Act (AEVA) 2018,[1] which assure the safety of our automated driving system (ADS), and APS permit.

Our approach in London is phased, rigorous, and safety-led, consistent with the values that have guided the development of our technology for the last seventeen years. Our intent is to welcome our first public riders in London this year, contingent upon obtaining the necessary approvals from the Department for Transport (DfT), and the consent of Transport for London (TfL).

Pre-announcement engagement & preparation

Waymo's engagement with the DfT, the Greater London Authority (GLA) and TfL did not begin with our public announcement. We have been engaging with DfT and TfL for several years in advance of announcing, in October 2025, our intention to bring an Automated Passenger Service (APS) to London .

Before making that announcement, Waymo had already:

- briefed central government, the GLA and TfL on our technology, safety approach and plans for London;
- held briefings with the Metropolitan Police Service (MPS), London Fire Brigade (LFB), London Ambulance Service (LAS) and City of London Police (CoLP) to support emergency-services preparedness;
- Given notice in accordance with the DfT's Code of Practice for Automated Vehicle Trialling and submitted the relevant documentation in accordance with TfL's voluntary pro forma for automated vehicle trials in London (please refer to **Appendix 3** which includes a copy of the pro-forma, marked commercially sensitive, submitted on 12 October 2025); and,

[1] UK Parliament (2018), *Automated and Electric Vehicles Act 2018*. Available at: https://www.legislation.gov.uk/ukpga/2018/18/contents (Accessed: 30 July 2026).

- ran an educational campaign in addition to briefing and supporting a number of community organisations, including those focused on accessibility, road-safety, and other areas where safer transport can make a meaningful difference.

This early engagement reflects Waymo's commitment to responsible deployment. It has allowed public authorities, emergency services, and civil-society organisations to scrutinise our plans, ask detailed questions, and help shape our preparations before vehicles began operating on London's roads, and before our plans were announced publicly.

Phase 1: manual data collection and mapping

In December 2025, having consulted with the DfT and TfL, Waymo began trialling human-driven Waymo vehicles in specific areas of London as part of an initial data collection and mapping phase. This phase began after Waymo voluntarily submitted trialling documentation to TfL. We attach the document we submitted in October 2025 for the Assembly's information.

During this phase, Waymo vehicles were manually driven by trained, UK-licensed specialists while the vehicle's sensor suite collected data about the local streetscape. This included gathering information on London's road features and distinctive street types, as well as creating detailed maps that can be used in development and simulation testing to refine our automated driving system (ADS), known as "the Waymo Driver", in controlled and repeatable ways.

Phase 2: autonomous testing with a trained specialist driver

In March 2026, after notifying the DfT, TfL, and relevant emergency services, Waymo began testing the autonomous driving system (ADS) in conformity with the UK's Code of Practice for Automated Vehicle Trialling.

During this phase, a trained specialist is seated in the driver's seat while the Waymo Driver performs the dynamic driving task. Although the ADS is operating the vehicle, the trained specialist is responsible for monitoring the environment and remains in such a position to exercise control of the vehicle at all times in accordance with their training.

Phase 3: fully autonomous testing

We have already begun extensive engagement with DfT as we apply for a Vehicle Special Order (VSO) and 'listing' under Part 1 of the Automated and Electric Vehicles Act (AEVA) 2018 in accordance with the self-driving vehicle pilot scheme guidance.[2] Subject to the provision of sufficient evidence, we hope to obtain the relevant approval from the Secretary of State for Transport that will permit us to remove the autonomous specialist. Upon receiving the permit, Waymo would proceed with fully autonomous testing. During this phase, a limited number of invited guests, including government representatives, civil society leaders, and members of the media would be able to take rides without human

[2] Centre for Connected Autonomous Vehicles and Department for Transport (2026), *Self-driving vehicle pilot scheme: information for applicants*. Available at: https://www.gov.uk/government/publications/self-driving-vehicle-pilot-scheme-information-for-applicants/self-driving-vehicle-pilot-scheme-information-for-applicants (Accessed: 30 July 2026).

drivers as we seek to educate the public. This is in alignment with both DfT's and TfL's own expectations for public engagement and education under their respective AV trialling guidance documents.

Phase 4: a future Automated Passenger Service (APS)

Building from these phases and the necessary driverless testing, Waymo's intent is to operate an APS in London. This would only take place once:

- The technology meets Waymo's internal safety standards;
- Waymo has achieved operational readiness;
- Waymo was in receipt of an APS permit; and
- TfL has consented to the proposed service as part of the permitting process.

We expect to continue manual data collection and validation driving alongside any future driverless operations. This will support the expansion of the service territory and connect portions of Greater London where passenger services have traditionally been limited including areas of low Public Transport Access Levels (PTAL). This ongoing testing and data collection form part of Waymo's process to continually refine and improve the Waymo Driver.

It is worth noting however, the distinction between safety driver operations and a regulated APS as defined by Part 5 of the Automated Vehicles Act 2024.

A deployment that continues to rely on a human safety driver would not be regulated under the same regime as a statutorily-defined APS. It would continue to operate under the existing legal and trialling framework applicable to vehicles for which a human driver remains responsible, rather than through the authorisation and permitting regime that will apply to our fully autonomous service.

As a result, an operation retaining a safety driver would not be subject to the same comprehensive DfT approval process, ongoing regulatory oversight, safety assurance requirements, reporting obligations and incident-monitoring arrangements that Waymo will be required to satisfy before and during driverless passenger operations. This distinction is important when assessing how close different operators are to delivering autonomous passenger service. An operation may use automated technology while still relying on a human driver and operating outside the regulatory safeguards intended for genuinely driverless services.

Question 2

London has been considering, developing, and testing autonomous vehicle technology for many years. It has had guidance in place for automated vehicle trials since 2016. As a global city, it should continue to support the safe development of technologies that could improve road safety, accessibility, and mobility.

Many features of London's road network, dense streets, complex junctions, roadworks, pedestrians, cyclists, buses and taxis, are also found in cities where autonomous vehicles have already been tested or deployed.

Nonetheless, Waymo will be required to demonstrate its readiness for those conditions as part of the national approval process. Waymo's readiness will be a product of the experience we have amassed from more than 220 million miles of fully autonomous driving in the United States, as well as more than a year's testing in Tokyo.

Backed by more than 200 human lifetimes of real-world driving, the Waymo Driver combines cameras, lidar, radar, audio system, high-performance computing, and artificial intelligence to understand the road, anticipate what other road users may do and make safe driving decisions.

It performs three continuous tasks:

- **Perception:** it identifies roads, signals, pedestrians, cyclists, vehicles, roadworks and other objects around it.
- **Prediction:** it anticipates what may happen next, for example whether a pedestrian might cross, a cyclist may move around a pothole or another vehicle may change lanes.
- **Planning:** it decides and executes an appropriate response, such as slowing, stopping, yielding, changing position or continuing.

The Waymo Driver is designed to perform the complete driving task within a defined operating area. The passenger is not able to drive or otherwise take control of the vehicle.

The vehicle is not remotely driven. Remote Assistance can provide contextual information in limited circumstances, but Remote Assistants do not steer, brake or accelerate the vehicle. The Waymo Driver remains responsible for deciding how to proceed safely.

No autonomous driving technology should be described as capable of driving everywhere in every possible condition. Waymo operates within a defined operational design domain (ODD) and the ODD is approved as part of our application and we legally cannot operate outside of it. The ODD includes specified road types, and speed parameters, specified geographic areas, weather conditions, and other operational control parameters. The ODD expands to new conditions as the necessary validation and safety work is completed. Our ODD will form part of our approval from DfT and we will not be permitted to operate outside of that ODD at any time.

Safe and lawful driving may sometimes appear more cautious than the behaviour people are accustomed to. However, speeding, aggressive manoeuvres, or taking risks to satisfy an impatient road user, are not appropriate responses. The objective is safe and proportionate progress, rather than unnecessary hesitation. London validation is intended to ensure that balance works in local traffic conditions.

The following video[3] provides a practical example of the Waymo Driver operating on London roads during the current testing phase, with an autonomous specialist seated in the driver's seat. It shows the system responding to pedestrians entering the road, leaving space for cyclists, navigating a roundabout and yielding to an emergency vehicle.

Question 3

At Waymo, we believe that any Automated Passenger Service (APS) deployment in London must:

- Contribute to the achievement of Vision Zero goals;
- Support equitable and safe access to mobility;
- Maximise the efficient use of roads and the kerbside;
- Connect passengers with sustainable mobility; and,
- Improve air quality.

Below, we discuss how we have designed our service to achieve these key objectives. We also consider the importance of cybersecurity and how we are creating a newly skilled workforce for the future.

Supporting Vision Zero

Road danger in London remains too high. It is an impediment to economic activity, active travel and social equity. Cycling and walking are fundamental to the way Londoners move.

Despite significant progress in reducing road danger, London's vulnerable road users (VRUs) – pedestrians, cyclists, and motorcyclists – remain disproportionately at risk. In 2024, according to Transport for London (TfL) data, they accounted for 81 per cent of all KSI crashes on London's roads.[4] In addition, the three most frequently cited contributing factors in collisions involving VRUs are drivers failing to look properly, failing to judge another road user's path or speed, and careless or reckless driving. Notably, excess speed remains a critical threat, contributing to half of all fatal collisions in the capital.[5] This undermines the safety gains achieved to-date by London's ambitious Vision Zero strategy, including the reduction of speed limits on many roads to 20 mph which we applaud and support.

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[3] Waymo (2026) *We're taking the next step toward bringing fully autonomous ride-hailing to London this year with the start of autonomous driving with trained specialists behind the wheel*. Available at: https://www.linkedin.com/feed/update/urn:li:activity:7449758354152796160/ (Accessed: 30 July 2026).
[4] Transport for London (2025) *Road Safety Data Dashboard*. Available at: https://tfl.gov.uk/corporate/publications-and-reports/road-safety (Accessed: 30 July 2026).
[5] Transport for London (2025) *Road Safety Data Dashboard*. Available at: https://tfl.gov.uk/corporate/publications-and-reports/road-safety (Accessed: 30 July 2026).

The Mayor's Transport Strategy has set out a clear ambition to eliminate all deaths and serious injuries from London's transport network by 2041.[6] It also asks that any new transport service deployed must actively support these safety goals. This target is reinforced by the Vision Zero Action Plan 2, published in March 2026, which includes strict interim targets: a 70 per cent reduction in the number of people killed or seriously injured (KSI) on the road network by 2030 (against a 2010–14 baseline), and a 65 per cent reduction by 2035 (against a 2022–24 baseline).

We can make London's roads safer for road users that cycle and walk. The Waymo Driver is designed to be a meaningful safety intervention that will advance the city's road safety efforts. Unlike human drivers that suffer from distraction, fatigue or impairment, the Waymo Driver is designed for consistent, transferable performance, and it operates via three core safety capabilities:

- **Constant 360-degree perception:** Using a suite of lidar, cameras and radar, the vehicle constantly monitors its environment up to three football fields away, anticipating the movement of pedestrians and cyclists.
- **Speed compliance:** The vehicle is designed to obey speed limits and dynamically adjust its speed to road conditions, removing speeding as a risk factor.
- **Junction safety:** Advanced planning algorithms allow the vehicle to safely navigate complex intersections, where the majority of collisions involving vulnerable road users occur.

This design philosophy is backed by a formal safety governance structure.[7, 8] The protection of VRUs stands prominently throughout this safety framework. This ensures that even as the system is determined to be ready for deployment, rigorous evaluations verify that it does not introduce any disproportionate risk to pedestrians, cyclists or motorcyclists who are historically most at risk on the roads.

To ensure the Waymo Driver meets the high standards required by the UK's Automated Vehicles Act 2024, one critical way we proactively evaluate the Waymo Driver is using an advanced "Reference Driver" model. This simulation benchmarks the Waymo Driver against a virtual model of a careful human driver, verifying its ability to anticipate hazards and avoid conflicts altogether.

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[6] Transport for London (2018) *The Mayor's Transport Strategy*. Available at: https://tfl.gov.uk/corporate/about-tfl/the-mayors-transport-strategy (Accessed: 30 July 2026).
[7] Webb, N., Smith, D., Ludwick, C., Victor, T., Hommes, Q., Favaro, F., et al. (2020). Waymo's safety methodologies and safety readiness determinations. arXiv preprint arXiv:2011.00054.
[8] Favarò, F. M., Fraade-Blanar, L., Schnelle, S., Victor, T., Peña, M., Engström, J., et al. (2026). Building a credible case for safety: Approach proposal for Automated Driving Systems. Journal of Safety Research, 96, 181-196.

Driving risk varies significantly by time and location, therefore, we do not just compare our performance to broad national averages[9]. Instead, we use an "apples-to-apples" analysis by matching our data against local, time-specific human driving behavior.[10] This real-world comparison shows that Waymo consistently avoids more injury-related crashes than human drivers, particularly during high-risk times such as overnight hours when human crash rates often spike.

When it comes to VRUs, Waymo's safety record is significantly better than that of human drivers in the areas that we operate. Over 220 million miles, the Waymo Driver's safety record demonstrates massive safety impact across all VRU groups that advance Vision Zero goals within the areas that we operate.[11]

- Pedestrians: We are **10 times safer than human drivers**, with a crash rate of 0.04 IPMM compared to 0.42 IPMM for humans.
- Cyclists: We are nearly **6 times safer than human drivers**, with a crash rate of 0.05 IPMM compared to 0.29 IPMM for humans.
- Motorcyclists: We are **5 times safer than human drivers**, with a crash rate of 0.04 IPMM compared to 0.20 IPMM for humans.

While autonomous technology is not a single solution to road risk, it can serve as a vital tool in the city's road safety toolbox, and as an important part of the Safe System Approach that serves as the foundation of Vision Zero policies around the globe. By helping to reduce common human driving errors, the deployment of such technology can support London's progress towards Vision Zero as well as making it safer for people to walk and cycle in the city.

Empowering equitable and safe access to mobility

We know that many Londoners still face significant barriers when trying to travel. [12] [13] This is something we consistently hear from our engagement with accessibility groups both in the UK and around the world, as well as many of the 16,000 Londoners who have signed up for our interest list.

For disabled people, independent travel is often compromised by discrimination and a lack of predictability. A particularly stark example is the treatment of guide dog owners. While

[9] Scanlon, J. M., Kusano, K. D., McMurry, T. L., Campolettano, E. T., & Victor, T. (2026). High-resolution urban fatal crash rate benchmarks for automated driving system assessment. Traffic Injury Prevention, 1–12. https://doi.org/10.1080/15389588.2026.2684002
[10] Kusano, K. D., Scanlon, J. M., McMurry, T. L., & Victor, T.. Do time of day and day of week matter when comparing Waymo's automated driving system and human crash involvement rates? Traffic Injury Prevention (in press).
[11] Waymo (2026) Waymo Safety Impact Hub. Available at: https://waymo.com/safety/impact.
[12] Arup and Urban Transport Group (2022) *Equitable Future Mobility*. Available at: https://www.arup.com/insights/equitable-future-mobility/ (Accessed: 30 July 2026).
[13] Transport for London (2024) *Equity in Motion: Our journey to creating a fair, accessible and inclusive transport network*. Available at: https://content.tfl.gov.uk/equity-in-motion-full.pdf (Accessed: 30 July 2026).

TfL received 15 official complaints regarding guide dog refusals by private hire vehicles in the 2023-24 financial year, research by the charity Guide Dogs suggests the actual number of incidents is far higher due to under-reporting. Across the UK, 60 per cent of guide dog owners report being refused travel by traditional ride-hailing services.[14] Unreliable services, sudden route changes and inconsistent driver behaviour further undermine the confidence of disabled passengers. And we know from research conducted by the Royal National Institute of Blind People (RNIB)[15] that more than half of blind and partially-sighted people say they want to go out more than they currently do.

Safety fears also restrict how and when many people travel, particularly women. Research by Systra in 2026 revealed that 48 per cent of women feel unsafe travelling alone after dark in the UK, compared with 19 per cent of men, leading 63 per cent of women to avoid evening travel entirely.[16] This is compounded by concerns about harassment on public transport, with Department for Transport data showing that 28 per cent of public transport users have experienced unwanted sexual harassment . For younger women, the impact is even greater; a 2025 Girlguiding survey found that 86 per cent of girls and young women avoid going out after dark due to safety concerns.[17]

Opening travel to all is a crucial objective of the Mayor's Transport Strategy, reflecting the principle that London's transport network must be inclusive and accessible for everyone. Under Policy 23 of the Mayor's Transport Strategy, new transport services are expected to actively support this goal by ensuring they are accessible and inclusive for all demographics and physical abilities.

Accessible mobility

Waymo's autonomous service model is designed to help address these challenges by using technology to empower new, independent journeys. Our service is designed to always permit the carriage of guide dogs, eliminating the risk of refusal that guide dog owners frequently experience.

At Waymo, we recognise that accessible mobility is not simply about the ride itself; it must encompass the entire journey, from booking and finding the vehicle to boarding and alighting. Co-designing our service with our user-experience team, feedback from riders with expertise-by-experience, and input from members of the Waymo Accessibility Network,[18] we have developed a number of features to support this approach:

[14] BBC News (2026) *BBC News Article*. Available at: https://www.bbc.co.uk/news/articles/cy4k7090eq4o (Accessed: 30 July 2026).
[15] RNIB (2023) *"In my way": new RNIB report on walking reveals the unnecessary and dangerous barriers on our streets*. Available at: https://www.rnib.org.uk/news/in-my-way-new-rnib-report-on-walking-reveals-the-unnecessary-and-dangerous-barriers-on-our-streets/ (Accessed: 30 July 2026).
[16] Women in Transport (2026) *Women don't feel safe on the bus – and the evidence tells us why*. Available at: https://www.womenintransport.com/blog/women-girls-safety-uk-bus-network-systra (Accessed: 30 July 2026).
[17] Girlguiding (2025) *Two thirds of girls change their everyday behaviour to avoid sexual harassment*. Available at: https://www.girlguiding.org.uk/about-us/press-releases/girls-attitudes-survey/ (Accessed: 30 July 2026).
[18] Waymo (2026) *Waymo Accessibility Network*. Available at: https://waymo.com/waymo-accessibility-network/ (Accessed: 30 July 2026).

- **In-app accessibility and pick-up and drop-off optimisation**: A dedicated menu allows riders to select features such as "Minimise Walking," which requests pick-ups and drop-offs on the same side of the street to avoid crossings. The app also provides "Long Walk Warnings" to proactively inform riders if a walk more than three minutes long is required to reach a specific location.
- **Wayfinding and vehicle localisation**: To help riders find their vehicle, the app offers "Adaptive App Navigation," providing wayfinding with haptic cues, turn-by-turn walking directions, and a compass. Riders can also customise the colour and initials shown on the "Visual Car ID" (dome display) and trigger a distinctive chime or honk from the vehicle to locate it by sound.
- **In-car experience and communication**: The app is compatible with screen readers (Talkback/VoiceOver), and riders may choose to turn on "Descriptive Audio", by which the vehicle announces manoeuvres and yielding. We offer "reduced in-car announcements" for anyone sensitive to sound, such as neurodivergent riders, and in-vehicle screens show text captions for audio updates. All in-car screen and app communications support 12 languages.
- **In-car customisation**: Riders have full autonomy over their in-car cabin environment, with the ability to control the air conditioning temperature and fan level, music choice and audio balance, and front passenger seat adjustments via the app to create more comfort or space, for a mobility device or guide dog.
- **Guide dog accommodation**: Guide dogs are always welcome without prior notice. Riders can adjust the front seat to create more footwell space and are permitted extra time at boarding to ensure their guide dog is secured before the journey begins.
- **No verbal interaction required**: By removing the human driver, the service eliminates the need for verbal communication, removing barriers for passengers who are deaf, hard of hearing, non-verbal, or have speech-related impairments, as well as reducing the psychological burden of travel negotiation.
- **24/7 Omnichannel Rider Support**: Support is available via the in-car screen, phone, in-app chat, or email. Agents are trained to assist with wayfinding, including looking through the car's cameras to help a rider understand their immediate environment or delaying a vehicle's departure if a rider needs more time.

With just under a decade of experience in operating a service and engaging the community, we know that improving accessibility in transport can never be addressed through a one-size-fits-all solution. The way people move can be deeply personal, requiring journey planning. We recognise the service currently has limitations. Our current vehicles are not wheelchair accessible due to the lack of suitable vehicle platforms that are built by automotive manufacturers. That's why we believe the bus, and traditional black cab – which are all wheelchair accessible – will continue to play an essential role on London's roads, providing a vital transport option when public transport is not suitable.

In the UK, our current engagement with accessibility groups has been positive. For example, the RNIB has shared its view on this new passenger service - "[RNIB] *recognises that autonomous vehicle technology has the potential to improve independent mobility for blind and partially sighted people, provided that safety, accessibility, audibility, and pedestrian detection concerns are fully addressed through co-design, testing, and appropriate standards.*"

Passenger safety

For passenger safety, particularly for women travelling alone or at night, the service model provides a secure environment - an extremely important element of our service. The absence of a human driver eliminates the risk of driver harassment or inappropriate behaviour, while the system provides route tracking, in-vehicle controls and a direct link to Rider Support.

"For many women, especially those who have experienced violence or harassment, the simple act of getting from Point A to Point B can be fraught with anxiety," says Sarah Lords, Communications Director at Fresh Start Women's Foundation. "Autonomous cars help give women the freedom to move with confidence, providing a transportation option that reduces anxiety and elevates perceived safety when they need ride support. Additionally, with features like route tracking, women can now take control of their journeys and feel empowered every step of the way."

We take rider safety, including interactions between riders, seriously. To ensure peace of mind, a Waymo is a private space where the rider retains autonomy over who enters their space.

Every journey begins with secure user authentication; the vehicle can only be unlocked through the requesting rider's Waymo app. Once inside, passengers are protected by a multi-layered safety network:

1. **Visual deterrence:** every vehicle is equipped with an internal cabin camera.
2. **On-demand support:** passengers have access to 24/7 remote assistance via the internal interface, connecting them to our dedicated support team.
3. **In-car security:** sensors within the vehicle, including in the passenger seatbelts, can notify support should they be unbuckled while the vehicle is in motion.

Finally, when exiting the vehicle, the passenger has the option of moving the vehicle to a further drop off point if they feel unsafe on arrival at their planned destination. The doors stay locked from the outside on arrival until they wish to exit, but the passengers always have the ability to exit the vehicle.

By comparison, traditional rideshare and taxi services operate with far less standardised visual monitoring and no automated access control. By removing the unpredictable human variable, we aim to deliver a high standard of personal safety.

U.S. data shows that these features have a material impact on passenger confidence. In a Waymo user research survey in September 2025, between 54 per cent and 61 per cent of female riders (across multiple U.S. cities) reported that using Waymo improved their sense of personal safety when getting around. In London, Waymo has supported and participated in an All Party Parliamentary Group (APPG) with Women in Transport to discuss the desired impact of autonomous vehicles on women's journeys. These same features are also what enable us to respond quickly in the event of a passenger medical emergency.

"Our recent engagement with parliamentarians, policymakers and industry leaders at the All Party Parliamentary Group event on women's safety underscored the importance of designing transport systems that work for everyone, particularly women and girls," said Sonya Byers, CEO at Women in Transport. *"Partnerships like this one with Waymo present an important opportunity to explore how emerging autonomous technologies can be developed responsibly, with safety, trust and lived experience embedded from the outset. We are excited to work together to ensure innovation supports a more equitable and confident travel experience for all."*

While Waymo's technology cannot resolve all of London's transport barriers, it offers a valuable alternative for those underserved by the current system. By providing a predictable, safe and non-discriminatory option, it can complement public transport and support London's efforts to open travel to all.

Maximising the efficient use of roads and the kerbside

London's road network is under intense pressure from high dependency on single occupancy vehicles, particularly in outer London, and the inefficient use of street space. We know that car use remains high and causes serious congestion, including when drivers circle for scarce parking. The rise of private hire vehicles (PHVs), which currently number nearly 100,000, add to the pressure, as these cars can run empty between bookings and double as personal transport when off-duty.

The Mayor's Transport Strategy aims for 80 per cent of all journeys in London to be made by foot, cycle or public transport by 2041. The strategy also aims to reallocate road space, introduce active kerbside management and use the Congestion Charge and ULEZ to manage demand, and keep London moving.

We support London's commitment to improving the efficiency of its road network and kerbside, and believe Waymo can be a strategic partner to the city as it develops sophisticated kerb management plans. We recognise concerns that the introduction of APS onto London's already crowded roads could add to congestion. However, we have designed our service to minimise network disruption and incentivise the use of our service instead of a private vehicle. We also believe the incentives of an AV operator are more aligned with cities focused on reducing congestion than traditional rideshare companies.

An efficient fleet

We understand that there are concerns that APS will circulate empty searching for rides, but this misunderstands the commercial model required to successfully operate these vehicles.

Our vehicles are our primary asset. Waymo internalises the costs of operating the vehicles, whereas traditional rideshare companies push those costs to individual private vehicle owners. As a result, Waymo is financially incentivised to reduce empty miles and increase vehicle utilisation. We want them to be used as efficiently as possible and to preserve their longevity for as long as possible. Vehicles that are not parked are vehicles subject to wear and tear, requiring maintenance. If that vehicle is driving with no passenger, we are not maximising the use of that asset. And importantly, we expect our vehicles to attain significant mileage - they are available for rides 24/7 unless undergoing maintenance or charging; they do not finish an eight-hour shift and drive home to be parked on a driveway or the roadside.

In all mature markets we optimise our vehicles to be carrying passengers the majority of the total miles driven. Vehicles must also drive to reach a passenger but they will only undertake that journey once a booking has been accepted; they do not 'search out' rides. Instead, we use sophisticated algorithms to pre-position vehicles based on expected demand. This both limits the amount of driving to pick up a rider *and* negates the need for any empty cruising in search of a potential customer.

Our vehicles also know exactly where they are going if they are seeking out parking in lieu of a booking. We acquire infrastructure around any city in which we operate in order to provide dedicated parking for the fleet which can also serve as charging stations for vehicles. We use dedicated infrastructure as much as possible to minimise the use of the roadside to park.

It is this highly efficient fleet that enables us to operate over half a million trips per week across 11 U.S. cities (as of 30 July 2026) with vehicle numbers at a fraction of London's taxis. And we note that in their recent report,[19] the Chamber of Progress estimated that autonomous ridehailing services would contribute only a total of 1 to 2 per cent of annual vehicle miles travelled *across* the UK by 2035. This suggests that the number of vehicles on London's roads will remain small in the coming years; a complete contrast to the initial introduction of ridehailing apps in 2012.

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[19] Chamber of Progress (2026) *Economic and Social Impacts of Automated Ridehailing Services in the UK*. Available at: https://progresschamber.org/research/automated-ridehailing-services-uk-impacts/ (Accessed: 30 July 2026).

Living without a private car
Autonomous vehicles represent another choice. Although Waymo, as the developer of the technology, and not the vehicle itself, is limited to the form factors available from manufacturers today, we can operate our service unlike anything that has come before.

It is already possible to schedule rides with the Waymo app. Unlike with conventional ridehailing apps, a Waymo cannot refuse to meet a rider at the scheduled time and will not decline that ride at the last minute (barring an incident or road blockage that prohibits it reaching the rider). This gives riders the reliability and confidence they need to book trips in advance that they may otherwise default to their private car to do. This is the sort of reliability often sought by those who choose to own their own car.

We know from research conducted with users of car clubs that guaranteed access to modern, well-maintained vehicles and the removal of the personal burden of maintenance incentivise reduced dependence on private cars. With the decline of car clubs in London,[20] we hope to offer Londoners a new way of relying less on a private car that supports the capital's transport goals.

Whilst scheduled rides are still a reasonably new feature, we are exploring ways in which we can improve this feature for riders in all of our markets to ensure they get the best service possible in a way that works to reduce dependence on private cars.

We are also seeing initial evidence that a reliable Waymo service is encouraging people to avoid purchasing a second car or sell their current, second car. In a recent Waymo rider survey, 34 per cent of San Francisco residents reported needing to rely less on their private car because of their access to the Waymo service.

Importantly, the dependability of the service is directly tied to the size of the vehicle fleet. Our vehicle fleet in the Bay Area is still far smaller than the total number of taxis in London today. In order to offer Londoners an alternative to their private car it is important that we can deploy the fleet size necessary to support that dependable alternative.

APS deployments will initially be small in number but Waymo is seeking to deliver the most efficient fleet possible. We are confident we can support London in creating a city with a road network and kerbspace that works for more than just cars.

[20] The Guardian (2026) *London has lost 'catastrophic' 89% of car club vehicles since Zipcar exit*. Available at: https://www.theguardian.com/money/2026/jul/03/london-car-club-vehicles-zipcar-exit (Accessed: 30 July 2026).

Connecting passengers with sustainable mobility

Londoners benefit from a rich transport network, but public transport connectivity remains uneven particularly across outer London boroughs where Public Transport Access Levels (PTAL) are lower. In these areas, first and last mile connectivity gaps present a significant barrier to sustainable travel. As a result, many residents rely on private cars for short trips that could otherwise be made by public transport if the initial or final connection was seamless and accessible.

The Mayor's Transport Strategy sets an ambitious target for 80 per cent of all journeys in London be made on foot, by cycle or using public transport by 2041. The strategy highlights the need to improve connectivity in outer London and recognises that improving the start and end of journeys is critical to increasing public transport ridership.

Waymo is focused on building a product and service that supports public transport. Waymo has designed its service to complement, not displace, London's mass transit infrastructure by bridging these critical connectivity gaps. Key features of our proposed service integration design include:

- **Multimodal route planning:** Integration into multimodal journey planners (including Google Maps) to enable seamless routing that combines Waymo rides with rail, Underground, and bus networks.
- **24/7 complementary availability:** The 24-hour service provides reliable connections during late-night hours when public transport options are limited and personal safety concerns are greater.
- **Integrated rewards:** Waymo is developing automated reward schemes, including credit card-linking technology, to automatically apply credits when riders use the service to connect to public transport.
- **Dedicated kerbside and hub integration**: Working in partnership with public transport operators to establish AV pick-up and drop-off bays at public transport mobility hubs to ensure efficient transfers and reduce estimated times of arrivals (ETAs).

Evidence from San Francisco is already showing how an Automated Passenger Service can support public transport. For example:

- **Travel incentives and direct connections:** A pilot programme in San Francisco offered riders a $3 credit for trips starting or ending at major transport hubs, encouraging multimodal journeys. We found that even before we introduced this incentive, more than 36 per cent of Waymo riders were using Waymo specifically to connect to public transport networks. We have conveyed to TfL our interest in exploring similar and potentially more expansive schemes here in London.
- **Sustainable habits:** Waymo riders are active users of other sustainable modes. Surveys show that 59 per cent of California riders had used public transport in the previous two months, and 25 per cent of San Francisco riders cycled to get around.

London is unique. It already hosts one of the world's richest public transport networks. We respect the goals London has for improving access to public transport and we look forward to further designing a service in consultation with TfL to achieve it.

Improving air quality

London has made significant progress in cleaning its air, notably through the introduction, and expansion, of the Ultra Low Emission Zone (ULEZ) under the Mayor, Sir Sadiq Khan. The Mayor's Transport Strategy sets a clear objective to reduce air pollution and greenhouse gas emissions, aiming for London to become a zero-carbon city by 2050. Policy 23 of the strategy also requires new transport services to support this transition by deploying zero-emission vehicles.

Despite these ambitions, road transport remains a major source of air pollution in the capital, contributing to elevated levels of nitrogen dioxide (NO_2) and particulate matter ($PM_{2.5}$). The existing private hire industry, while transitioning, still relies heavily on fossil fuels. As of May 2025, only 29 per cent of private hire vehicles (PHVs) licensed in London were fully battery electric. The remainder, including plug-in hybrids, continue to emit tailpipe pollutants, particularly when operating in combustion mode within congested urban areas.

Waymo supports London's environmental ambitions by deploying an all-electric fleet. From the first day of operation, every Waymo vehicle in London will be a battery electric vehicle (BEV), ensuring zero tailpipe emissions. This directly supports the MTS goal of cleaning London's air.

Furthermore, Waymo is committed to contributing to London's transport funding. Following the repeal of the congestion charge exemption for electric vehicles at the start of 2026, Waymo fleet vehicles will pay the charge, contributing to London's transport network revenues while maintaining zero-emission operations.

Based on Waymo's U.S. sustainability metrics,[21] every 500,000 electric vehicle trips on the platform prevent an estimated 530 tonnes of CO_2 emissions compared to equivalent journeys in internal combustion engine vehicles. At a typical weekly volume of 400,000 trips (observed in mature U.S. markets), this equates to preventing approximately 424 tonnes of CO_2 emissions per week in London.

By deploying a 100 per cent electric fleet and managing battery lifecycles responsibly, Waymo offers a clean transport option that complements public transport and active travel, supporting London's path to a zero-carbon future.

[21] Waymo (2026), *Sustainability at Waymo*. Available at: https://waymo.com/sustainability (Accessed: 30 July 2026).

Cybersecurity

An autonomous vehicle cannot be considered truly safe unless it is also cybersecure. That is why cybersecurity is a core component of our safety architecture.

Waymo has designed safety and security into its autonomous vehicles from the very beginning, adopting a "secure-by-design" philosophy that pre-dates formal international automotive regulations. Drawing on Google's long-standing expertise in protecting complex digital networks, cybersecurity is treated as a foundational requirement from the earliest stages of development. Rather than trying to retrofit security features to existing vehicles, potential digital risks are identified and mitigated throughout the design, development, and deployment processes. This ensures that the technology is resilient and has layers of defence against cyber threats before it is deployed on public roads.

At the core of this approach is the strict isolation of the vehicle's safety-critical systems from untrusted external connections. The onboard computers that control driving functions – such as steering, braking and navigation – are partitioned and shielded from outside wireless connections, meaning they cannot be accessed remotely. All communications to and from the vehicle are encrypted and authenticated, allowing only authorised messages. The vehicles are also designed to detect physical or digital tampering, automatically triggering a safe stop or other protective measures if unauthorised access is attempted. This robust architecture is backed by continuous 24-hour monitoring and periodic penetration testing by cybersecurity specialists to ensure the system remains resilient against emerging threats.

We are pleased to see that DfT is taking cyber-security as seriously as we do. It is a key concern in the commercial piloting regime, guidance for which was published earlier this year by DfT.[22]

To participate in the UK's commercial piloting regime, we must demonstrate robust cyber-security controls at both the vehicle and fleet levels, aligning with that guidance. At the vehicle level, we must ensure safety-critical functions are protected, following international standards and best practices. Our goal is to demonstrate that:

- Our Automated Driving System (ADS) and all interacting systems are protected against cyber-threats, informed by UN Regulation 155[23] and other relevant standards for automotive cyber-security.

[22] Centre for Connected and Autonomous Vehicles and Department for Transport (2026) *Self-driving vehicle pilot scheme: information for applicants*. Available at: https://www.gov.uk/government/publications/self-driving-vehicle-pilot-scheme-information-for-applicants/self-driving-vehicle-pilot-scheme-information-for-applicants#scope-of-this-guidance (Accessed: 30 July 2026).
[23] UNECE (2021) *UN Regulation No. 155 - Cyber security and cyber security management system*. Available at: https://unece.org/transport/documents/2021/03/standards/un-regulation-no-155-cyber-security-and-cyber-security (Accessed: 30 July 2026).

- We support safe and secure software updates, informed by UN Regulation 156[24] and similar standards for secure software updates.
- Our vehicles are equipped with secure data-recording systems to monitor safety performance.

At the fleet and operator level, we must ensure our operational infrastructure and data management are secure, which we demonstrate by:

- Submitting a self-assessment supported by evidence pursuant to the National Cyber Security Centre's (NCSC) Cyber Assessment Framework (CAF);
- Conducting our operations in accordance with recognised industry standards and best practices, including ISO/IEC 27001 (information security) and ISO/SAE 21434 (automotive cyber-security);
- Maintaining strict data-handling and secure storage procedures, especially for personal data, in compliance with UK data protection laws; and,
- Maintaining robust incident management protocols, including mandatory reporting timelines: promptly notifying regulators of any suspected or confirmed cyber-attack within 72 hours (and safety-relevant occurrences within 24 hours), followed by a detailed report within 30 days.

Waymo supports the UK taking a robust approach to cybersecurity as with safety. Delivering a safe and cybersecure service is fundamental to building public trust. As we progress our conversations with DfT, we are working hard to demonstrate we meet the highest standards on cybersecurity in connection with obtaining approval to operate autonomously.

Creating a newly skilled workforce for the future

The arrival of APS presents new employment opportunities. Although APS require no driver, they must still be managed as part of a fleet requiring a variety of different roles including maintenance and remote operations.

We recognise the concerns relating to job losses. However, we urge policymakers to consider two key points on the future AV workforce:

1. Initial deployments of APS will involve small numbers of vehicles; far fewer than the existing taxi and PHV fleets;
2. APS will create new, local, and highly skilled jobs requiring training and upskilling; making them available to a wider range of people.

Research by the Chamber of Progress, in partnership with Steer mobility,[25] predicts that autonomous ridehailing services would contribute only a total of 1 to 2 per cent of annual vehicle miles travelled *across* the UK by 2035. Though these miles may be concentrated in London, it does not suggest that there will be a sudden influx of vehicles displacing taxi and

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[24] UNECE (2021) *UN Regulation No. 156 - Software update and software update management system*. Available at:https://unece.org/transport/documents/2021/03/standards/un-regulation-no-156-software-update-and-software-update (Accessed: 30 July 2026).
[25] Chamber of Progress (2026) *Impacts of Automated Ridehailing Services in the UK*. Available at: https://progresschamber.org/research/automated-ridehailing-services-uk-impacts/ (Accessed: 30 July 2026).

traditional PHV drivers as occurred when ridehailing apps first arrived in London. The transition to an autonomous fleet is likely to be gradual.

Furthermore, Waymo is not here to replace the black taxi. As we have highlighted elsewhere in our response, we believe black taxis provide a fundamental service to many Londoners and will continue to even as APS become more commonplace. Black taxis are iconic to London and represent another option for Londoners who may prefer not to use an APS or who require a wheelchair accessible vehicle.

Wherever we deploy, we must create a local, skilled workforce to manage our fleet. As we scale, we are creating an entire AV industry ecosystem with new businesses that hire workers to support fleets of vehicles including:

- Mechanics and vehicle technicians who maintain our fleets;
- Dispatchers and facilities managers who help run the fleets;
- Infrastructure, including charging for fleets of autonomous, electric vehicles; and,
- Roadside assistance to provide on-the-ground support to vehicles.

The Chamber of Progress report estimates that over 18,000 jobs could be created across the UK by autonomous ridehailing services alone by 2035. They also predict that, in 2035, for every 1000 AVs, 350 direct jobs will be supported specifically in fleet management and vehicle operations.

We expect to invest substantially in the infrastructure needed to establish London as our first European service area. We have already opened two sites that will act as anchor investments for our presence in London. We will also locate all UK remote assistants in Manchester. In the U.S., the service centres of key metropolitan areas create jobs for hundreds of people. We expect the same in the UK.

We also recognise the role we play in inspiring the next generation of skilled workers for autonomous fleets across the industry. That's why, in the U.S., we worked with a number of organisations to bring specialised AV maintenance curriculum to community colleges,[26] hands-on vocational training for young people[27], and scholarships for technical students[28] in fields like EV technology, robotics, and advanced mechatronics. We intend to grow similar initiatives in the UK.

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[26] Bronx Community College (2025) *BCC and Waymo Drive Forward the Future of Automotive Education*. Available at: https://www.bcc.cuny.edu/bcc-and-waymo-drive-forward-the-future-of-automotive-education/ (Accessed: 30 July 2026).

[27] LA-Tech.org (2023) *Waymo partners with LA-Tech.org to launch LA Tech x Waymo Career-Readiness Institute for underserved youth*. Available at: https://la-tech.org/news-backend/waymo-partners-with-la-techorg-to-launch-la-tech-x-waymo-career-readiness-institute-for-underserved-youth (Accessed: 30 July 2026).

[28] Waymo (2026) *Partnering with TechForce to support the workforce behind fully autonomous ride-hailing*. Available at: https://waymo.com/blog/2026/02/partnering-with-techforce/ (Accessed: 30 July 2026).

Question 4

The UK has established one of the most advanced legal frameworks for autonomous vehicles globally. The UK's Automated Vehicles Act 2024 creates a dedicated statutory regime for the authorisation, oversight and enforcement of autonomous vehicles, including specific provisions governing Automated Passenger Services (APS).

The role of the Mayor and Transport for London (TfL) in regulating APS is established by Part 5 of the Automated Vehicles Act 2024. Part 5 requires, in England, the Secretary of State for Transport to first seek the permission of the relevant authority before issuing a permit to a deployment that would otherwise, were it a conventional vehicle service, require a taxi or PHV licence from that same authority.

In the case of Waymo's deployment, when we apply for an APS permit, we understand that the Driver & Vehicle Standards Agency (DVSA), acting on behalf of the Secretary of State for Transport, will need to request consent from Transport for London. TfL therefore has a critical role in adjudicating whether an APS is deployed in London. Guidance issued by DfT also requires applicants to conduct pre-consent engagement with the relevant 'consenting authority'. In the case of London, this is TfL. Although the statutory period for consent by the relevant authority is six weeks, we understand that we cannot make that request to DVSA until the relevant authority agrees with us that we have completed pre-consent engagement.

Waymo is ready to begin that process. These discussions are integral to ensuring that the design of the Waymo operation in London aligns with specific priorities for TfL. We understand, however, that TfL intends first to publish guidance setting out how it will approach pre-consent engagement and the exercise of its consent role. We urge TfL to do so without further delay.

It would not be appropriate for Waymo to prescribe the extent of TfL's regulatory powers. We can, however, offer our perspective on effective engagement and oversight.

In Waymo's view, any APS operating in London should function as part of the capital's wider transport system. The Mayor and TfL should therefore have meaningful input into ensuring that deployment supports the Mayor's Transport Strategy, Vision Zero, Healthy Streets, public transport integration, accessibility, the efficient use of road space and public confidence.

The priority should be to establish a clear, proportionate and evidence-led framework for engagement. This should set out the information operators are expected to provide, how TfL will assess alignment with its transport objectives, the respective roles of TfL and national regulators, and the process and timetable for reaching decisions.

TfL indicated during its appearance before the London Assembly Transport Committee on 14 July 2026 that it intends to publish guidance.[29] We welcome that commitment and await

[29] London Assembly Transport Committee (2026), *Agenda and draft minutes - Autonomous Passenger Vehicles in London, 14 July 2026*. Available at:

further clarity. Early publication would give operators, boroughs, road safety and accessibility groups, and the public greater certainty about how the process will work and help ensure that national safety authorisation and London's transport priorities are properly aligned.

Question 5

The Mayor has been vocal throughout his term, of the value of London learning from other global cities. In setting out his priorities as Chair, and now Co-Chair of the C40 Cities network, the Mayor committed London to listening, and learning from other cities while sharing the capital's own experience. The same outward-looking approach should inform London's consideration of APS.

London does not need to develop its approach in isolation. Trials and commercial deployments elsewhere provide a growing evidence base on safety, regulation, transparency, accessibility, public confidence and the integration of autonomous vehicles into complex urban transport systems.

Drawing on Waymo's operational experience in the United States and its engineering presence in the UK, several lessons have emerged, they are:

1. Superior safety performance compared to human drivers
The principal lesson from international deployments is that AVs can significantly reduce road casualties by removing human errors such as distraction, fatigue, and impairment.

- **Collision reduction:** In the U.S., the Waymo Driver has demonstrated[30] a 94 per cent reduction in serious injury or worse crashes, an 82 per cent reduction in airbag deployment, and an 82 per cent reduction in injury-causing crashes compared to human driver benchmarks.
- **Avoidance of fatalities:** Simulated reconstructions of a set of 72 real-world fatal crashes[31] show that the Waymo Driver could have avoided a collision in 100 per cent of the reconstructed scenarios when placed in the initiator role, and 82 per cent when placed in the responder role (with an additional 10 per cent of responder role simulations where the collision severity was mitigated).
- **Insurance data validation:** Joint studies with reinsurers like Swiss Re[32] have found that Waymo's rider-only operations resulted in a 92 per cent reduction in bodily injury claim frequency compared to human driver baselines.

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https://www.london.gov.uk/about-us/londonassembly/meetings/ieListDocuments.aspx?CId=173&MId=7997 (Accessed: 30 July 2026).

[30] Waymo (2026), *Waymo Safety Impact*. Available at: https://waymo.com/safety/impact/ (Accessed: 30 July 2026).

[31] Scanlon, J.M., Kusano, K.D., Daniel, T., Alderson, C., Ogle, A. and Victor, T. (2021) *Waymo simulated driving behavior in reconstructed fatal crashes within an autonomous vehicle operating domain*. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0001457521004851 (Accessed: 30 July 2026).

[32] Waymo (2024) *New Swiss Re study: Waymo is safer than even the most advanced human-driven vehicles*. Available at: https://waymo.com/blog/2024/12/new-swiss-re-study-waymo/ (Accessed: 30 July 2026).

2. The need for objective, severity-based metrics
International experience shows that raw collision numbers are uninformative without proper context.

- **Exposure-based metrics:** All data must be presented as a rate of occurrence relative to miles driven to allow for fair comparisons.
- **Severity tiers:** Reporting should focus on objective severity thresholds, such as fatalities, reported injuries, or airbag deployments, rather than subjective and ill-defined "near-misses".
- **Accounting for reporting bias:** Evaluations must account for the fact that ADSs capture and report collisions more consistently, whereas a large proportion of minor human-driven collisions go unreported.
- **Sound comparisons:** It is methodologically unsound to compare an ADS operating in a dense urban environment like London to unadjusted national-level databases that include rural and motorway driving.

3. Regulation should be proportionate and evidence-led
Other jurisdictions demonstrate the value of staged deployment, clearly defined operating areas and close engagement between operators, regulators, transport authorities and emergency services.

London should use evidence from international deployments to distinguish between hypothetical concerns and risks demonstrated through operational data. Requirements should be targeted at measurable safety outcomes and should support careful expansion as operators demonstrate readiness for additional roads and conditions.

4. Public trust through transparency
It is important for operators to engage with regulators and publish peer-reviewed safety data and analysis, to support public trust in the technology and the company's safety methodologies. Waymo has published a library of safety papers, available here, at: Published Safety Research Papers for Autonomous Vehicles.

The central lesson is that London can learn from other cities, drawing down from international experience while designing an approach suited to its own road network, transport priorities and communities. Learning from other cities does not mean replicating their regulatory frameworks without adaptation. It means using their evidence to make better-informed decisions, avoid repeating mistakes and identify practices that can support safe and responsible deployment in London.

[Ref No. AV043, Wayve]

London Assembly Transport Committee—Call for Evidence: Autonomous Passenger Vehicles in London

June 2026

Executive Summary

London's transport network is on the cusp of benefitting from self-driving passenger services, supported by one of the world's most comprehensive regulatory frameworks.[1] The Automated Vehicles Act 2024 establishes clear safety, accountability and oversight requirements, ensuring self-driving vehicles must demonstrate performance at least equivalent to a careful and competent human driver before operating on public roads. As a London-founded company that has tested self-driving technology in the capital since 2018, Wayve believes this technology can be introduced safely and responsibly while supporting the objectives of the Mayor's Transport Strategy.

Self-driving vehicles will improve road safety, increase transport accessibility and support a more efficient transport network. By reducing the human error that contributes to the vast majority of road collisions, self-driving technology advances progress towards Vision Zero, while encouraging active travel and improving mobility for older and disabled Londoners. As part of a connected transport system, self-driving passenger services can complement public transport, reduce reliance on private car ownership and contribute to cleaner, more efficient travel across the capital.

From an economic perspective, the Mayor of London has made clear his ambition for London to be a global leader in AI, championing policies that accelerate AI adoption, support high-growth technology businesses and create high-skilled jobs. Wayve has engaged constructively with the Mayor's AI and Jobs Taskforce and exemplifies these ambitions in practice. As one of the UK's leading AI companies, Wayve employs hundreds of people in London and continues to expand, demonstrating how support for self-driving technology can drive investment, create skilled employment and strengthen London's position as a world-leading AI ecosystem.

Subject to regulatory approval, Wayve plans to begin a supervised self-driving passenger trial in London this year with Uber. Our trial will build on nearly a decade of safe testing and engagement with TfL, local authorities and other stakeholders. The transition to self-driving passenger services will be gradual—these vehicles will operate alongside human drivers for many years while creating new jobs in engineering, fleet operations and advanced technology. Wayve is committed to working closely with the Mayor, TfL and London communities to ensure these services are introduced safely, transparently and in a way that delivers meaningful benefits for Londoners.

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[1] *"Self-driving", "automated driving" and "autonomous" are used interchangeably to denote SAE Level 3 and 4 technology.*

About Wayve

Wayve is a London-based company developing AI to power self-driving vehicles. Founded in 2017 in Cambridge, we now employ 1,300 people worldwide, including 600 in London. We are proud to be a British champion of self-driving vehicle technology on the world stage, now operating in North America, Germany and Japan.

We are close partners to the UK Government and have supported the Department for Transport (DfT) to develop the regulatory environment to support the safe introduction of self-driving technology on UK roads. We have also taken a leading industry role in developing the United Nations Economic Commission for Europe (UNECE) regulations for the type-approval of automated driving systems. In May 2026, we signed a Memorandum of Understanding with the Department for Business and Trade to collaborate on the responsible introduction of self-driving vehicles in order to maximise the economic growth potential[2].

Subject to regulatory approval, this year we plan to begin a supervised self-driving passenger trial in London with our partner Uber. This trial will start with trained vehicle specialists (safety operators) onboard to monitor each journey that will also hold a TfL PHV driver license.

Wayve has been safely testing our technology in London since 2018, under the guidance of the Code of Practice for AV Trialling. Working with Uber will allow Londoners to experience self-driving technology in a safe and controlled environment. This is the first step in bringing this technology to the UK, with future applications extending beyond ride-hailing to areas such as logistics, car sharing and public transport.

1. How close are self-driving passenger vehicles to becoming a reality in London?

Wayve has been testing self-driving vehicle technology in London since 2018 under the Code of Practice for Automated Vehicle Trialling ("CoP") and the standards that underpin it (i.e ISO 1881). The flexibility of the CoP has enabled Wayve to accumulate extensive driving data which has been critical to product development. In-line with the CoP, Wayve maintains a safety case for its trial operations, employs trained safety operators who meet the competency standards set out in the CoP, and follows industry best practice procedures for incident reporting, data recording, and engagement with relevant authorities.

Wayve welcomed the DfT's decision to bring the Automated Passenger Services (APS) framework into force. Legislated under the AV Act, the APS framework provides a practical approach to piloting passenger services with or without a safety operator. Consent of the licensing authority—Transport for London—is a key mechanism through which deployments can be shaped around the objectives of the Mayor's Transport Strategy. At the same time, the framework should allow sufficient flexibility for early services to test different operating models, understand passenger demand and evaluate real-world impacts. These early trials will generate the evidence needed to refine services and support the long-term expansion of self-driving vehicles into a broader range of use cases across London's transport network.

[2] https://www.gov.uk/government/news/government-and-wayve-sign-partnership-to-accelerate-britains-self-driving-future

Wayve has undertaken extensive engagement across London in respect of our pilot with Uber. This has included TfL directly, the Assembly, borough councils, emergency services, and wider interest groups. We are committed to maintaining open and transparent dialogue with all interested parties as services are introduced and scaled to ensure impacts are monitored and concerns proactively addressed.

The UK Government also recognises the importance of maintaining leadership in AI as part of its broader Industrial Strategy. The AI Opportunities Action Plan stressed the importance of the UK being an “AI maker, not AI taker” and referenced Wayve as a standout example of a British business helping to deliver this ambition. Wayve is one of the UK’s few homegrown AI companies developing a frontier foundation model, and one of an even smaller number applying that technology to real-world, embodied AI. Our upcoming pilot with Uber is an important milestone in commercialising this British-developed technology. Supporting early deployments will help ensure the UK is not only a leader in developing AI, but also in bringing AI innovation to market.

2. How will self-driving passenger vehicles navigate London's complicated road network?

Wayve’s AI has been developed in London and tested on the streets of the capital since 2018. This has been critical to developing our AI into a highly skilled driver, capable of handling the complexities of London driving. This approach, known as end-to-end AI, teaches our AI how to drive by learning from real-world experience, rather than relying on detailed maps or pre-programmed instructions for every situation. This is particularly well-suited in an environment like London, where roads are subject to continuous change from roadworks, changing infrastructure and updated road traffic regulations.

Wayve’s system will meet the safety requirements of the UNECE ADS regulation. Wayve has worked closely with global regulators and industry over many years to develop this regulation, which sets a globally harmonised technical safety standard. This means Wayve will produce a safety case to evidence that our system drives at least as safely as a careful and competent driver. This is a higher standard than the average human driver on London’s roads today, meaning AVs will contribute to higher road safety in the capital over time. Under this regulation, Wayve is also mandated to continuously monitor the system, report on incidents and capture and share data with the regulator to support incident investigation and event reconstruction.

3. What impact would the introduction of self-driving passenger vehicles have in London?

3.1 Safer streets, less traffic and support for active travel

Self-driving vehicles can make a significant contribution to the Mayor’s Transport Strategy, particularly its objectives on road safety, traffic reduction and increasing the share of journeys made by walking, wheeling, cycling and public transport.

Improving road safety is the most important benefit. Today, someone is killed or seriously injured on UK roads every 17 minutes[3], and 88% of collisions are linked to human error[4]. By removing common causes of collisions such as distraction, fatigue and impaired driving, self-driving technology will accelerate progress towards Vision Zero. Under the UK's regulatory framework, self-driving vehicles must demonstrate that they drive at least as safely as a careful and competent human driver before they can operate on public roads.

Self-driving vehicles can also support traffic reduction and more efficient use of London's roads. Vehicles in the UK are utilised just 4% of the time[5]. By increasing utilisation rates and reducing the need for private car ownership, self-driving fleets have the potential to improve transport efficiency. Existing evidence suggests ride-hailing services have already contributed to a 2.2% reduction in vehicle ownership in London[6], while 28% of former car owners cite the availability of ride-hailing services as a reason for giving up their vehicle[7].

Safer and more predictable road behaviour can also encourage active travel. A recent survey found that 43% of London cyclists do not feel comfortable cycling in the capital.[8] Between 2011 and 2016, DfT data found that 'failure to look properly' was the most commonly recorded contributory factor for motorists, featuring in 69% of collisions involving a motor vehicle and a cyclist where contributory factors were recorded.[9] Self-driving vehicles are equipped with 360 vision from sensors, comply with the rules of the road and will improve both actual and perceived safety, helping more Londoners choose walking, wheeling and cycling.

3.2 Expanding mobility and accessibility

Self-driving vehicles will improve mobility for older and disabled Londoners, including many who are unable to drive or do not own a vehicle. As the self-driving market matures, self-driving services will provide greater independence and flexibility, particularly in areas where public transport options are more limited and where people currently rely on family and friends for transport.

The benefits extend beyond ride-hailing. Early passenger services will help unlock a broader range of autonomous mobility applications over time, including logistics, shared mobility, public transport and personally owned vehicles. Wayve is already working with manufacturers including Nissan and Stellantis to bring self-driving technology to future vehicle platforms[10].

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3 https://www.brake.org.uk/get-involved/take-action/mybrake/knowledge-centre/uk-road-safety

4 https://www.gov.uk/government/news/public-invited-to-have-their-say-on-self-driving-vehicle-safety

5 https://www.racfoundation.org/research/mobility/still-standing-still

6 https://eprints.whiterose.ac.uk/id/eprint/202224/1/The%20effects%20of%20ridesourcing%20services%20on%20vehicle%20ownership%20The%20case%20of%20Great%20Britain.pdf

7 https://committees.parliament.uk/writtenevidence/75803/html/

8 https://www.standard.co.uk/news/transport/cyclists-safe-london-roads-tfl-b1272244.html?

9 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/686969/pedal-cycle-factsheet-2017.pdf

10 https://www.stellantis.com/en/news/press-releases/2026/june/stellantis-wayve-and-uber-partner-to-scale-robotaxis-globally

Accessibility and passenger safeguarding are embedded within the UK's regulatory framework from the outset. The AV Act requires operators to demonstrate how services meet the needs of disabled passengers and maintain robust accessibility and safeguarding arrangements as a condition of operation, ensuring transparency and accountability as the sector develops.

3.3 Strengthening London's transport network and economy

Self-driving passenger services should be viewed as an addition to London's transport network rather than a replacement for public transport. Two-thirds of UK Uber riders report using Uber to connect with public transport, highlighting the role of ride-hailing in providing first- and last-mile connectivity.[11] Self-driving services are expected to play a similar role, supporting cleaner, more efficient and better-connected travel across the capital.

The transition will be gradual—self-driving and human-driven services will operate alongside one another for many years. At the same time, the sector is creating new employment opportunities across fleet operations and vehicle maintenance. Wayve has already retrained former EV mechanics, driving instructors, blue-light drivers and fleet technicians into specialist self-driving vehicle roles, demonstrating how the growth of the sector can create new skilled career pathways in London.

Like other critical transport systems, self-driving services must also maintain robust cybersecurity protections. The sector is subject to extensive security requirements and continuous monitoring, drawing on established best practice from other safety-critical industries. This includes adhering to the UN Regulation 155 which mandates vehicle cybersecurity management systems across the automotive supply chain, to ensure systems remain secure and resilient.

4. **What actions should the Mayor and TfL prioritise when engaging with operators intending to pilot self-driving passenger vehicles and what powers should they be seeking to regulate the sector?**

The AV Act enshrines a consenting role for local authorities in the automated passenger services framework through the local consent mechanism.

Wayve has already engaged with representatives across London borough councils, the London Assembly, TfL and the Mayor's Office, and is committed to continuing that engagement as trials progress and the sector matures.

We support the Mayor and TfL prioritising constructive dialogue with developers and operators ahead of and during trials, with clear and proportionate expectations that align with the national framework. This should be accompanied by sufficient flexibility for early deployments to test different operating models, understand passenger demand and evaluate real-world impacts. Providing operators with this certainty and flexibility will enable investment while generating the evidence needed to refine services and support the long-term expansion of autonomous mobility in London.

[11] https://www.publicfirst.co.uk/the-impact-of-uber-in-the-uk-2023

5. **What can the Mayor and TfL learn from trials and deployments of self-driving passenger vehicles in other countries?**

As a British company, growing in London, Wayve is best placed to understand the complexities of London's road network. We are the only UK-founded developer planning to operate a commercial passenger service. Our approach has been shaped directly by London itself from the outset, and informed by our experience of testing in over 500 cities globally. For Wayve, the proposed trial with Uber represents our first commercial deployment of this kind. As a British AI company headquartered in London, we believe it is important that our first commercial deployment takes place in our home market. As we build our own operational data through the trial, Wayve is committed to working in partnership with TfL, the Mayor, and the Committee, in a way that respects and helps to address the challenges London faces.

The clearest lesson from international experience is that the cities and countries shaping how this technology is deployed are those that engaged early, and did so in partnership with domestic developers and operators.

In both the United States and China, self-driving ride-hailing has moved decisively toward commercial reality, with both markets scaling quickly while developing fleets now numbering in the thousands and beginning to expand internationally. Meanwhile, recognising what is at stake, the European Union has also begun to treat self-driving mobility as a question of technological sovereignty—the European Parliament has described 2026 as a pivotal year for Europe to act, before the gap with the United States and China becomes too wide to close.[12]

The learning for London is that it should seize the opportunity to move quickly and shape deployments with companies like Wayve, in a way that works for London. Supporting the development and deployment of self-driving vehicles aligns with the Mayor's ambition to make London a global AI capital. It will also reduce the long-term risk of the UK becoming an importer of mature technologies shaped by the priorities of other cities and countries, ensuring London helps shape the future of self-driving technology rather than simply adopting innovations developed elsewhere.

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12 https://www.euronews.com/next/2026/02/16/made-in-europe-but-wanted-elsewhere-is-the-eu-at-a-crossroads-over-self-driving-vehicles

London Assembly Transport Committee - call for evidence on autonomous passenger vehicles in London

Response from Women in Transport

Women in Transport welcomes the London Assembly's investigation into autonomous passenger vehicles (AVs) and the opportunity to provide evidence at this crucial stage.

Autonomous technology has significant potential to improve safety and accessibility. However, for many women, safety is not defined solely by outcomes such as collision reduction, but by how safe they feel when travelling – particularly when alone, at night, or with children. If this lived experience is not embedded into design, regulation and deployment, AVs risk failing to build trust and achieve widespread adoption.

Drawing on insights from our March 2026 roundtable we held in partnership with the All-Party Parliamentary Group for Women in Transport, we set out below key recommendations to support a safe, inclusive and trusted rollout of AVs in London.

Embedding safety from the outset

AVs can improve objective safety, including through reduced human error and real-time monitoring. However, technical capability alone is insufficient. Women in Transport recommends:

- Requiring operators to demonstrate how safety is embedded across both vehicle design and service operation
- Establishing clear and transparent accountability frameworks for incident response in a driverless environment
- Giving equal regulatory weight to perceived safety and user confidence, alongside technical performance

Without addressing confidence, many women may choose not to use these services.

Vehicle design and passenger experience

The removal of a driver fundamentally changes how passengers access support and control their journey. Women in Transport recommends:

- Mandatory 24/7 passenger support with clear, easy-to-use emergency functions

- User control over journeys, including the ability to pause, reroute or terminate journeys
- A balanced approach to monitoring and privacy, ensuring safeguarding without unintended intrusion
- Design must be intuitive and usable in moments of stress, not reliant on complex interfaces.

Integration with the wider transport environment

Safety extends beyond the vehicle itself. For many women, the most vulnerable moments occur at pick-up and drop-off points. Women in Transport recommends:

- Standards for safe, well-lit and accessible pick-up and drop-off locations
- Alignment between AVs and existing public transport networks, avoiding service erosion
- Coordinated working between operators, police, local authorities, TfL and central Government to ensure end-to-end journey safety

A lack of integration risks undermining safety within the vehicle.

Inclusion and co-design

AVs present an opportunity to create a more inclusive transport system, but only if inclusion is built in from the outset. Women in Transport recommends:

- Mandatory co-design with women, disabled people and underrepresented groups
- Equality Impact Assessments that directly inform deployment decisions
- Clear evidence showing how user feedback influences system design and operations

Engagement must be meaningful and continuous and not a one-off ‘box ticking’ exercise at the beginning of the process.

Data and continuous improvement

AVs will generate new data on journeys and safety, and this should be used to continuously improve outcomes. Women in Transport recommends:

- Mandatory reporting on both safety outcomes and passenger confidence
- Disaggregation of data by gender and other protected characteristics

- Clear mechanisms to use this data to inform ongoing regulatory development

Without the above, disparities in safety and experience may remain hidden – and not reflected in design and operations.

The introduction of autonomous passenger vehicles represents a critical moment for London's transport system, and decisions made now will shape whether these services are trusted, inclusive and widely used.

Embedding women's safety and lived experience at this stage is essential. Without it, there is a significant risk that AVs will fail to meet the needs of those who rely most on safe and accessible transport.

Women in Transport stands ready to support the London Assembly, TfL and industry partners to ensure that AVs deliver safety in both practice and perception; accessibility and inclusion by design; and confidence for all users.

Jo Field OBE, Chair of Women in Transport

Email: Chair@womenintransport.com

26 June 2026

For more information about Women in Transport, visit our website.