

## **Safety, Sustainability and Human Resources Panel**

**Date: 2 December 2021**

**Item: Air Quality Update**

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### **This paper will be considered in public**

## **1 Summary**

- 1.1 This paper updates the Panel on Transport for London's (TfL) implemented and forthcoming key proposals to improve air quality. It follows a previous update to the Panel in November 2019.
- 1.2 The paper provides a summary of current activities, across the following programmes:
- (a) Emission control zones
  - (b) Vehicle scrappage schemes
  - (c) Electric vehicle charging infrastructure
  - (d) Converting fleets to zero emission
  - (e) Pathway to net zero carbon transport

## **2 Recommendation**

- 2.1 **The Panel is asked to note the paper.**

## **3 Emission control zones**

### **Strengthening of the Low Emission Zone**

- 3.1 On 1 March 2021, tighter Low Emission Zone (LEZ) standards for heavy vehicles came into effect and apply across most of Greater London.
- 3.2 The tightening of LEZ standards was originally scheduled to take effect in October 2020. However, in response to concerns about the supply chains for newer heavy vehicles and retrofit equipment during the first lockdown, the strengthening of the LEZ was delayed until 1 March 2021 to give the freight industry more time to meet the standards. When TfL reviewed this decision in early September 2020, they found that supply chains had largely resumed and there was no need to further delay the implementation of this scheme.
- 3.3 Heavy vehicles including lorries, buses and coaches need to meet the new standards or pay a daily charge to drive within the zone. The difference between Euro IV, the previous LEZ standard for these vehicles, and Euro VI,

the new standard, is significant; about a 50 per cent reduction in Particulate Matter (PM) emissions and a 65 per cent reduction in NOx emissions.

3.4 The LEZ standards are now:

- (a) Euro VI for buses and coaches over 5 tonnes, lorries and other specialist vehicles over 3.5 tonnes – this is the same as the Ultra Low Emission Zone (ULEZ) standard (these vehicles are no longer subject to ULEZ); and
- (b) Euro 3 for PM for larger vans and minibuses – this remains the same as the previous LEZ standard.

3.5 The six-month report<sup>1</sup> on the impacts of the scheme was published in September 2021, and the key findings include:

- (a) Compliance continued to grow over the first six months of the scheme and by the end of August 2021 stood at 95.5 per cent, compared to only 48 per cent in 2017 when the changes to the LEZ were announced but had not yet started. In effect compliance had doubled since the scheme was announced in 2017.
- (b) Even the most challenging sector (non-TfL bus and coaches) is making great strides, with compliance at 87.1 per cent, up from 51.9 per cent in May 2019. Non-TfL buses and coaches are often built individually or in small quantities making them harder to retrofit and more expensive to replace, difficulties that have been compounded by the significant loss of trade for many of these business during the pandemic.
- (c) As part of the Mayor's commitment to lead the way and to radically transform the TfL bus fleet, all of TfL's buses meet or exceed the Euro VI standard. With the core fleet meeting the standards from the end of 2020, three months in advance of the scheme going live, this has reduced NOx emissions from TfL buses by around 90 per cent since 2016.
- (d) The LEZ also has significant benefits outside of London. Environmental Defense Fund analysis found that vehicles that passed through London's LEZ went on to drive through 95 per cent of the major towns and cities in England and Wales, with a combined population of 18 million people.

### **Expanding the Ultra Low Emission Zone (ULEZ)**

3.6 The expansion of the ULEZ from the central zone to an area bounded by, but not including, the North and South Circular Roads was successfully launched on 25 October 2021.

3.7 This project has taken five years to develop and implement. This includes three consultation exercises, implementation of 800 new cameras and over

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<sup>1</sup> [https://www.london.gov.uk/sites/default/files/lez\\_six\\_month\\_on\\_report-final.pdf](https://www.london.gov.uk/sites/default/files/lez_six_month_on_report-final.pdf)

1,400 signs, and a new back office system that processes millions of images from the camera networks. It is the largest scheme we have implemented on the surface network in London and will be one of the most impactful.

- 3.8 To prepare drivers and make them aware of the zone prior to expansion, we (TfL and the Greater London Authority (GLA)) have run an extensive communications campaign. More than a million letters were sent to those seen driving non-compliant vehicles in the area and more than 600,000 leaflets were sent to residents living close to the boundary. Four million emails were sent to people on TfL's customer database, and there has been an extensive advertising campaign spanning radio, TV, posters, press, social media and online.
- 3.9 The new zone is eighteen times larger than the original central area and covers a population of 3.8 million people. Early indications show that compliance with the standards had increased significantly by the time the scheme went live in October. Indeed, when the Mayor announced his intention to expand the scheme in February 2017, compliance with the vehicle standards was only 39 per cent. When the scheme went live last month this had increased to 87 per cent. This means we anticipate only 110,000 vehicles will need to pay the charge each day.
- 3.10 The ULEZ expansion, alongside tighter Londonwide LEZ standards, are expected to reduce nitrogen oxides (NOx) emissions from road transport by 30 per cent across London in 2021.
- 3.11 We will be monitoring the impacts of the ULEZ expansion, and will be publishing a one month, six month, and one year report with our findings. The report on the first month of operation will be published in the next few weeks and will be distributed to the TfL Board.

### **New Zero Emission Zones (ZEZ)**

- 3.12 The Mayor's Transport Strategy (MTS) and the London Environment Strategy state that the Mayor, through TfL and the boroughs, will seek to implement local town centre ZEZs from 2020, followed by a Central London ZEZ from 2025.
- 3.1 In September 2019 we published guidance<sup>2</sup> for the delivery of local ZEZs aimed at boroughs that are interested in delivering town centre ZEZs. We have since held a number of joint GLA/TfL/London Councils workshops for borough officers to update them on the London Recovery Programme and the role that ZEZs could play, and to ask for input to a potential update of the guidance. We have subsequently been revising the existing ZEZ guidance to better reflect the current policy environment, better address areas where boroughs wanted more clarity, and include some lessons learnt from early scheme development. We are looking to publish the updated guidance document in early 2022.

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<sup>2</sup> <http://content.tfl.gov.uk/tfl-guidance-for-local-zero-emission-zones.pdf>

3.2 Borough schemes to note are as follows:

- a) LB Hackney introduced the first ZEZ-type scheme in Shoreditch in September 2018 (in partnership with LB Islington) with their Ultra Low Emission Vehicle Streets scheme.
- b) The City of London launched a trial ZEZ in Beech Street in the Barbican area in March 2020. The trial meant that only zero emission vehicles, pedestrians and cyclists were allowed to drive through. The trial recently concluded in September 2021.

3.3 We are also involved in a European Union funded project called ReVeAL (Regulating Vehicle Access for Improved Liveability) alongside the City of London. The City are using ReVeAL funding to deliver a second ZEZ in the City Cluster zone, a central area focused on St Mary Axe. The scheme aims to be implemented (subject to consultation) by December 2022.

## **4 Vehicle scrappage schemes**

4.1 The Mayor introduced vehicle scrappage schemes for vans and charity minibuses, cars and motorcycles, and heavy vehicles. The schemes are operated by TfL with £61m of funding allocated by the Greater London Authority, to help drivers in London scrap their non-compliant vehicles to meet the ULEZ and LEZ emission standards. To date, scrappage grants have helped to improve London's air quality by taking over 13,300 older, more polluting vehicles off London's roads. Raw materials from scrapped vehicles are recycled and reused by authorised treatment facilities.

4.2 The scrappage schemes prioritised the limited funding available to help the most vulnerable, meaning that they have been restricted to small businesses, low income and disabled Londoners and charities. All funding has now been allocated and the scrappage schemes have closed to new applicants.

4.3 The Mayor continues to call on Government to commit resources to a targeted national diesel scrappage scheme. Government has provided funding for scrappage in Birmingham, Bath and Portsmouth to support their Clean Air Zones but has not provided any funding for scrappage in London.

## **5 Electric vehicle charging infrastructure**

### **Infrastructure delivery in London**

5.1 Much has been achieved over the past few years, and there are now over 7,600 publicly accessible charge points in London, delivered through both the public and private sectors. London's infrastructure now accounts for around a third of the UK's total charge points and represents a 55 per cent increase in EV charging points delivered between 2019 and 2021.

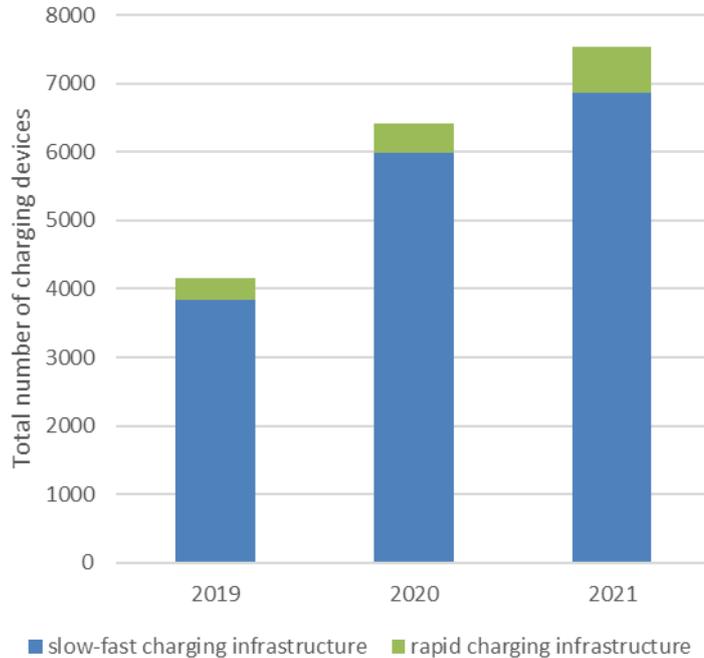


Fig 1. Charging devices by type across London (Source: Zap-Map)

- 5.2 Much of this delivery has been led by the public sector. For example, as part of the Mayor's first-term commitments, TfL ran a rapid delivery programme which achieved, ahead of schedule, the Mayor's target of 300 rapid charge points installed by the end of 2020. At this time 310 rapid charge points have been installed by TfL in London. 84 of these are dedicated to taxi use only to support the transition for this key fleet. We have also delivered two flagship rapid hubs, in east and south London. A third site at Baynard House in central London expected to be delivered in 2022.
- 5.3 The private sector has delivered rapid hub sites in west and south London near Heathrow on the M4 and on New Kent Road respectively, with a number of dedicated hubs also delivered to serve key user groups such as taxis and commercial vehicles.
- 5.4 Following a successful bid to the Office for Zero Emission Vehicles (OZEV) in 2016 for Go Ultra Low Cities Scheme (GULCS) funding, London was awarded £13.2m. Since delivery began in 2018, the London boroughs have been allocated £7m of this funding to install on-street, predominantly lamp post column charge points to meet the need of residents without off street parking. The programme has supported delivery of more than 4,800 charge points to date, with a further 500 planned for delivery by the end of March 2022. More recently, London Councils has supported the boroughs to secure c.£6m further funding through the On-street Residential Charge point Scheme (ORCS), to deliver more than 1,500 additional charge points by March 2023..

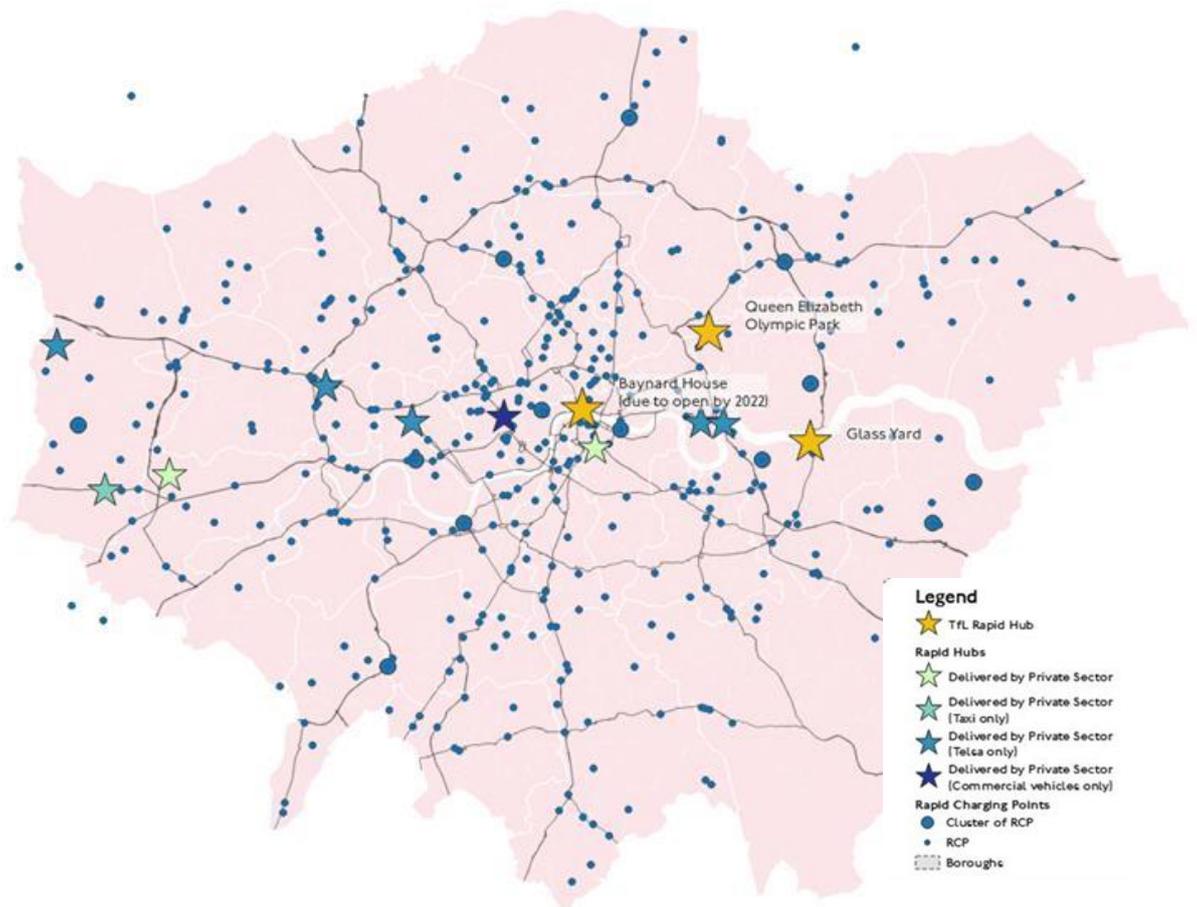


Fig 2. Distribution of London's rapid charge points and hubs in 2021. (Source: Zap-Map, July 2021)

### Electric vehicle infrastructure strategy

5.5 In 2019 we published the Electric Vehicle (EV) Infrastructure Delivery Plan, steered by the Mayor's EV Infrastructure Taskforce, which looked at how to overcome the barriers to delivering EV infrastructure in London, as well as how much would be needed, by 2025. Following on from this, we have listened to the issues raised by many around the difficulty in switching to EVs and user experience of EV charging. This, together with recent trends and policy changes, including the phase out of petrol and diesel cars and vans by 2030, has led us to updating the forecasts for London and projecting them to 2030. We have drafted a new EV infrastructure strategy, which sets out how the switch to EVs in London can support the Mayor's ambition of becoming a net zero-carbon city by 2030, and the roles and responsibilities of all stakeholders, including the GLA and ourselves in facilitating this.

5.6 Published on 15 October 2021 as a draft summary document, we are seeking further input and carrying out engagement with stakeholders. The publication of the full strategy is expected by the end of 2021. The strategy sets the following vision:

*“Supporting a net zero carbon target for London by 2030, and better air quality for all, the London Electric Vehicle Infrastructure Strategy seeks to accelerate*

*the transition to zero emission vehicles by setting out the requirements for the provision of infrastructure, focusing on essential trips”*

5.7 Related to this focus on essential trips, our strategy is clear about how to prioritise the needs of key user groups, and supporting their transition to EVs. Key users have been identified as those making high mileage trips performing an essential role, including taxis and private hire drivers, as well as other commercial vehicles. Whilst the priority for other groups is mode shift to walking, cycling and public transport in line with MTS objectives, we want to ensure that EV infrastructure in London supports everyone who does need to drive to switch to zero emission transport.

5.8 The draft strategy contains a number of commitments, set out below.

### **Commitments in the EV infrastructure strategy:**

Keystone commitment:

- From 2022, unlock GLA Group land to repurpose it for EV charging – addressing one of the biggest barriers to infrastructure roll out in London. Lead the way for London boroughs to unlock their land, ensuring sufficient levels of charging can be achieved.

Supporting all users:

- Develop a real-time and open API of all charge points in London subject to an initial feasibility study and Government funding - from 2022.
- Support the delivery of shared charging facilities - pioneer the first bus garage shared infrastructure, which, subject to Government funding, will get under way in 2022.

Supporting the EV industry:

- Update London level forecasts every 2 – 3 years and supporting boroughs with granular forecasts - in 2022.
- Provide demand data and evidence base to support private sector investment in rapid charging infrastructure, via Charge Point Operators' (CPO) Forum.
- Seek a partner to set up an EV Ethics and Sustainability Committee to engage with international cities, governments, trade bodies, NGOs etc to identify collective international action on addressing the EV ethics and sustainability supply chain issue.
- Work with energy distributors (DNOs) to identify localised grid constraints, so that DNOs can get government support to fund grid upgrades.

- Support CPOs to streamline the verification of driver licence status, improving efficiencies when applying preferential charging rates to key users.
- Explore green financing opportunities – working with the private sector to find the best financing solutions to support the roll out of EV infrastructure.

#### Supporting taxis:

- Work with CPOs to find technical solutions to enforce taxi-dedicated bays (already begun).
- Continue delivery (subject to funding) of taxi dedicated bays in locations where taxi drivers frequently work. We will also explore dynamic solutions in the future to maximise utilisation.
- Continue to explore innovative charging options including wireless charging on taxi ranks.

#### Supporting Private Hire Vehicles (PHV)s:

- Encourage delivery of slow-to-fast charge points focusing in areas with a high proportion of private hire drivers.
- Support the delivery of rapid charging where drivers live and work such as town centres across the city.
- Instigate a regular forum, between CPOs and PHV representatives to help identify and resolve specific issues.

#### Supporting Light Goods Vehicles (LGV)s:

- Establish a commercial fleet database (subject to funding) for future planning to support fleet users to switch to EVs - by 2023.
- Set up London EV Business Leader's Forum to explore how to support delivery of charging needs – from 2022.

#### Supporting car clubs:

- Support the electrification of car clubs by encouraging infrastructure in locations where active car clubs operate.
- Work with London boroughs and London Councils to explore dynamic solutions, for making optimal use of infrastructure, such as prioritised overnight rapid charging.

#### Supporting emergency services and public fleets:

- Work with emergency services and public fleets via the GLA fleet forum to support the transition to EVs. Building on joint EV infrastructure

study, coordinate EV charge point procurement, market engagement and explore joint funding opportunities.

- Assess the feasibility of a dedicated bay for emergency services at one of our rapid charging points (feasibility work starting in 2022).

5.9 The EV Infrastructure Taskforce has been consulted on the emerging draft and we are holding individual meetings with those who are keen to engage further. Since publishing the draft summary strategy, we have also been holding workshops for specific groups such as car clubs, business sector representatives, taxi and private hire, to discuss further the overall strategy and commitments.

## **6 Converting fleets to zero emission**

### **Buses**

6.1 London has brought forward the timeframe for having an entirely zero-emission bus fleet from 2037 to 2034 following an announcement by the Mayor earlier this year that all new London buses will be zero emission.

6.2 This will mean the current 566 zero emission vehicles increasing to circa 800 by the end of March 2022, subject to the ability of the bus manufacturing industry to build and supply them and the necessary grid and garage infrastructure being put in place.

6.3 Following the announcement, the Mayor hosted a Zero-emission Bus Summit, organised by the Campaign for Better Transport and TfL. This allowed representatives from central and local government, bus operators, manufacturers and wider stakeholders to meet to drive forward the uptake of zero-emission buses across the UK.

6.4 Not only will this transition help reduce the harmful pollutants in the air, it will also help us combat the climate change emergency and contribute towards the UK's targets of a 68 per cent cut in CO<sub>2</sub> by 2030, rising to a 78 per cent net reduction by 2035.

6.5 Although most zero-emission buses are pure electric, we continue to support the piloting of potentially complementary technologies like hydrogen. 20 double-deck hydrogen fuel cell vehicles are now operating on route 7 from East Acton to Oxford Circus, as well as some route 245 journeys between Alperton & Golders.

6.6 The faster transition timeframe will enable London to have a total of 10 per cent of its fleet zero emission by the end of 2022 subject to Government support as well as demonstrate to manufacturers that a very significant market is opening up for clean vehicles. This will help increase the commercialisation of this sector, increased jobs and apprenticeships across the UK and help London move away from vehicles powered by fossil fuels. If more significant Government support becomes available, we will look to make the fleet zero-emission even earlier than 2034.

- 6.7 If instead, due to reduced funds, we have to reduce the network, fewer new buses will enter the fleet and the benefits of the Bus Safety Programme will be much slower to realise. It is also likely to lead to slower research and development from bus manufacturers looking to achieve the new designs, if there is no pipeline of orders on which to recoup their substantial investment. The 2024 standard would therefore be put at immediate risk.
- 6.8 It would also likely mean the pause or cancellation of retrofit work on the existing fleet, as well as further development of research into improvements. It could also lead to a scaling back of work to address driver wellbeing. A pause, slow down or stopping of these workstreams will also have direct impacts on our Vision Zero objectives.

### **Taxis and Private Hire Vehicles (PHVs)**

- 6.9 Since 1 January 2018 all newly licensed taxis have been required to be Zero Emission Capable (ZEC). As of 2 November, a total of 4,749 ZEC taxis have been licensed in London. This is over a third of the current operating fleet.
- 6.10 The industry has been supported to transition to newer, greener vehicles with a taxi delicensing scheme and ZEC taxi grants. To ensure that emission reductions from taxis are achieved at the pace needed to meet our air quality targets, we have also introduced a mandate for maximum applicable taxi operating age limits, and removed standing exemptions for historic/niche vehicles, alternative fuels and hardship exemptions.
- 6.11 Currently the maximum age limit for Euro 3, 4 and 5 diesel taxis is 13 years and this will reduce to 12 years (and remain at 12 years) from 1 November 2022. The maximum age limit for Euro 6 diesel taxis and ZEC taxis remains at 15 years, which is also the age limit for taxis that are newly converted to Liquid Petroleum Gas (LPG).
- 6.12 Current emission standards for PHVs require that PHVs under 18 months old must be zero emission capable and meet the Euro 6 emissions standard when licensed for the first time, and those over 18 months old must have a Euro 6 (petrol or diesel) engine. These standards will be tightened in January 2023, at which point all PHVs licensed for the first time will have to be zero emission capable and meet the Euro 6 emissions standard.

### **TfL support fleet**

- 6.13 TfL's support fleet consists of approximately 1,000 vehicles. These are primarily cars and vans, with a small number of specialist heavy vehicles. We are working to meet our targets as set out in Proposal 32 of the MTS:
- (a) All cars in the GLA group support fleet to be zero emission capable by 2025 at the latest;
  - (b) all newly purchased or leased cars and vans (less than 3.5 tonnes) including response vehicles, to be ZEC from 2025;
  - (c) all heavy vehicles in the GLA group fleets to be fossil fuel free from 2030; and

(d) the entire GLA fleets being zero emission by 2050.

6.14 We are developing a strategy to convert our support fleet to ZEC, which includes the leasing of new vehicles as well as implementation of the required infrastructure in the vehicle depots.

## **7 Monitoring and reporting transport emissions**

7.1 We will continue to monitor the speed of transition of London's vehicles to ultra-low emission vehicles (ULEVs) and will update on this to the Panel as part of regular air quality updates.

7.2 The next update to the London Atmospheric Emissions Inventory (LAEI) will be published in early 2022 and will include updated emissions for the new baseline 2019 as well as new projections for 2025 and 2030, taking into account changes to road traffic forecasts and latest data from national government on the uptake of Euro 6/VI vehicles and ULEVs.

7.3 This updated forecast will give a detailed indication of the level of progress toward the NO<sub>x</sub>, Particulate Matter and CO<sub>2</sub> emissions trajectories set in the MTS.

### **Improving air quality and decarbonising transport**

7.4 In the Mayor's recent Climate Crossroads speech, he highlighted the links between tackling poor air quality and the need to decarbonise road transport. A good example of this is the central London ULEZ which reduced NO<sub>x</sub> by 44 per cent and also carbon emissions by 6 per cent.

7.5 Modelling suggests we are on course to achieve the zero carbon 2050 target set out in the MTS and this is primarily driven by the electrification of vehicles in London. However, it is now clear that we need to move faster, and the Mayor has called for London to become net zero carbon by 2030.

7.6 In collaboration with the GLA, we are working on pathways to meet this challenging target and to reduce cumulative emissions over this time. We will report on progress with this study in the new year.

## **8 Summary**

8.1 There has been a significant improvement in central London's air quality thanks to the action being taken by the Mayor and TfL.

8.2 London is now benefitting from the successful launch of the ULEZ expansion in October 2021, which is predicted to reduce Nitrogen Dioxide levels by 30 per cent, in addition to the strengthening of the LEZ standards in March 2021.

8.3 In addition, the Mayor's vehicle scrappage schemes have taken over 13,300 of the most polluting vehicles off London's roads, helping drivers in London to meet the ULEZ and LEZ emission standards.

- 8.4 Internally, we are working towards a fully zero emission fleet of vehicles at TfL and are pleased to have been able to bring forward our timeframe for a zero emission bus fleet from 2037 to 2034.
- 8.5 We are working to ensure that London has the infrastructure required to support the transition of road transport to zero emissions technologies. Over 7,600 charge points have been delivered in London through both the public and private sectors, meaning London accounts for around one third of the UK's charge points.

**List of appendices to this report:**

None

**List of background papers:**

ULEZ 2020 report:

[https://www.london.gov.uk/sites/default/files/ulez\\_evaluation\\_report\\_2020-v8\\_finalfinal.pdf](https://www.london.gov.uk/sites/default/files/ulez_evaluation_report_2020-v8_finalfinal.pdf)

Low Emission Zone – 6 months on report:

[https://www.london.gov.uk/sites/default/files/lez\\_six\\_month\\_on\\_report-final.pdf](https://www.london.gov.uk/sites/default/files/lez_six_month_on_report-final.pdf)

Local Zero Emission Zone guidance:

<http://content.tfl.gov.uk/tfl-guidance-for-local-zero-emission-zones.pdf>

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