Written evidence submitted by the Transport Planning Society (EVP0074)

Background

TPS was founded in 1997 as a society to "facilitate, develop and promote best practice and innovation in transport planning and provide a focus for dialogue between all those engaged in it whatever their background."

Among many activities we launched and continue to run Transport Planning Day, with a wide range of events around the UK. We undertake an Annual Member survey which contains questions on policy priorities at local and national level, including road pricing and other demand management options. We engage with Government and the industry and respond to consultations and inquiries such as this, as well as holding events directly linked to the subject of this Inquiry[1].

This submission is guided by the underlying objectives of decarbonising surface transport, the levelling up agenda and the need to improve the nation's health. We are acutely aware of the new impetus for policies to decarbonise transport, including reports from professional bodies[2] and the Committee on Climate Change. With this in mind we consider the Select Committee's specific topics for this Inquiry as follows.

Key topic 1: Accelerating the move to low emission vehicles

The feasibility, opportunities, and challenges

TPS fully supports the move to zero emission vehicle only sales by 2030. This will still be tight in terms of meeting zero emissions from transport by 2050.
In terms of achieving carbon reductions there are five important issues:

- Carbon costs of replacing existing vehicles is high, particularly between now and 2030.
- Estimates of the carbon gains from electrification are sensitive to the assumptions made about how that power is generated, not just in use but in battery and vehicle production (all three may be different).
- Estimates of the so called "pay back time" for replacing vehicles depends on these assumptions and on how much the vehicle is used. Lower mileages mean longer pay back times.
- Avoiding the purchase of non-EV high emission vehicles is as important as the EV roll out.
- Reduction policies will particularly affect those on low incomes and need mitigation.

In terms of implementing the roll out of BEVs the infrastructure required also raises major issues:

- the number and location of public charging points – we have not seen definitive figures but this appears to be around 400,000 new points to provide a comprehensive network[3].
- The number and location of private charging points: many homes have a reserved parking space but many do not, particularly in urban areas[4] plus there are large numbers of flats and costs for people on low incomes

- The extra capacity needed for the electricity distribution network – peak requirements as well as averages must be included.
- The extra capacity needed for electricity generation. This is more likely to delay the implementation of zero emissions power generation and thus the marginal carbon cost of EVs will be high.

The actions required by Government and private operators

Actions need to be led by Government and fall into six main areas:

1) Stimulating technological change through regulation – the car industry has proved its ability to act quickly in response to clear pricing and regulation. The earlier voluntary agreements failed to deliver.
2) Influencing vehicle purchasing decisions towards zero and lower carbon vehicles before 2030 through taxation and transparency. There is clearly a major issue with the average new car emissions actually rising slightly.
3) Encouraging behavioural change/mode share, in particular avoiding vehicle use – part of a wider strategy to plan for new development to minimise the need to travel.
4) Bearing part of the risk of innovative technology through pilot projects – combining academic and technical expertise with the construction of working examples.
5) Creating a template for projects which ensures wider benefits, for example apprenticeships attached to the pilot projects.
6) Investing in infrastructure which supports carbon reduction (and to mirror this not investing in the opposite). See above

Of these, road pricing would directly affect the third, and indirectly impact on 1 and 2. We will consider this later in the submission.

The particular challenges around decarbonising buses

TPS does not wish to make detailed comments on options for battery operated buses or hydrogen options. Both need to be pursued, particularly in the context of new battery technologies which avoid some of the environmental (and climate change) disadvantages of current batteries. Smarter storage of hydrogen is an area where research continues and, similarly to HGVs, buses could make use of depot based facilities before any UK wide hydrogen fuel network was available. This is an area where action research projects could be very beneficial, combining academic, vehicle technology and transport planning in a real world context. This is an example where Government led investment (see above) creates short term employment but expands the knowledge base. This will, again with Government providing the framework, create longer term employment as renovating and rebuilding sustainable transport networks, both in the UK and across the globe.

This leads into another important area where greater clarity, and some Government support, is needed. Electrically driven buses need not depend on batteries. For urban areas trolleybuses are an obvious example – faster and cheaper to implement than other systems and easier to adjust than fixed tram networks in terms of changes in demand. Other systems for wireless charging or “opportunity charging” have been developed to minimise battery

requirements for electric buses. Again there needs to be a number of Government led partnerships to pursue innovative systems for public road transport. Of course not all of them will prove to be practical or affordable which is why Government support is needed without pre-judging the outcome. This would effectively fast track the development of one or more systems, both building on, and expanding, new skills and intellectual capital. Overall we want to see greater priority given to action research of non-battery or small battery electric only buses and bus transit.

The Government's ambition to phase out the sale of new diesel heavy goods vehicles, including the scope to use hydrogen as an alternative fuel

The problem of low energy intensity makes current battery options difficult and as regards alternatives there appears no clear front runner at present. The CCC idea of overhead supply (as with train catenaries) on some sections of motorway does somewhat beg the question of whether electrifying rail freight and encouraging mode shift would be better. The latter should at least be part of the mix and research has shown that this could also reduce motorway congestion and maintenance costs although local environmental impacts need to be avoided.

However we consider that pilot schemes drawing on industry experience and academic research would be worthwhile across the various options. This is a period of rapid change when it is hard to back winners and it is important to accept apparent "failure" of an idea in practise. It is important to remember that even schemes which do not go ahead will, providing they are properly constructed, increase both knowledge and support the development of transferrable skills. If a viable option is identified, it is also important to move it into the mainstream as quickly as possible and Government has a role.

Key topic 2: Road pricing

The case for introducing some form of road pricing and the economic, fiscal, environmental and social impacts of doing so

The economic case for marginal cost road pricing are clear, and have been since the idea first emerged in the 1960s[5]. Since that time the external costs of transport, such as the impact on local areas and the environment locally, nationally and in terms of climate change, have grown and become better defined and better known. The prime difficulty has been public acceptability. Again the 2020s will differ from previous decades: the key Government policy on reducing carbon emissions will result in a financial loss of tens of billions of pounds. The other side effect will be that the marginal cost of driving will become lower rather than higher. This will increase congestion, although it is not clear whether this will be on the strategic or local network. The long term reaction to Covid will have a major impact on the distribution of traffic between the local and strategic networks as well as the overall level.

Thus we consider there are several reasons for pursuing road user charging, in particular:

- Controlling levels of congestion and thus increasing overall system efficiency

- Reducing levels of local pollution of all types and carbon emissions from the transport sector
- Maintaining the tax income from the transport sector – obtaining it elsewhere would likely be regressive

Within this topic a clear distinction needs to be drawn between freight and passenger vehicles. This is because the heaviest freight vehicles are very different in their characteristics and impacts. For example damage to road surfaces from the heaviest HGV is over 150,000 times that from a car[6]. The pattern of accidents is different, mile for mile on the same type of road, HGVs are over 3 times more likely to be involved in fatal accidents. The impact on congestion is much higher than cars – vehicles occupy different space envelopes and move at slower speeds. The heaviest vehicles are not currently meeting even their road track costs as defined by Governments. The case for pricing here is even stronger than for cars[7].

For cars there are clear issues around the impact on less well off motorists, including many in the countryside. However, these arguments need closer examination, for example the better off drive a lot more and use buses a lot less.[8] This suggests the impact of car use charging could be balanced by innovative ideas such as public transport credits. In addition, the charge could be designed so that it replaces part of fuel duty in the first instance. It would also need to be designed as part of an overall financial framework including first year registration charge (to impact on the point of sale[9]) and annual duty related to fuel consumption.

On grounds of economic efficiency, reduced environmental impact and taxation stability we consider that road user charging should proceed, starting with the heaviest goods vehicles. This is reflected strongly in the views of TPS members in the Annual Survey, where road user charging is seen as a key part of a transport policy for the UK, linked to carrots not just the stick.

Which particular road pricing or pay-as-you-drive schemes would be most appropriate for the UK context and the practicalities of implementing such schemes

A considerable amount of work has been done on Lorry Road User Charging (LRUC) and on the vignette scheme. Outside the EU the UK is free to remove most of the annual VED and implement a weight distance charging scheme similar to those increasingly common across Europe. Much of the research on this has been done and simple devices are already in use in these schemes. This would have two effects: the first would be a spur towards greater efficiency in vehicle use. HGVs have low load factors and, even before the current situation were completely empty 28% of the time. Second it would encourage less damaging patterns of distribution. The logistics industry is highly optimised towards just in time delivery and centralised warehousing. A more distributed network and choice of local suppliers could encourage change quite quickly. This is why the elasticity of road freight tonnes in relation to price is much lower than vehicle kilometres. Again this is not new research and has underpinned previous proposals for LRUC and Weight Distance charging.

For cars the situation is more complex and is even more so because of longer term changes in travel which will result from the Covid crisis. It is too early to know their exact nature but there are still some principles which can be followed. The first is that the UK has a dense and varied road network and any diversionary effects caused by, for example, charging too much on motorways need to be considered. Many "main" roads also happen to be functioning shopping and community areas, as well as having residential development. Overall a simple mileage based replacement for fuel duty would seem appropriate. As systems become more complex, for example using real time congestion, drivers would be less able to predict their journey costs in advance and impacts would vary as they, and their sat navs, tried to guess the cheapest route.

Given the ubiquity of GPS based phone apps the technology is now fairly straightforward for such a charge, enforced by checking whether the vehicle is "on system" through number plate recognition. This can use camera networks but manual checking in local areas is also possible.

The level of public support for road pricing and how the views of the public need to be considered in the development of any road pricing scheme

There have been high profile examples of public opposition to local road pricing schemes, even when these were part of a funding package for transport locally. While not road pricing, the example of the Nottingham workplace parking levy is instructive. There was strong opposition, and the scheme was delayed and moderated in view of representations. This did not remove the opposition but showed recognition of it and respect for it. The scheme directly funded the tram system which has proved to be very successful and a matter now of local pride. In a separate initiative, TPS is currently undertaking innovative work with the RCA on community engagement to create shared visions of future transport and public realm[10] .

We consider that the implementation of LRUC would of course be subject to industry lobbying but this should be limited to the form and implementation. There are very few economic, social or environmental arguments against it in principle and such schemes are usually proposed as part of a package improving training and improving conditions for smaller hauliers – often left out of the picture. This could also include funding of pilot projects to reduce emissions and test prototypes[11]. After this package is funded, with the aim of improving safety and environmental impact, there is still likely to be an increase in overall income to reflect the high marginal costs of HGVs.

For cars what is required is a consultation process which starts with a clear rationale, the key part of which should be avoiding the worst of climate change. It needs to link through to Local Transport Plans to show alternatives are being supported. It also needs to be open about how a new charging method is essential to avoid raising other taxes. There is no need to raise more than at present in the long term, but at least some short term surplus would inevitably occur as the system is introduced. This is in part because charges will need to reduce travel by car, most of which will continue to emit carbon directly, and even the

electric vehicles will continue to cause carbon emissions through the marginal increases in generation from gas and air pollution through tyre and brake dust.

It should be part of a package which must include improvements to public transport and, as we suggested before, ideas to provide financial incentives for people to use it. Again these arguments are familiar – the "push and pull" approach – but the situation is new and urgent. It will be worth revisiting alternative and supplementary ideas such as charges for all parking spaces (including retail). Local systems such as the "right to travel", where a charge is made which includes public transport travel but can be used as a permission to drive instead. Earlier proposals to use income raised for rate rebates may have become more relevant given the state of the current retail industry. Most people understand that something needs to change – the question needs to be framed in an open manner and people need to be engaged in this process. What would make road pricing more acceptable?

Finally the "war on the motorist". We do not think there is a war, but there are areas of genuine concern, just ask any driver about how penalty charge notices are dealt with and how much money they sometimes make. Much better communication and understanding is required.

Overall there needs to be consideration of the balance between a national system, with some better linkages between local improvement/cost of public transport, and local schemes such as the London charge and Nottingham workplace parking. This is a bigger conversation than for freight but is equally urgent. We have made the point before that new specifications for autonomous vehicles should include the ability to participate in road pricing schemes.

The lessons to be learned from other countries who are seeking to decarbonise road transport and/or utilise forms of road pricing.

We have previously mentioned the European experience in HGV charging and recommend a UK scheme which is compatible. While not compulsory it seems sensible to use the established technical standards in the European Electronic Toll Service (EETS). The best known scheme is probably the German LKW-Maut, which has similar schemes in adjoining countries: Poland, Czech Republic, Slovakia and Austria. This has improved load factors and caused a modest shift to rail.

The most famous example of road pricing is probably Singapore, which had a windscreen ticket based system for journeys to the Central Business District and manual enforcement back in the 1980s. This has evolved into an electronic system covering a wider area. It was combined with new metro lines and improved bus services and has had a significant impact in terms of controlling congestion and pollution. It is part of a package which includes high car purchase costs.

While the UK system would need to be tuned to our specific network and travel demands the Singapore scheme illustrates the practicality and effectiveness of road pricing in achieving clear objectives. It also shows the importance of a package approach including land use as well as behavioural change, rapid transit and local buses.

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Endnotes

[1] For example the 2018 event on mileage based RP: see https://tps.org.uk/news/mileage-based-road-pricing
[2] For example the RTPI report on behavioural change and its acceptability
[3] See Climate Change Committee and industry estimates
[4] Current estimates need to be refined – many urban areas would have real problems in finding street charging spaces close to home.
[5] See *Road Pricing: The Economic and Technical Possibilities*, R J Smeed for DfT 1964
[6] Due to the generally accepted 4th power law
[7] For example, see 2018 TPS report on reforming LRUC on: https://tps.org.uk/public/downloads/T2uM3/TPS%20response%20on%20the%20Road%20User%20Levy.pdf
[8] See the National Travel Survey. Top quintile travel more than 3 times further per year by car than bottom quintile, for local bus bottom quintile travels more than 2.5 times further than top. They also travel further by long distance train and of course by air.
[9] TPS has previously proposed a first year charge based on £s per gm/km, rising very rapidly to discourage high fuel using vehicles well before the ban in 2030. This helps to avoid locking in future high carbon emissions and encourages early adoption of clean technologies. The current charge can also be hidden by the structure of financing deals so needs the annual rate to support it.
[10] More details on: https://tps.org.uk/tps-policy/our-future-towncommunity-place-making-and-transport-planning
[11] An earlier example of this was the "Quiet Heavy Vehicle" of the 1980s modified through the then Traffic and Road Research Laboratory