

# Law Commission Consultation Document : Automated Vehicles: Consultation Paper 2 on Passenger Services and Public Transport

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## Introduction

As per the previous consultation document, this one is an excellent piece of work which encapsulates a substantial number of issues in a coherent way. It asks a number of questions in the body of the text and most are asked as specific questions requiring in-line responses. I have extracted these into this document and added some comments and suggestions which do not specifically answer any questions but which I hope may be helpful. These are in the order of your paragraph numbering and are labelled as such in the bold heading of each. I have also noted the page number ( P. XX ) which refers to the document page number (printed at the bottom of each page) not the pdf document page number.

Your consultation questions are in [blue](#) and my answers and comments are in black.

## Consultation Responses

### **P. ix List of Abbreviations**

British Standards institute should be BSI, not BST

### **P. xi Glossary**

Geofencing: Technology which restricts the vehicle to the geographical area in which it is designed to operate. – Not strictly true; the behaviour of the vehicle may be controlled or restricted within a geographic area. Emissions geofencing may force an electric mode in the fenced area but allow ICE propulsion outside it. Some forms of automated driving may be geofenced but the vehicle may be driven by a human outside that area.

### **P. 8 Keeping the vehicle within its operational design domain 1.42**

..... “However, it is possible that other elements of the ODD, such as weather conditions, will not be enforced automatically....” I would argue that this aspect should be enforced automatically as far as practicable. The Met Office are considering automated “route forecasting”, where the weather forecast for the intended route is provided in automated form for the vehicle and a comparison with the ODD is made by the vehicle automatically. It may be that when there is a quantified risk level of exceeding the ODD, the choice to commence is made by the User in charge or the HARPS operator. However, this should be the exception, not the norm. Humans are fallible and automation of weather forecast checking is a relatively easy step to such reduce human errors. There is a further discussion required regarding the highly automated vehicles’ own abilities to detect when it is exceeding its ODD.

1.43 ....” If the operator must take action to keep the vehicle within its ODD, the ADSE will need to communicate this to operators....” The vehicle should keep within its own ODD and the operator should not have to do this except under exceptional circumstances. This is an area which needs further discussion and definition. Keeping vehicle speed with an ODD should be relatively simple. If geofencing is problematic due to GNSS multi-path issues (for example in “urban canyons”) then the HARPS operator should provide additional capability, such as road-side beacons, etc. Each aspect of an ODD needs to be defined and the means of automatically complying with the ODD should be described, either by the ADSE (in the first instance) or by the HARPs operator (for service specific issues)

#### **P. 8 / P. 9 Replacing the sensors 1.48 & 1.49**

It is my opinion that perception sensors should be subject to “component approval”, as are other safety critical components of a vehicle (lights, tyres, seat belts etc.). Whilst the ECE are evolving such legislation, I believe the UK should take a short term lead and evolve our own, then morph these into international standards when they are ready. A component approval provides assurance that a component meets a certain minimum performance specification. On most cars, some components and their approvals are intended to be very specific in the vehicle application. Examples of these are combi-lamp units (very specific shape to fit the vehicle) and seat belts (where the mounting bracketry, deflection characteristics etc. are tuned to the vehicle). Then there are more generic components with approvals. Examples include tyres (where the size, speed rating and load rating are the only constraints) and lamp bulbs (which have a given sizing code and brightness). A vehicle manufacturer will expect a seatbelt to be replaced with exactly the same part bearing the same part number from the OE supplier. He will not expect a user to use exactly the same bulb or tyre from the OE supplier – any suitable type approved part would be acceptable. There is good reason for this. Tyre technology advances quickly and what is a premium quality tyre at vehicle registration may be eclipsed by a budget tyre 20 years later. Given the rate of technology advancement, there should be a discussion regarding what approach is best in the field of perception sensors and what a component approval should consist of for each sensor type. We should expect these requirements to evolve too.

#### **Diagram 1 on page 10 (although not titled or subtitled as Diagram 1)**

The diagram is OK but is missing an important chunk. On the RHS, Goal 2, I have an issue with the branch:

Was the issue caused by the ADS design? -> Yes -> Regulatory action against ADSE

To achieve Goal 2, this supposes that the ADSE has made a mistake which other ADSE’s have not. In practice, common codes of practice and principles are likely to mean that other ADSEs have the same problem. There must be another branch to inform all ADSEs of the issue and ideally a further branch to set a new scenario standard generated for new ADS approvals and possible rework of older ADS, depending on severity. Otherwise the goal of “Stopping it happening again” has little hope of being achieved.

#### **P. 26 Young people driving less 2.49**

In my experience, young people still want to drive – it offers freedom unlike any other mode of transport. However the key issue is that the cost of insurance has become prohibitive. The purpose of insurance is to spread risk. If insurance premiums are too tightly bound to the risk profile of an individual, some of those individuals (inexperienced drivers) will never be able to afford insurance,

never gain experience and the whole system will gradually fall apart. We are starting to see this. In my opinion, older, lower risk drivers (like me!) should pay higher premiums to allow youngsters to have lower ones.... then they can become drivers as I did.

### **P. 31 “Reduced Car Parking” 2.70 /2.71**

The argument that HARPS will allow a reduction in parking spaces will not help the issue of “empty cruising” if the AV cannot find a place to park.

Personally I think the reduction in parking requirement argument is flawed. If parking near popular destinations is reduced, there will be “cruising empty” or travelling longer distances empty to get to distant car parks – both of which will increase congestion.

Retailers and “destination” owners will not risk excluding potential customers who remain human drivers, so are unlikely to reduce their parking. NCP and other such parking companies make profit from parking – why would they want to discourage their customers? What return would NCP get from changing car parks to “green leisure spaces”. This is an unrealistic expectation unless there is a massive shift to shared AVs or HARPS. Many people like their cars and having their own private space away from the “great unwashed”. Such a massive shift would require substantial government pressure to achieve, which is clearly not politically acceptable.

### **P 36 “Empty Cruising” 2.100 / 2.101**

The risk of empty cruising to avoid parking fees is much greater if the AV is electric. From experience in developing EV powertrains, we know that a typical small / medium hatchback uses an average of about 8kW to drive around an urban environment, with various stop-starts and a 30mph speed limit. This assumes the air conditioning is off, but if it is on, the power requirement will typically double to 15 or 16kW. Hence to cruise for an hour will require about 8kWh of electrical power or perhaps at most 10kWh when charging and battery losses are included. A typical domestic charging cost is around 25p/kWh (or “unit”, as the supply companies sometimes refer to it). Hence, running a hatchback EV to cruise around an urban environment costs about £2.50 per hour. This may be substantially less than parking fees in some cities. The other “wear and tear” costs of the vehicle (tyres and brakes) are usually ignored by users and are not likely to be significant in the calculation, especially if the AV is cruising “gently” and optimising regenerative braking.

### **P. 36 Preventing Empty Cruising 2.101 but also Chap 7?**

One approach to allow empty driving, perhaps to a carpark or a pick-up point, but to prevent empty cruising, is for a vehicle to announce its intention to reach a particular destination at a particular time and for a city infrastructure “system” to advise it of a low congestion route to achieve this. (“daisy-chaining” of empty journeys would not be allowed). The vehicle must make adequate headway along that route else the user / owner/ HARPS operator will have a financial penalty levied. It would be the responsibility of the road authority to instigate such a system but any such system must have common, standardised interfaces for the AVs to use. Perhaps use of such a system may be a condition of an AV driving empty in that environment.

### **P. 40 Taxis “plying for hire” 3.10**

Surely if we are going to prevent HARPS from cruising empty, especially if they are being offered for public use, then logically we must prevent human driven Taxis “plying for hire” too? They present the same congestion problem. If we allow one, what is the justification for disallowing the other?

Queuing at taxi ranks is generally considered acceptable.... could / should we have HARPS ranks?  
Should HARPS share existing Taxi ranks?

**P. 56 Consultation Question 1. 3.82**

Do you agree that Highly Automated Road Passenger Services (HARPS) should be subject to a single national system of operator licensing?

Yes – and that the single system of licencing should be closely linked to a single body for investigating any and every HARPS accident.

**P. 57 Consultation Question 2. 3.86**

Do you agree that there should be a national scheme of basic safety standards for operating a HARPS?

Yes, without any doubt.

**P. 59 Mention of “line of sight” for an external driver 4.7**

This term is somewhat misleading. The current remote parking requirements have a max distance limit of 6m from the external driver to the nearest part of the vehicle. Line-of-sight might be very much further with a much reduced appreciation of the hazards around the vehicle. Also, whilst line of sight implies viewing along that line, it is not explicit. The driver could well be several miles away looking in the opposite direction and yet still be “in line-of-sight”. I suggest you refrain from this term unless it is defined clearly in this context.

**P. 60 Mention of “in sight of the vehicle” 4.15**

Following on from the point above, this para includes the phrase “...in sight of the vehicle”. This is slightly better than “in line-of-sight” but still does not adequately address the issues of range and ability to determine hazards around the vehicle, most particularly in the direction of travel of the vehicle.

**P. 64 Operator licencing system 4.32**

The first para states: “We think that that the new operator licensing system should apply if the vehicle operates without a human driver or....” It may be prudent to change this to “We think that that the new operator licensing system should apply if the vehicle **can operate** without a human driver or....”. Whilst the intent may be only to use a human driver or user in charge, there is a safety argument for having the licencing system if the vehicle can run fully autonomously as there may be a temptation to use such a feature in rare circumstances.

**P. 64 Consultation Question 3. 4.33**

Do you agree that a Highly Automated Road Passenger Services (HARPS) operator licence should be required by any business which:

- (1) carries passengers for hire or reward;
- (2) using highly automated vehicles;
- (3) on a road;
- (4) without a human driver or user-in-charge in the vehicle (or in line of sight of the vehicle)?

In general, yes, but with some caveats:

“On a road”. I do not see the reason for this restriction. If there is an automated vehicle undertaking the modern equivalent of donkey rides along a beach; that is not a road, but it is a public place and the duty of care should be just the same as on a road. The same could be argued for safaris or other

off-road excursions. Similarly, airside operations at airports are not available for access by the general public, so are not roads (according to your definition) but are a likely area for automated passenger travel and I would suggest should be included. I do not see the need for constraining to “roads” as this has not been clearly justified.

“without a human driver or user-in-charge in the vehicle (or in line of sight of the vehicle)?” I would like to tighten up the “line-of sight” issue and use the phrase “or in clear sight of the vehicle and its intended route for sufficient distance to bring the vehicle safely to rest if required”

**P. 64 Consultation Question 4. 4.34**

Is the concept of “carrying passengers for hire or reward” sufficiently clear?

Yes. Any new terminology would most likely have to go through the same iterations of case law to establish meaning in unclear circumstances. Why go through that trouble again? Worth keeping for the sake of simplicity.

**P.66 Consultation Question 5. 4.46**

We seek views on whether there should be exemptions for community or other services which would otherwise be within the scope of HARPS operator licensing.

I agree with the recommendation that there should not be the equivalent section 19 and 22 exemptions for HARPS. However, I would suggest that the licence fees be considered instead. Perhaps a zero licence fee for such applications? Also, it is possible that there will be HARPS operators specifically for school and charity type services. These might be run by sufficiently skilled and suitable volunteers on a “not-for-profit” basis. I would suggest that these should require a licence but be exempt from a licence fee, whereas equivalent businesses should pay a suitable licence fee.

**P. 67 Consultation Question 6. 4.54**

We seek views on whether there should be statutory provisions to enable the Secretary of State to exempt specified trials from the need for a HARPS operator licence (or to modify licence provisions for such trials).

No. If a vehicle is on a test or trial, the need to monitor, maintain the safety of the vehicle and all other aspects of a HARPS operator responsibility become MORE important than if the vehicle is already “approved” or has passed the requirements of those tests or trials. If anything, the HARPS operator licence requirements should be more stringent for tests and trials, due to the inherent higher level of risk. Any reasonable body wanting to undertake the trials would want to protect themselves from criticism by having a HARPS operator licence as a minimum, probably with their own additional requirements to mitigate against whatever risks are inherent in the test or trial.

**P. 71 Consultation Question 7. 4.72**

Do you agree that applicants for a HARPS operator licence should show that they:

- (1) are of good repute;
- (2) have appropriate financial standing;
- (3) have suitable premises, including a stable establishment in Great Britain; and
- (4) have a suitable transport manager to oversee operations?

- (1) Good repute – all yes
- (2) Financial standing – generally yes. If the purpose is to demonstrate that the operator has sufficient funds to maintain the vehicles, pay drivers etc. and have some “float” for unforeseen issues, then the same should be true for HARPS operator. They may be some justification for reducing this due to a the lack of drivers (so the ability to fund a stand-in driver in emergencies is reduced), but initially the higher level of vehicle sophistication may require more frequent servicing (wiping dirt off sensors, replacing sensors, updating software, etc.) so I would be wary of reducing the value too much, even for smaller vehicles. Their safety is just as important as for smaller vehicles. I cannot see a practical justification for scaling the funding to the size of the vehicle.
- (3) Establishment in Great Britain Yes – exactly the same as for PSV.  
Suitable premises. In my opinion, the same applies as for PSV, at least in the near term. For reputable operators, PSVs are cleaned & refuelled each night at their depot. The cleaning requirement will remain. This will be impractical at the roadside. The refuelling is likely to become recharging as electrification increases. At the moment this will require guaranteed access to long overnight charging at low capacity charge points (limited by the electrical network) ... which effectively demands a depot. Higher recharging capabilities without human intervention (using ground mounted induction charging) may allow charging at short periods during the day, but we are some way from recognised and agreed standards for this, let alone wide scale roll-out. For now, I think that the PSV provisions should be used without substantive changes.
- (4) Transport manager. Definitely yes.

**P. 71 Consultation Question 8. 4.73**

How should a transport manager demonstrate professional competence in running an automated service?

The requirements of a HARPS transport manager are likely to be similar but more complex than for a PSV transport manager. It would be reasonable as a first requirement for a HARPS transport manager to have the same qualifications as for a PSV manager. It would also be appropriate for the person to have a good working knowledge of the HARPS vehicles and their limitations. It would be reasonable to require a knowledge test of each relevant vehicle and specifically it's ODD. It would not be too difficult to set up such a test, drawing on standard information required of the ADSE. I would suggest that this is an area for some research work.

**P. 73 Maintenance inspections 4.84.**

I still have the opinion the improved automated diagnostics can and should be used on automated vehicles, with perhaps greater emphasis on HARPS. Whether this can fully replace a human (in the case of PSV/HARPS, both driver and depot technician) today or in the near future is highly doubtful. I would suggest that this is another area for research to establish the current state of the art of sensor capabilities and the shortfall (or otherwise) to what is considered necessary to detect known PSV failures and those that can be specifically expected of HARPS vehicles.

**P. 74 Consultation Question 9. 4.89**

Do you agree that HARPS operators should:

- (1) be under a legal obligation to ensure roadworthiness; and

(2) demonstrate “adequate facilities or arrangements” for maintaining vehicles and operating systems “in a fit and serviceable condition”?

(1) Yes

(2) Yes and this should include the ability to download and analyse incident data. This should be undertaken by the HARPS operator very soon after an incident has occurred (within 24 hours?)

**P. 74 Consultation Question 10. 4.90**

Do you agree that legislation should be amended to clarify that HARPS operators are “users” for the purposes of insurance and roadworthiness offences?

Yes.

**P. 74 List of required arrangements 4.92**

See comment above about need to be able to download and analyse incident data. Procedures should explain which incidents should be reported back to the ADSE, reported to any AV safety or licencing agency or which can be controlled only by changes in HARPS operator procedures.

**P. 80 Consultation Question 11. 4.124**

Do you agree that HARPS operators should have a legal duty to:

(1) insure vehicles;

(2) supervise vehicles;

(3) report accidents; and

(4) take reasonable steps to safeguard passengers from assault, abuse or harassment?

(1) Insure vehicles: Yes, if the HARPS operator is the owner. If the HARPS operator is NOT the vehicle owner, they must take sufficient steps to ensure that the owner has insured the vehicle and that the insurance remains in place, possibly on a daily basis if this can be automated.

(2) Supervise vehicles. Yes. I agree with the Mobileye approach as this is the least sensitive to cyber attack and intermittent communications drop-out. Whether the other approaches are acceptable at all remains to be seen.

(3) Report accidents – yes, and all “incidents” where the term certainly needs definition and reporting guidance is required.

(4) Take reasonable steps to safeguard passengers from assault, abuse or harassment?  
Yes – this is very important. Currently a human driver is always some form a witness to any passenger / passenger assault. I believe that overt interior cameras should be mandated for HARPS vehicles to provide a similar degree of security and deterrence. I would also like to see some HARPS vehicles offered where individual passengers are partitioned from each other and those partitions can only be lowered by agreement of all passengers involved.

**P. 81 Consultation Question 12. 4.125**

Do you agree that HARPS operators should be subject to additional duties to report untoward events, together with background information about miles travelled (to put these events in context)?

Yes, regarding “incidents” such as near misses, etc (see responses to 4.89 and 4.82). I am more wary of the “miles travelled” suggestion. There may be many parameters which have an important influence and recording them all would be expensive and inconvenient. For example, data could include proximity to vehicles in all directions, adhesion with road surface, etc. Light and dark has little meaning if measured in lux (a scale weighted on the human eyes sensitivity) for camera systems – the useful data would be spectral power density across the visible and infra-red spectra. This would be rather impractical. They may be some justification for some data, but research is required to identify what is both reasonable and useful.

**P. 81 Consultation Question 13. 4.128**

Do you agree that the legislation should set out broad duties, with a power to issue statutory guidance to supplement these obligations?

Yes.

**P. 82 Consultation Question 14. 4.133**

We invite views on whether the HARPS operator licensing agency should have powers to ensure that operators provide price information about their services.

In particular, should the agency have powers to:

(1) issue guidance about how to provide clear and comparable price information,

and/or

(2) withdraw the licence of an operator who failed to give price information?

(1) Yes – indeed, as there is no human driver to ask, I think it should be made very obvious, by means of a screen in the vehicle, what the estimated price will be when a passenger alights, and as the journey progresses, any deviation from that estimate should be explained and justified.

(2) Yes.

**P. 83 Consultation Question 15. 4.138**

Who should administer the system of HARPS operator licensing?

In essence, the options here are:

- The Traffic Commissioners
- The agency responsible for authorising ADS
- Some other body

In my opinion, there would be some merit in considering bolstering the Traffic Commissioners with technical expertise and making them take on both ADS and HARPS, thereby reducing issues at the “boundary”, because there would not be one.

**P. 83 Consultation Question 16. 4.140**

We welcome observations on how far our provisional proposals may be relevant to transport of freight.

Most of the areas are directly applicable, although those relating to specific passenger related aspects (e.g issues such as community “buses” and fare transparency) are obviously not appropriate.



However, freight does offer some additional challenges which are not covered here. One of these is the concept of platooning. In practice, if platooning is allowed, it will probably occur in 2 forms:

Where a driver manoeuvres the freight vehicle into a platoon (say on a motorway) and becomes a “user in charge” for a period, before taking over driving again (to exit the motorway etc.)

Where a driver of one vehicle guides a platoon from one start point to its end point of the journey. (This model is under consideration by the military) The platoon is effectively made up of self-powered “trailers” and a series of “virtual towbars” between. If the platoon is guaranteed to remain intact as a single line of traffic (not being broken by other vehicles pushing between or traffic lights changing part way along, etc) do the trailing platoon vehicles need supervision in the same manner as other automated vehicles, or is the lead driver enough?

**P. 86 Consultation Question 17. 5.12**

Do you agree that those making “passenger-only” vehicles available to the public should be licensed as Highly Automated Road Passenger Services (HARPS) operators unless the arrangement provides a vehicle for exclusive use for an initial period of at least six months?

Yes, this seems a pragmatic approach but I have seen no alternatives as yet.

**P. 92 Consultation Question 18. 5.40**

Do you agree that where a passenger-only vehicle is not operated as a HARPS, the person who keeps the vehicle should be responsible for:

- (1) insuring the vehicle;
- (2) keeping the vehicle roadworthy;
- (3) installing safety-critical updates;
- (4) reporting accidents; and
- (5) removing the vehicle if it causes an obstruction or is left in a prohibited place?

Yes to all of the above

**P. 92 Consultation Question 19. 5.41**

Do you agree that there should be a statutory presumption that the registered keeper is the person who keeps the vehicle?

Yes

**P. 92 Consultation Question 20. 5.42**

We seek views on whether:

- (1) a lessor should be responsible for the obligations listed in Question 18 unless they inform the lessee that the duties have been transferred.
- (2) a lessor who is registered as the keeper of a passenger-only vehicle should only be able to transfer the obligations to a lessee who is not a HARPS operator if the duties are clearly explained to the lessee and the lessee signs a statement accepting responsibility?

Probably yes to both of the above, but I suspect I am not sufficiently qualified / experienced to make an informed answer.

**P. 93 Consultation Question 21. 5.47**

Do you agree that for passenger-only vehicles which are not operated as HARPS, the legislation should include a regulation-making power to require registered keepers to have in place a contract for supervision and maintenance services with a licensed provider?

Yes, unless the registered keeper is also a licenced provider themselves. It would seem rather odd for an organisation to be forced to have a contract with itself, and still more perverse to have a contract with a rival!

**P. 94 Consultation Question 22. 5.53**

We welcome views on whether peer-to-peer lending and group arrangements relating to passenger-only vehicles might create any loopholes in our proposed system of regulation.

I am not sufficiently qualified / experienced to make an informed answer

**P. 94 / 95 Info regarding on-going charges 5.55**

It is likely that a “licenced provider for supervision and maintenance services” would operate in a similar cost manner to an existing motor insurance company, where a substantial proportion of the premium value (or fee) is dictated by the nature of the vehicle itself (its security, damage repair costs, vehicle performance etc.). A problematic vehicle type requiring heavy monitoring and frequent recovery is likely to attract a higher fee from such a licenced provider than a reliable vehicle. Similarly for parts replacement and sensor adjustment, etc. It is likely that poor vehicles will gain a poor reputation and fairly quickly, the market will stabilise with a general understanding of fees emerging.

**P. 95 Software & Cyber security updates 5.57**

If an existing vehicle type is shown to become unsafe in service, it is the responsibility of the manufacturer or his agent to institute and fund a recall to rectify the issue at no cost to the owner / keeper / user. I think that this logic should be extended to cyber security and safety related software updates – they should be free. These too are rectifying safety issues not foreseen when the vehicle was built and approved (and registered). Software updates which are not cyber nor safety critical are a legitimate source of income for vehicle manufacturers, as they are providing additional functionality or convenience.

If a manufacturer becomes insolvent, it is quite likely that for large vehicle volumes, a third party may wish to provide such services as a paid for option. This would likely affect the resale value of the vehicle, just as the spares supply issue does when a VM becomes insolvent today. Low volume vehicles from insolvent VMs, without third party parts support are worth little today except as museum pieces. The same is likely to be true for unsupported, highly automated vehicles.

**P. 96 Consultation Question 23. 5.60**

We seek views on whether the safety assurance agency proposed in Consultation Paper 1 should be under a duty to ensure that consumers are given the information they need to take informed decisions about the ongoing costs of owning automated vehicles.

Probably yes to the above, but I suspect I am not sufficiently qualified / experienced to make an informed answer.

**P. 100 Consultation Question 24. 6.11**

We seek views on how regulation can best promote the accessibility of Highly Automated Road Passenger Services (HARPS)? In particular, we seek views on the key benefits and concerns that regulation should address.

Although taxis are required to be able to accept wheelchairs, many taxi drivers will ignore a wheelchair bound person who hails them. This is because of the significant unpaid time required to help load and unload the wheelchair. From the driver's viewpoint, the transaction is uneconomic. This demonstrates that simple technology "solutions" may not work in isolation. Also, as it says on Platform 6 of Nuneaton station, "Not all disabilities are visible" – we should not assume that disability equates to a wheelchair, even if that is what the simplistic logos suggest.

My suggestion is to select a number of disabilities which represent the large majority of disabled users and look at the transport issues each causes. Without a clear understanding of the problem, it is impractical to try and solve it, let alone put an ineffective economic burden on transport organisations, including HARPS operators.

It should also be recognised that some disabilities do require additional human support for journeys in whatever form, so there will be an on-cost relative to a non-disabled traveller who does not. If it is mandated that all HARPS vehicles have a human "assistant" to cope with the occasional disabled person, any cost savings will be lost and HARPS becomes completely pointless. Information technology can assist to ensure that a suitably equipped HARPS vehicle is deployed on journeys when it is needed, but this does not mean that ALL HARPS vehicles need be so equipped. It is right that the apparent journey cost (price) for a disabled user should morally be no higher than for a non-disabled person, but the reality will be that the actual cost will be higher. Regulation will be required to ensure that this additional cost is either spread across all users or is subsidised by government.

Hence I think that 2 strands of approach are required:

- Determine which disabilities will be covered, what are reasonable requirements for each (technological and human) and determine the likely associated on-costs. Regulate for these requirements.
- Establish a regulation framework for funding these on-costs, either by cross-subsidy from other passengers or by government subsidy to the affected HARPS operator.

**P. 101 Mental impairment 6.14**

Although the government chooses to ignore dementia as a medical condition (to avoid funding care through the NHS), it is probably the most prevalent and significant mental impairment condition to affect the population and it affects the ability to use transport services. I believe it justifies being mentioned in this paragraph.

**P. 106 Consultation Question 25. 6.31**

We provisionally propose that the protections against discrimination and the duties to make reasonable adjustments that apply to land transport service providers under section 29 of the Equality Act 2010 should be extended to operators of HARPS. Do you agree?

In principle yes, I agree. However I am not sufficiently familiar with the details of the subject to give a conclusive endorsement.

**P. 107 Treating disability more favourably 6.35**

Whilst I am in favour of treating disability more favourably in transport than at present, I think that equality should still be respected and those with disabilities be given equal access to transport as those without, (in terms of both availability and cost).

**P. 107 Specific legal provision made for taxis,..... 6.36**

See the second para in my comment to para... 6.11, taxi hailing by wheelchair users.

**P. 125 Consultation Question 26. 6.106**

We seek views on how regulation could address the challenges posed by the absence of a driver, and the crucial role drivers play in order to deliver safe and accessible journeys. For example, should provision be made for:

- (1) Ensuring passengers can board and alight vehicles?
- (2) Requiring accessible information and reassurance when there is disruption?
- (3) Expansion of support at designated points of departure and arrival?

Whilst not particularly familiar with many aspects of the subject, I do feel that I can comment on access, egress and in-vehicle communication with disabled users (and indeed non-disabled users). These are discussed below in my response to CQ 27.

**P. 126 Consultation Question 27. 6.109**

We seek views on whether national minimum standards of accessibility for HARPS should be developed and what such standards should cover.

I have a number of observations for this point, but accept that these may not be complete :

Generally, some taxis and most private hire vehicles have inadequate, non-obvious and non-standard hand-hold to assist access and egress. Examples are grab handles above doors which cannot be seen from outside, handles on doors (which are open and “flapping” rather than on door frames, handles coloured the same as the surrounding materials, etc. For HARPS, this could be resolved with suitable legislation.

There is little apparent requirement for HMI interfaces in vehicles except for “Identification of controls” regulations for the driver, under type approval. Where controls are specified in this, their recognition by drivers is generally good. Many controls are not specified however and the resulting variation in application and confusion it causes can only be described as a mess. The introduction of ADAS on vehicles is likely suffering because the identification and understanding of the controls is inconsistent and inadequate across the industry.

We must ensure that the same problems do not occur with HARPS vehicle / passenger interfaces. This means there must be standardised interfaces which are simple, clear and obvious in meaning. This will require some form of legislation.

Thought should also be given as to direction of travel. Most wheelchair users are expected to travel in PSVs facing the rear. This is for good safety reasons as without substantial tethers or tie-downs a wheel chair will become a dangerous projectile in a crash unless located against a secure bulkhead in

the direction of travel. This is only practical with the back of the wheel chair, not the disabled persons feet and ankles. Likewise, occupants who cannot wear seatbelts for medical reasons should ideally be rearward facing, although all passengers should be encouraged to used seatbelts (and ideally forced to do so unless there is extremely good reason not to. The subject of seatbelt usage is also interesting. Currently, it is the driver's responsibility to ensure all passengers are belted. For HARPS, will this become the operator? Some fasten the seatbelt behind them to prevent the annoying warnings – modern camera systems can detect this. What should the vehicle and operator be mandated to do regarding ensuring seat belt wearing?

**P. 130 Consultation Question 28. 6.124**

We seek views on whether operators of HARPS should have data reporting requirements regarding usage by older and disabled people, and what type of data may be required.

This may be difficult depending on the type of disability, its visibility, whether the disable person accepts that they have a disability and whether a passenger is willing to reveal their age. I suspect this may become more trouble than the worth of inevitably incomplete data.

**P. 136 Consultation Question 29. 7.23**

We seek views on whether the law on traffic regulation orders needs specific changes to respond to the challenges of Highly Automated Road Passenger Services (HARPS).

Probably not.

**P. 137 Reduced kerbside parking 7.25**

The reduction of kerbside parking may or may not happen. Personally, I believe that it will be a minimal change. Given the existing congestion problems in the UK, it is difficult to take seriously any suggestion that kerbsides will become green spaces or seating areas. I do accept that they could become cycle lanes or public transport lanes and would most likely be used to ease the problems of congestion.

**P. 137 Cost of cruising 7.26**

See comments and calculation in my response to paras 2.100 and 2.101.

**P. 145 Consultation Question 30. 7.59**

We welcome views on possible barriers to adapting existing parking provisions and charges to deal with the introduction of HARPS.

In particular, should section 122 of the Road Traffic Regulation Act 1984 be amended to expressly allow traffic authorities to take account of a wider range of considerations when setting parking charges for HARPS vehicles?

I draw attention to my response to CQ 21 of the first consultation document which explains the blur is physical states for EV automated vehicles (parked, waiting, in a traffic queue etc.). HARPS add to this by having an unoccupied state of “waiting for a passenger to embark”. Significant thought is required to align definitions and intentions regarding stationary automated vehicles, including HARPS. The RTRA 1984 should be modified with this in mind.

**P. 146 Road Pricing 7.66**

There is a political downside to road pricing, worth mentioning. Most motor vehicle users pay a road fund licence fee (road tax). This is perceived as a payment which allows the user to use the public road. If excess congestion occurs, this is often perceived as a failure of the authority to invest that road fund licence fee correctly and effectively in suitable road infrastructure. For the user to be punished for the apparent incompetence of the authority by being forced to pay an additional fee to have access to a traffic jam adds further insult and is not a move likely to encourage political respect or patronage. It is not surprising that many proposed schemes have failed, or that mayors do not want to undermine their positions by supporting road pricing schemes.

Unless road pricing is clearly linked with improvements in other forms of alternative transport, it will always be seen as an unwanted tax.

**P. 150 Consultation Question 31. 7.86**

We seek views on the appropriate balance between road pricing and parking charges to ensure the successful deployment of HARPS.

I am not convinced that we will see any significant reduction in parking requirement or parking charge revenue streams anytime soon as a result of HARPS. I also suspect that increases in population and their demand for private vehicles will offset any minor reduction which is experienced.

I think that road pricing for running empty is a realistic option or for an urban authority to provide approval for each “empty” journey on a case by case basis, and the authority has the option to require the empty vehicle to take a specific route at a specific time and at a specific speed. These options may be combined.

**P. 150 Consultation Question 32. 7.87**

Should transport authorities have new statutory powers to establish road pricing schemes specifically for HARPS? If so, we welcome views on:

- (1) the procedure for establishing such schemes;
- (2) the permitted purposes of such schemes; and
- (3) what limits should be placed on how the funds are used.

Yes, but these should be aimed mainly or solely at running empty – see response above.

**P. 153 Consultation Question 33. 7.97**

Do you agree that the agency that licenses HARPS operators should have flexible powers to limit the number of vehicles any given operator can use within a given operational design domain for an initial period? If so, how long should the period be?

Yes, I agree that the agency that licenses HARPS operators should have flexible powers to limit the number of vehicles any given operator can use within a given operational design domain for an initial period. That period should have a minimum value, either 6 or 12 months (tbd), but should continue until the HARPS operator has provided sufficient evidence of suitably safe and appropriate service operations, rather to a specific time limit.ith caution

**P. 158 Consultation Question 34. 7.120**

Do you agree that there should be no powers to impose quantity restrictions on the total number of HARPS operating in a given area?

I do not necessarily agree that there should be no powers at all, as I am not fully conversant with all the facts and opinions regarding the matter. It would appear, however, that any such powers should be used with caution and it may be appropriate to have more detailed guidelines to prevent the detrimental aspects mentioned.

**P. 176 Consultation Question 35. 8.92**

Do you agree that a Highly Automated Road Passenger Services (HARPS) vehicle should only be subject to bus regulation:

- (1) if it can transport more than eight passengers at a time and charges separate fares; and
- (2) does not fall within an exemption applying to group arrangements, school buses, rail replacement bus services, excursions or community groups?

I do not feel sufficiently well informed to make a helpful response to this question.

**P. 177 Consultation Question 36. 8.94**

We welcome views on whether any particular issues would arise from applying bus regulation to any HARPS which transports more than eight passengers, charges separate fares and does not fall within a specific exemption.

I do not feel sufficiently well informed to make a helpful response to this question.

**P. 177 Consultation Question 37. 8.95**

We welcome views on whether a HARPS should only be treated as a local bus service if it:

- (1) runs a route with at least two fixed points; and/or
- (2) runs with some degree of regularity?

I do not feel sufficiently well informed to make a helpful response to this question.

**P. 180 Consultation Question 38. 8.109**

We seek views on a new statutory scheme by which a transport authority that provides facilities for HARPS could place requirements on operators to participate in joint marketing, ticketing and information platforms.

I do not feel sufficiently well informed to make a helpful response to this question.