

Written evidence submitted by Transport for London (TfL)**1. Introduction**

- 1.1. We welcome the opportunity, as the Mayor of London's integrated transport authority, to contribute evidence to this inquiry into e-scooters.
- 1.2. We strongly recommend that innovative energy at this crucial time is focused on how to maximise the benefits of more people walking and cycling. Maximising walking and cycling, especially in our cities, has enormous potential to: energise the UK economic recovery from the coronavirus while social distancing restrictions remain in place; achieve legal limits for air quality as soon as possible; improve the mental and physical well-being of more people, both improving individual productivity and reducing the strain on the NHS; and meet our national obligations of net zero by 2050.
- 1.3. We recognise that the ongoing coronavirus pandemic and related social distancing obligations have changed the case for e-scooters in the UK, in particular the need to provide alternatives to capacity restricted public transport while avoiding a car-based recovery. Additionally, if safety issues can be addressed, they may be able to play a role in helping London carefully re-open, safely and sustainably, as quickly as possible. As such, we understand the Government's decision to run trials sooner than previously planned, and we are exploring the possible scope and scale of a trial of rental e-scooters in London. The safety of riders, other road users and the public will remain our top priority in any future trial activity. This response is largely concerned with the Government's long-term plans for e-scooters, rather than the scope of these trials, and we would urge the Government to ensure that fast-tracking this work does not come at the expense of safety, or ignore the potential issues associated with these vehicles.
- 1.4. We recommend that any changes to legislation should reflect lessons learned and evidence gathered in cities/countries where e-scooters are already legal. Even if safety concerns are addressed, mode shift away from car use is not a guaranteed policy consequence of legalising e-scooters, and accessibility and inclusivity concerns remain. Evidence from other cities suggests that any shift from car is likely to be equalled by a shift from public transport, and a reduction in walking and cycling. We assume this is not the outcome the Government would want and suggest that careful thought is given to what legislative route is taken if these effects are observed during the course of preliminary trials.
- 1.5. We also recommend that national standards are set for manufacture, sale, ownership, licensing and use of e-scooters, and that powers are provided to towns and cities for permitting rental operators. Ideally, these would be held at the city/regional level and apply not just to e-scooters but to other similar free-floating technologies, such as dockless bikes.
- 1.6. For the purposes of any trial, or longer-term plans for legalisation, we would encourage operators to take reasonable steps to ensure the safety and security of the public while using their service, and to support local authorities in the delivery of their responsibilities under section 17 of the Crime and Disorder Act.

2. Is legislation for e-scooters up to date and appropriate

- 2.1. Notwithstanding the scope of upcoming trials, current legislation makes it illegal to ride an e-scooter on public land in the UK, but not illegal to purchase one. As a result, there are at least 5,000 privately owned e-scooters in the Greater London Area (GLA)¹ and the use of e-scooters is on the rise in London².
- 2.2. With no standards or requirements for these increasingly popular vehicles - such that it is impractical for the police to stop every rider - Government action is required to agree a way forward for the future of this vehicle type and to ensure rider and road user safety. Further, a mechanism for cities to control their deployment as rental vehicles effectively will be essential.
- 2.3. Any revised legislation should include:
 - 2.3.1. **National vehicle standards.** This would help to provide a basis for the regulation of all other aspects of these vehicles, including manufacture, sale, ownership, licensing and use of e-scooters. This would make clear the role of manufacturers, retailers, riders, local authorities and the Police. The standards should follow a similar rigorous process as is the case for all other motor vehicles. This will enable Government to be satisfied with safety standards and avoids disruptive retrospective changes.
 - 2.3.2. **Clear rules on their use.** If the law is to change, absolute clarity over where e-scooters can and cannot be ridden (carriageway, cycle way, pavement), and what road traffic offences apply, will be essential. Rider training, protective clothing and insurance will also need to be considered.
 - 2.3.3. **A mechanism for cities to control the use of e-scooters as rental vehicles.** Lessons from other cities (see 7.6), make clear that as part of any decision-making about legalisation of e-scooters, thought must also be given to the differing requirements that may exist for private e-scooter ownership and use, versus the on-street rental market. Cities require a mechanism to manage the deployment and parking of e-scooters as rental vehicles and guarantees of safety standards by design and use.
 - 2.3.4. Given the size of the prospective on-street rental market for these vehicles, we believe that whole-city permitting powers covering operators within the rental market would be an essential ingredient in any legislation. A whole-city approach would help avoid creating a fragmented market where rules and regulations could vary between local authorities, as is the case currently for dockless bikes in London. Millions of trips within London cross borough boundaries daily, therefore a unified approach would help deliver a more seamless experience for customers and a more attractive market for operators. Ideally these management powers would apply not just to e-scooters but to other similar free-floating technologies, such as dockless bikes.
 - 2.3.5. These would include powers to issue permits which cap operator and scooter numbers and set basic parameters for responsible use (e.g. around where they can and can't be parked). This is commonplace in cities in other countries and is vital to

¹ Engagement with retailers suggests that there are already at least 5,000 e-scooters privately owned within the Greater London Area (GLA) and we expect this is a significant underestimate.

² Despite the obligation of retailers to make clear to customers at the point of sale that e-scooters are illegal to ride.

prevent rental e-scooter deployment becoming dangerous and unmanageable, but also helps reduce volatility and supports greater competition in the market.

- 2.3.6. The unique context of cities across the UK, and the fast-moving nature of this market would also make a one-size fits all approach ineffective and as such, these powers should be devolved to city authorities to set what they consider appropriate. Exactly what powers cities would wish to exercise will depend on local contexts, and we see value in trials to help inform what requirements are appropriate for the rental market.

3. To what extent e-scooters have positive benefits, for instance relating to congestion and promoting more sustainable forms of transport

- 3.1. While this is still a new mode, and evidence is therefore still emerging, current studies from across the globe are consistent in showing that walking is the mode worst affected, with estimates consistently identifying a mode shift from walking of around 45-55 per cent^{3,4,5}. Journeys taken appear to be overwhelmingly short and walkable, with trips often less than 1.2 miles^{6,7}.
- 3.2. These studies also highlight smaller but still significant shifts away from cycling (~10 per cent) and public transport (~20-30 per cent).
- 3.3. The cumulative impact is a shift away from active and sustainable travel, a net disbenefit for safety, public health and the environment.
- 3.4. This is significant because e-scooters cannot be defined as active travel. In the words of the European Environment Agency: “electric kick scooters do not provide positive health effects in the way that active modes of transport do. To the extent that electric kick scooters replace walking (and cycling), they will cause a loss of societal welfare in this respect”⁸. As such, unlike e-Bikes (for which the health benefits have now been well-evidenced), e-scooters should not be considered as active travel, and any changes to government policy should reflect this fact.
- 3.5. We recognise that e-scooters may play a role in getting the UK moving again, and in the short-term trips shifted from public transport may help socially distanced travel happen, but it is essential that any legislation takes a longer-term view of the potentially damaging impacts that e-scooters could have on active travel once we emerge from this crisis.

³ <https://www.fstyr.dk/da/-/media/FSTYR-lister/Publikationer/Evalueringsrapport-om-sm%C3%A5-motoriserede-k%C3%B8ret%C3%B8jer.pdf>

⁴ Kickstarting Micromobility: A Pilot Study on e-Scooters (2019), Norwegian centre for Transport research, S. Berge

⁵ <https://www.thebulletin.be/who-uses-brussels-electric-scooters-study-has-some-answers>

⁶ NACTO, Shared Micromobility in the U.S.: 2018. 2019

⁷ <https://www.sae.org/binaries/content/assets/cm/content/topics/Micromobility/sae-Micromobility-trend-or-fad-report.pdf>

⁸ <https://www.eltis.org/in-brief/news/eea-report-first-and-last-mile-key-sustainable-urban-transport-released>

4. Where in the urban environment e-scooters could be used (e.g. road, pavement, cycle lanes), and how this could impact on other road users and pedestrians, including people who have visual impairments or use mobility aids?

- 4.1. If the law is to change, absolute clarity over where e-scooters can and cannot be ridden (road, cycle way, pavement) is essential.
- 4.2. On safety grounds, we believe e-scooters should never be ridden on the pavement.
- 4.3. Introducing a speed-limited vehicle into the mix of pedestrians would inevitably lead to greater risks on London's busy footways, especially for older or disabled people and those with visual impairments.
- 4.4. Disability campaigners have raised significant concerns about the risk of near-misses or collisions when considering the high speeds and lack of noise signalling from e-scooters when in use⁹.
- 4.5. Allowing e-scooters to use footways would also reduce the attractiveness of walking by reducing the real and/or perceived safety of footways. In New Zealand for instance, over half of survey respondents felt "at least a little bit unsafe" when sharing a footpath with scooters¹⁰.

5. Should there be advice or compulsory requirements to use specific safety equipment when using an e-scooter

- 5.1. The advice or compulsory requirements we would strongly recommend on safety grounds include:
 - 5.1.1. **Helmets.** We believe there may be a case for making helmets mandatory or other protective headwear, due to the increased risk of head injuries (see 7.1.3.1) associated with these vehicles by comparison to bikes. This must however be a national requirement, not a local one, to ensure consistency for the public, Police and operators alike.
 - 5.1.2. **Rider training.** Given the novelty of e-scooters, the inherent safety issues raised in earlier answers and the fact that most injuries occur due to the rider simply falling off (see 7.1.3.2), we believe the Government should consider whether rider training should be made mandatory for e-scooters, similar to the CBT requirement for mopeds, and whether the operator would be responsible for checking that the rider was appropriately licensed. In Austin for instance, 63 per cent of injured riders had taken nine or fewer rides, and 33 per cent were injured on their first ride, despite 60 per cent having received in-app training¹¹. This data suggests that riders need to gain experience on e-scooters in a safe environment, with ongoing help to build up skill, as is the case for almost all other motor vehicles.
 - 5.1.3. Such training would also present an opportunity to inform riders of what road traffic offences are applicable to them when riding. Absolute clarity must be given, for instance, as to what drink and drug rules e-scooters will be subject to, especially given the likelihood of intoxicated people trying rental scooters at night¹².

⁹ <https://www.bbc.co.uk/news/uk-51375903>

¹⁰ NZ Transport Agency: Project updates for AMIG, 2020

¹¹ https://www.austintexas.gov/sites/default/files/files/Health/Epidemiology/APH_Dockless_Electric_Scooter_Study_5-2-19.pdf

5.1.4. **Insurance.** We believe there is a strong case for making insurance requirements for e-scooters equal to those for mopeds, and therefore include third party insurance, to offer greater protection for both riders and other road users. As a minimum, we would expect scooters used in the rental market to be insured by their providers, as is the case for car clubs. We recognise this may have implications for vehicle registration, taxation or the need for licence/insurance plates, yet this has already been done in several places including Singapore, the Netherlands and Germany (insurance licence plate), where plates must be displayed on each vehicle and third-party insurance is mandatory.

6. Should there be safety and environmental regulation for the build of e-scooters, and what this might entail

6.1. The type of key issues we feel need to be considered in terms of **vehicle construction** include:

6.1.1. **Speed.** E-scooters with a wide range of speeds are readily available to purchase in the UK, with several models able to travel at over 40mph/64kmph, and at least one which has a top speed of 52mph/83kmph. This is therefore a pressing issue. Current UK law limits the power-assist for electrically assisted pedal cycles (EAPCs) to 15.5mph (25kph), and while EAPCs can go faster with the input of the rider, we do not think there is a case for e-scooters being permitted to be more powerful than EAPCs. An even lower maximum speed may be appropriate, especially if cycle lane use is permitted, and we note that several countries including Germany, Norway and Sweden have mandated a maximum speed limit of 12.5mph (20kph). We welcome the decision to limit e-scooters to this speed for the upcoming trials.

6.1.2. **Wheel size.** Smaller wheels, such as the 8-10-inch versions fitted to most models of e-scooter, present greater safety risks compared to larger wheels, primarily due to their inability to safely navigate uneven road surfaces, potholes and raised manhole covers. Road conditions were cited as a contributory factor of a collision by 40 per cent of riders in France¹³, and by 50 per cent in Austin¹⁴, and the fact that smaller wheels are harder to control at speed may also explain why the most common form of injury results from users simply falling off the vehicle. The DfT must also consider the implications for highway standards of any changes to what vehicles are able to use UK roads, even during trials. Current highway standards on aspects such as road quality or anti-skid surfaces are based on use by existing vehicle types (e.g. bicycles, cars). The introduction of a significantly different vehicle type, especially one with small wheels incapable of accommodating even minor imperfections in the road surface, will have unsustainable implications for maintenance budgets and will lead to a significant increase in roadworks related congestion. A larger minimum wheel size may be the most effective way of ensuring these standards remain viable.

6.1.3. **Braking.** Some e-scooter models are only equipped with a front lever brake, while the back brake is a mudguard like a kick-scooter. We would argue that this is unsafe, given the difficulties of a user adjusting their body at potentially high speed. It

¹² <https://www.theguardian.com/world/2019/jul/08/copenhagen-scooters-alcohol-cannabis-arrested>

¹³ <https://6-t.co/en/free-floating-escooters-france/>

¹⁴ https://www.austintexas.gov/sites/default/files/files/Health/Epidemiology/APH_Dockless_Electric_Scooter_Study_5-2-19.pdf

should be necessary for e-scooters to have both a front and back lever brake. Further detail will also be required as to the minimum braking capabilities necessary, to help inform national vehicle standards.

- 6.1.4. **Lighting.** As a minimum, vehicles should match the lighting requirements placed upon EAPCs. The fact that e-scooter lighting tends to be placed very low to the ground, making them less visible in traffic, must also be accounted for.
- 6.1.5. **Indicators.** Given the smaller wheels and centre of gravity of the vehicle, taking one hand off the handlebars to indicate is difficult and will often lead to the rider falling off. The alternative is that they do not indicate a change in direction, which is equally dangerous. Indicators should therefore be a requirement on these vehicles.
- 6.1.6. **Maximum power output.** Limiting the power of the motor would help provide greater assurance that restrictions on these vehicles, including a maximum speed, were abided by. This would ensure consistency with EAPCs and mopeds, both of which have associated motor power output limits.
- 6.1.7. **Other areas.** We feel there is also a need for standards in other areas that include, but are not limited to: on-vehicle information, tyres, suspension, manoeuvrability, audible warning devices and durability.
- 6.2. The environmental implications of e-scooters are also debated, although it should be recognised that significant improvements have been made over the past two years and are expected to continue. While the vehicles themselves are zero-emission, there has been speculation that the models used commonly in the on-street rental market have a short operational lifespan, leading to a high environmental impact because of rapid disposal of both the vehicles and batteries¹⁵ and high-volume long-distance freight movements to replenish fleets¹⁶. Such an impact is further influenced by distribution which is often by van, and the method of charging batteries¹⁷. These issues must be considered as part of any move towards legislation.

7. The experience of other countries where e-scooters are legal on the roads

7.1. Safety incidents.

- 7.1.1. In the US, the e-scooter injury rate appears to be coalescing at around 2.2-2.5 injuries per 10,000 trips, which would mean the typical e-scooter rider requires hospital/urgent care treatment every 3.1 years^{18,19}. To put this figure in context, in London the number of people killed or seriously injured while cycling was 2.7 per million journey stages travelled (i.e. roughly 100 times the number of trips in the previous studies), meaning cycling in London is considerably less risky than e-scooters if these figures were to be replicated here²⁰.

¹⁵ <https://www.telegraph.co.uk/technology/2020/02/24/electric-scooter-go-ahead-risks-hastening-waste-battery-mountain/>

¹⁶ <https://iopscience.iop.org/article/10.1088/1748-9326/ab2da8>

¹⁷ <https://chesterenergyandpolicy.com/2019/01/28/its-a-bird-its-a-lime-its-dockless-scooters-but-can-these-electric-powered-mobility-options-be-considered-sustainable-using-life-cycle-analysis/>

¹⁸ <https://www.portlandoregon.gov/transportation/article/709715>

¹⁹ https://www.austintexas.gov/sites/default/files/files/Health/Epidemiology/APH_Dockless_Electric_Scooter_Study_5-2-19.pdf

²⁰ <http://content.tfl.gov.uk/travel-in-london-report-12.pdf> (p147)

- 7.1.2. Micromobility vehicles also present new risks to non-riders, primarily through collisions and trip hazards. ‘Non-riders’ represent a smaller but significant proportion of injuries observed across various studies (17 per cent of recorded injuries in Copenhagen²¹, 8.4 per cent in California²²).
- 7.1.3. Despite all the variability, two major safety considerations have consistently emerged regarding e-scooters:
- 7.1.3.1. **Head and neck (and subsequently serious) injuries are common and occur more frequently than for cycling.** In the US, the rate of head injuries was found to be more than double the rate for cyclists²³, with similar figures observed in New Zealand (7.5 per cent vs 3.7 per cent for bicycles)²⁴, and a recent study by the Danish Road Safety agency found that the rate was as much as ‘eight times higher than for cyclists’, with e-scooters having a collision rate of 0.07 per 10,000km, a rate similar to mopeds but seven times that of bikes (0.01 per 10,000km)²⁵.
 - 7.1.3.2. **Injuries are primarily because of riders falling off.** Irrespective of geography, the overwhelming majority of reported injuries are as a result of riders falling off e-scooters (as opposed to colliding with other vehicles), with studies consistently putting this figure at around 80-85 per cent of injuries recorded^{26,27,28,29}. This issue is incredibly hard to resolve without stringent rider training and changes to the design of vehicles.
- 7.2. **Accessibility and inclusion.**
- 7.3. Where e-scooters have been introduced in other European cities, disability groups have voiced the impact this has had on the confidence of the disabled people they represent when walking³⁰. We would strongly encourage further engagement and research is conducted with these groups by the UK Government ahead of any subsequent changes in legislation.
- 7.4. **Construction and usage standards**

²¹ <https://bmjopen.bmj.com/content/9/12/e033988>

²² <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2722574?guestAccessKey=c8d43986-1131-4af7-b3bc-a9f9415cd3b3>

²³ https://jamanetwork.com/journals/jamasurgery/article-abstract/2758159?guestAccessKey=cd562764-e2da-4c2e-b3af-80654ee5ab06&utm_source=For_The_Media&utm_medium=referral&utm_campaign=ftm_links&utm_content=tf&utm_term=010820

²⁴ NZ Transport Agency: Project updates for AMIG, 2020

²⁵ <https://www.fstyr.dk/da/-/media/FSTYR-lister/Publikationer/Evalueringsrapport-om-sm%C3%A5-motoriserede-k%C3%B8ret%C3%B8jer.pdf>

²⁶ <https://www.portlandoregon.gov/transportation/article/709715>

²⁷ <https://bmjopen.bmj.com/content/9/12/e033988>

²⁸ <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2722574?guestAccessKey=c8d43986-1131-4af7-b3bc-a9f9415cd3b3>

²⁹ Kim, Y. W., Park, W. B., Cho, J. S., Hyun, S. Y., & Lee, G. (2018). The new recreational transportation on the street: Personal mobility, is it safe? *Journal of Trauma and Injury*, 31, 125-134

³⁰ <https://sverigesradio.se/sida/artikel.aspx?programid=2054&artikel=7279972>

7.5. For reference, a selection of standards for construction and use that have been set in other countries where e-scooters are legal include:

- Bike/e-bike style requirements for lights, brakes, reflectors and a bell (Germany, Sweden, Austria)
- Ban from riding on pavements (France, Germany, San Francisco, Los Angeles, Spain, Austria)
- Age limits for usage (Germany (14), San Francisco (18))
- Mandatory helmets (Sweden for under 15s, San Francisco, Spain)
- Mandatory insurance for riders (whether owners or renters) (Germany)
- Vehicle registration (Austria, Singapore)
- Dedicated parking areas (France, Sweden, Belgium)

7.6. **Impact on cities.**

7.6.1. Whole city permitting powers are common in cities across the globe (e.g. Barcelona, Los Angeles). These powers have enabled cities to protect the interests of their citizens, whilst also reducing volatility and incentivising innovation in the rental market as operators compete for limited permits. Bird for instance, reached a daily utilization rate of 5.3 rides per scooter per day (prior to the coronavirus outbreak) while being subject to one of the world's earliest micromobility permitting schemes in Santa Monica³¹. More widely, Voi³² and Tier³³ have both been able to grow from launches in 2018 to over 14 million rides, despite operating under permitting conditions in many of their markets.

7.6.2. In contrast, Paris has struggled to regulate retrospectively, and prior to recent regulations, the Mayor had been quoted as describing the situation as 'not far from anarchy'.

7.6.3. The experience that London has had with dockless rental bikes has demonstrated that existing legislation is not adequate for managing the "dockless" business model in a city with 33 local authorities, and that city-level powers would enhance the value that e-scooters could add as a viable mode of transport. We do not want to replicate the dockless bikes experience with e-scooters and should learn from this experience to avoid challenges faced in other cities.

8. **Conclusion**

8.1. Government action is required to agree a way forward for the future of this vehicle type, but that should not distract from efforts to ensure more people can safely walk and cycle. Given the current circumstances, we support efforts to fast-track trials – with the necessary safeguards – given the potential for e-scooters, in addition to walking and cycling, to support London's recovery from coronavirus. Any subsequent moves towards legalisation must carefully consider safety, establish national standards for manufacture, sale, ownership, licensing and provide a mechanism for

³¹https://www.smgov.net/uploadedFiles/Departments/PCD/Transportation/Bird%20Fleet%20Adjustment_Final%20Administrative%20Decision_09132019.pdf

³²<https://techcrunch.com/2019/11/10/voi-raises-another-85m/>

³³<https://apps.apple.com/fi/app/tier-scooter-sharing/id1436140272>

cities to control their deployment as rental vehicles. Whatever the impact of coronavirus on people's transport choices, it is imperative that these issues are given proper and full consideration before any moves are made towards changing the law.

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