Ultra Low Emission Zone

Report to the Mayor

March 2015

MAYOR OF LONDON

TRANSPORT FOR LONDON

EVERY JOURNEY MATTERS

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1. Introduction

1.1. Overview and purpose of report

1.1.1. To tackle poor air quality and reduce greenhouse gas emissions the Mayor of London and Transport for London (TfL) have developed a proposal for an Ultra Low Emission Zone (ULEZ) in central London. The objectives of the ULEZ are as follows:

- **Reduce air pollutant emissions from road transport**, particularly those with greatest health impacts, to support Mayoral strategies and contribute to achieving compliance with EU legal limits on certain air pollutants
- **Reduce CO_2 emissions from road transport**, to support Mayoral strategies and contribute to a London-wide reduction
- Promote sustainable travel and stimulate the low emission vehicle economy, by increasing the proportion of low emission vehicles in London

1.1.2. The ULEZ involves proposals that would require all vehicles driving in central London to meet new exhaust emissions standards (ULEZ standards). The ULEZ would take effect from 7 September 2020, and apply 24 hours a day, 7 days a week. A vehicle that does not meet the ULEZ standards could still be driven in central London but a daily 'non-compliance' charge would have to have been paid to do so. The published consultation proposals for ULEZ standards, and the daily charges proposed for non-compliant vehicles, exemptions and other aspects of the scheme, are set out in Chapter 2.

1.1.3. The ULEZ also proposes additional requirements for TfL buses, taxis (black cabs) and private hire vehicles (PHVs), which would apply across Greater London. The proposed changes consulted on are as follows:

- A requirement that all taxis and new[1] PHVs presented for licensing from 1 January 2018 would need to be zero emission capable[2] (ZEC);
- A reduction in the age limit for all non zero emission capable taxis from 7 September 2020 from 15 to 10 years (irrespective of date of licensing); and
- Investment in the TfL bus fleet so that all double deck buses operating in central London will be hybrid and all single deck buses will be zero emission (at tailpipe) by September 2020.

1.1.4. TfL, on behalf of the Mayor, undertook a statutory public and stakeholder consultation on the above proposals from 27 October 2014 to 9 January 2015, a

[1] New PHV means no more than 18 months from the date the vehicle was first registered and licenced for driving on the public highway.
[2] See Glossary for definition

period of just over 10 weeks. This report presents TfL's analysis of the comments made and issues raised in the consultation.

1.1.5. The ULEZ proposals should be understood as an overarching package of measures to improve air quality through reductions in exhaust emissions from road transport, and so a single consultation was undertaken. This report encompasses responses made on all aspects of the proposals.

1.1.6. TfL has legal powers under the Greater London Authority Act 1999 (the "GLA Act", as amended) to make and amend road user vehicle charging schemes. The Congestion Charge (CC) Scheme, which seeks to reduce congestion in central London, and the London Low Emission Zone (LEZ) Scheme[3], which aims to improve air quality by reducing exhaust emissions across Greater London, were introduced and are operated under these powers. The ULEZ proposals for charging vehicles from September 2020 that do not comply with the ULEZ standards involve making changes to the current LEZ Scheme. It is proposed the LEZ Scheme is modified to establish the ULEZ emissions standards that will apply in central London, and to set the level of daily charges and penalty charge amounts. TfL made a Variation Order ("VO")[4] to make the necessary amendments to the LEZ Scheme which was published at the start of the consultation (see Appendix A and Appendix G). This VO makes PHV (alongside equivalent vehicles) subject to the proposed ULEZ standards but makes taxis exempt.

1.1.7. The GLA Act requires that for the VO to take effect, and make changes to the LEZ Scheme to implement the ULEZ standards and charges, the Mayor must decide whether to confirm the VO (with or without modifications) following consideration of responses submitted in the public consultation, and all other relevant considerations and matters, which include TfL's recommendations as set out in this Report.

1.1.8. Any changes to the licensing of taxis and PHVs would be implemented by TfL, rather than the Mayor, as it is the body that licences vehicles as taxis and PHVs in Greater London under the relevant legislation[5]. TfL's analysis of consultation responses and potential policy recommendations are presented for the Mayor's information. The remainder of this chapter provides the background to the consultation, including the legislative framework and a summary of the proposals. Chapter 2 is a detailed description of the proposal and how it would be implemented. Chapter 3 provides more information on how the ULEZ would be

[3] The Greater London Low Emission Zone Charging Order 2006

[4] The Greater London Low Emission Zone Charging (Variation and Transitional Provisions) Order 2014

[5] For taxis these are the Conditions of Fitness (as amended) made by TfL under the London Cab Order 1934. For PHVs they are the vehicle requirements prescribed under regulation 7 and Schedule 1 to the Private Hire Vehicles (London PHV Licences) Regulations 2004 (as amended).

supported, in addition to the information provided in the consultation materials. Chapter 4 concerns the rationale and impact of ULEZ with regard to air quality. Chapter 5 is a description of the expected impacts of the ULEZ (including a summary of the Integrated Impact Assessment that was undertaken), and an assessment of the impact of relevant changes to the proposal being recommended.

1.1.9. Chapter 6 sets out the consultation process undertaken by TfL and Chapter 7 provides a summary analysis of consultation responses received in terms of the method of response, respondent type and their travel behaviour. Chapter 8 provides an analysis of the responses to the consultation from the public, community groups and business in terms of number responding to the consultation, support and opposition to the proposals and the key issues raised in the consultation responses. Chapter 9 does the same but for stakeholder responses.

1.1.10. Chapter 10 sets out TfL's response to the key issues raised by the ULEZ proposals by theme, and its recommendations and conclusions (including recommended modifications to the VO). The key issues, recommendations and conclusions concerning the taxis and PHVs licensing proposals are addressed separately in Chapter 11. Finally, Chapter 12 sets out TfL's overall conclusions and recommendations.

1.1.11. The Mayor is advised when considering this Report to take into account the individual consultation responses themselves, hard copies of which have been provided for his consideration.

1.1.12. The public and stakeholder consultation originally proposed the following implementation timetable if the published proposals were confirmed without change:

- **March 2015** – the Variation Order (with or without modifications) is confirmed by the Mayor
- **1 January 2018** – all newly licensed taxis and PHVs would be required to be ZEC
- **2016-2020** – a significant information campaign takes place to help ensure that drivers and operators are aware of the ULEZ standards and charges, and understand their options before they are enforced from September 2020
- **2016-2020** – Number of hybrid and zero emission buses in the ULEZ increases
- **September 2020** – Reduction in the age limit for all regular diesel taxis except Euro 6 taxis from 15 to 10 years (irrespective of date of licensing)

- **September 2020** – ULEZ vehicle emission standards are introduced for central London and daily charges imposed on non-compliant vehicles. All double-deck buses operating within the Zone will be hybrid and single-deck buses zero emission
- **September 2023** – Residents' discount expires; time-limited exemption for disabled vehicles expires

1.1.13. Should the ULEZ emissions standard proposals be confirmed, an information campaign will be launched to inform customers of the implementation of the proposed ULEZ standards and charges well in advance of their introduction in 2020.

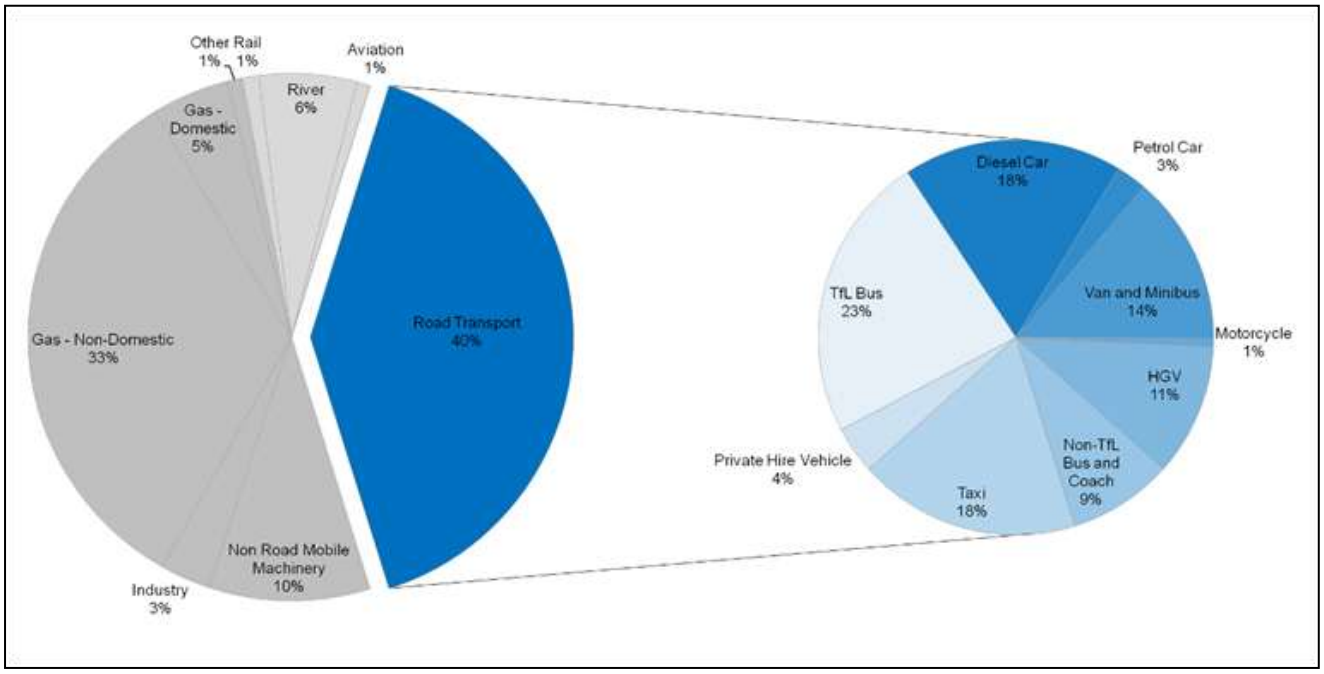
1.1.14. The above timetable could be affected if the Mayor decides to make modifications to the VO and/or it is decided to alter the taxi and PHV licensing proposals from those originally proposed.

1.2. Air Quality and health in London

1.2.1. The chief objective of the ULEZ is to improve air quality in London. London's air quality has improved significantly in recent years and is now considered compliant for all but one air pollutant for which the European Union has set legal limits (called 'limit values'). This pollutant is nitrogen dioxide (NO_2), which has adverse impacts on public health. The exhaust emission that gives rise to NO_2 is nitrogen oxide (NO_x). The policy framework, and London's responsibility with regard to the main air pollutants and climate change is described in section 1.3.

1.2.2. Emissions from road transport are a major contributor to poor air quality in London, accounting for 42 per cent of all NO_x sources. All vehicles contribute to poor air quality but the magnitude of this contribution varies by vehicle type, the fuel used and the mileage travelled. Another consideration is the number of vehicles in use. For example, cars emit less per vehicle than HGVs, but are much more numerous. Figure 1 below shows the projected NO_x emissions by vehicle type in central London in 2020.

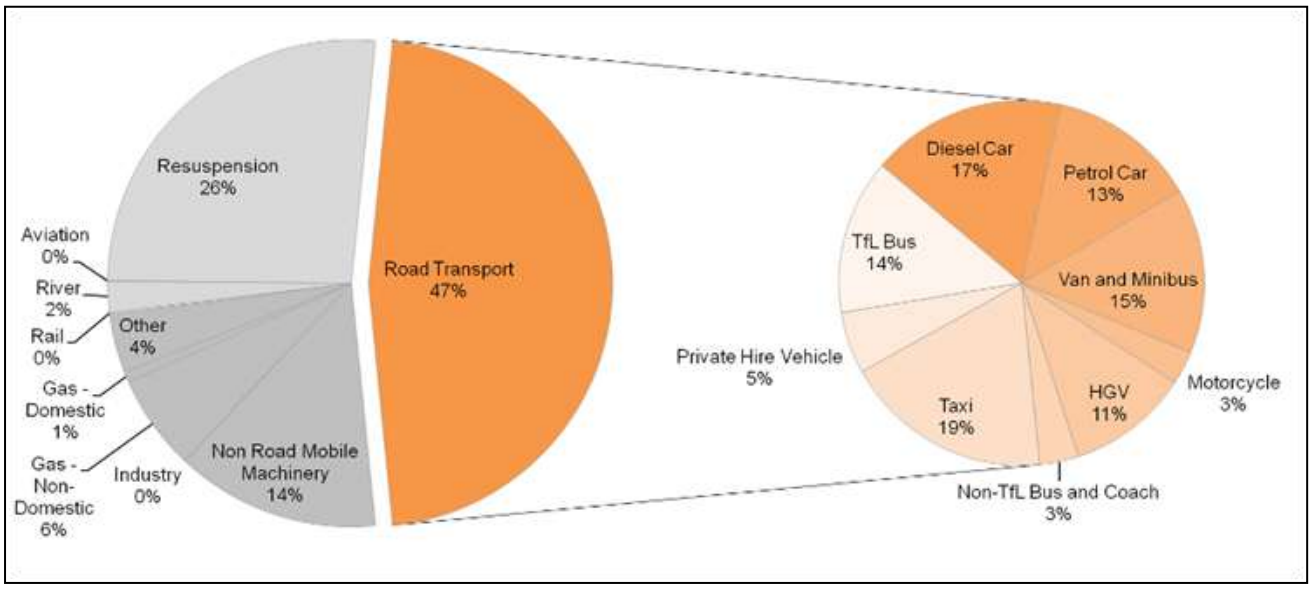
Figure 1: NO_x emissions by vehicle type in central London in 2020 (without ULEZ)



1.2.3. As Figure 1 shows, diesel cars, TfL buses and taxis are significant contributors to NO_x emissions. This is explained by their high mileage in central London and their use of diesel engines, which have higher air pollutant emissions than petrol equivalents.

1.2.4. Another important air pollutant is particulate matter (PM), for which legal limits are also set. The limits relate to PM_{10} and $PM_{2.5}$ – the different subscript numbers relate to different particle sizes, measured in microns. Significant improvements have been made over recent years and London is now broadly compliant with EU limit values for PM, however, ongoing reductions are needed (especially $PM_{2.5}$) to further protect (or improve) human health. It is estimated that road transport will be responsible for 47 per cent of PM_{10} emissions in London in 2020 (without ULEZ in place), as shown in Figure 2 below.

Figure 2: PM_{10} emissions by vehicle type in central London in 2020 (without ULEZ)



1.2.5. Both NO_2 and PM have an adverse effect on human health. At high concentrations, NO_2 causes inflammation of the airways. Long-term exposure is associated with an increase in symptoms of bronchitis in asthmatic children and reduced lung function growth. Long term exposure to particulate matter contributes to the risk of developing cardiovascular and respiratory diseases, as well as of lung cancer. Research shows that particles with a diameter of ten microns and smaller (PM_{10}) are likely to be inhaled deep into the respiratory tract. The health impacts of $PM_{2.5}$ are especially significant as smaller particles can penetrate even deeper.

1.2.6. The ULEZ proposal would at least halve emissions of NO_x and PM from vehicle exhausts in central London. Although the greatest benefit of this would be experienced in central London, improvements to air quality and health would occur across London. Most traffic entering the ULEZ will be from outside the zone, meaning that the benefits of cleaner vehicles are widely spread.

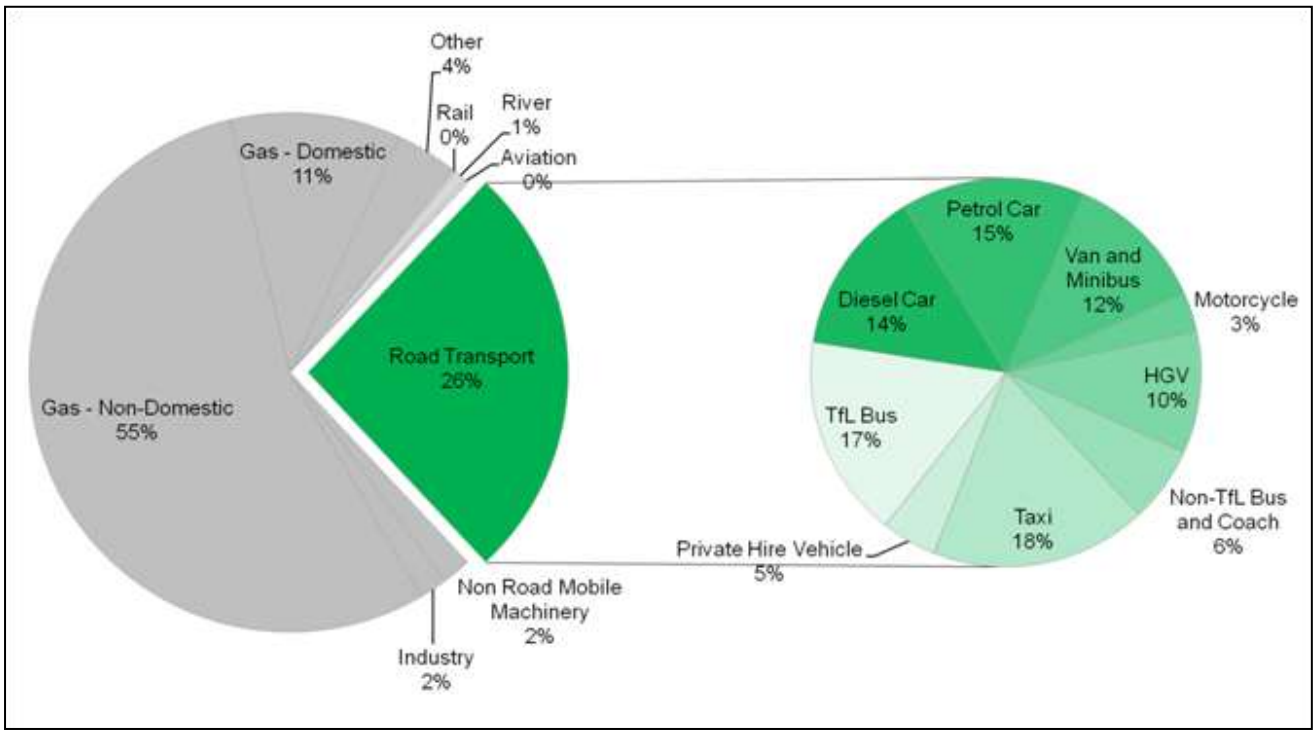
1.2.7. Although not considered directly harmful to human health in the same way as NO_x and PM, it is also important to limit and reduce emissions of carbon dioxide (CO_2). This gas is associated with climate change, for which the Mayor has a duty to act (see section 1.3). The Climate Change Act 2008 set the UK's emission reduction targets. The legally binding targets are a reduction of at least 80 per cent by 2050 (against the 1990 baseline).

1.2.8. London also has a target, set by the Mayor, to reduce annual emissions of CO_2 by 60 per cent by 2025 on a 1990 base. All sectors must contribute to the overall reduction but the Mayor's Climate Change Mitigation and Energy Strategy (CCMES) suggested the transport sector contributes to the wider target by

making a 48 per cent reduction in transport CO_2 emissions. However, this is dependent on the continuing ability of the industrial, commercial and domestic sectors to reduce emissions in a more cost effective way than the transport sector. This is particularly challenging given that a million more people than originally envisaged are now forecast to be living in London by 2031.

1.2.9. Figure 3 below shows that over a quarter of CO_2 emissions in central London are projected to come from road transport in 2020. Taxis and TfL buses are the greatest contributors.

Figure 3: CO_2 source apportionment in central London in 2020 (excluding electricity and without ULEZ)



1.3. The legislative framework

1.3.1. The general duties, policies and functions of the Greater London Authority, the Mayor and TfL are set out in the GLA Act. Principal amongst these, which are relevant to issues raised by the VO, are the requirements for the Mayor to:

- Develop and implement policies and proposals for the promotion and encouragement of safe, integrated, efficient and economic transport facilities and services to, from and within Greater London and to prepare and to publish a Strategy (the Mayor's Transport Strategy ('the MTS') (sections 141 and 142 of the GLA Act);
- Have regard to the need to ensure that each statutory strategy that he prepares under section 42 of the GLA Act (which includes the MTS and

other relevant strategies such as the Mayor's Air Quality Strategy (MAQS)) is consistent with each of his other statutory strategies.

1.3.2. Importantly, all UK governmental and public bodies (including the Mayor and TfL) share a common legal duty to take such measures as are appropriate and within their powers to implement the relevant European Union directives on air quality and to bring any breach of them (infraction) to an end as soon as possible.

ULEZ standards and charges

1.3.3. As already set out, the ULEZ standards and charges for vehicles would be implemented by means of the Mayor's confirmation of the VO (with or without modifications) in order to make the necessary changes to the LEZ Scheme. TfL would approve changes to taxi and PHV licensing. The relevant legal powers are considered below.

1.3.4. The GLA Act gives TfL the power to create road user charging schemes in Greater London. The GLA Act stipulates that this charging scheme must be contained in an order and the Greater London Low Emission Zone Charging Order 2006 (as amended) effectively sets out the rules which apply to the London LEZ. Details of the required contents of a scheme order are contained in Schedule 23 of the GLA Act which stipulates that a charging scheme must:

- Designate the area to which it applies;
- Specify the classes of motor vehicles in respect of which a charge is imposed;
- Designate those roads in the charging area in respect of which a charge is imposed; and
- Specify the charges imposed.

1.3.5. The same powers were used to implement the Congestion Charging scheme in central London[6], which took effect from 17 February 2003, and also the London LEZ[7], which took effect from 4 February 2008. The proposed ULEZ vehicle emission standards and non-compliance charges share characteristics with the Congestion Charging and LEZ schemes. For example, it is proposed the ULEZ applies to the same geographical area as the Congestion Charging zone (CCZ) and, like the LEZ, it specifies vehicle emissions standards which vehicles must meet in order to drive in the zone without charge.

[6] The Greater London (Central Zone) Congestion Charging Order 2002, as varied
[7] The Greater London Low Emission Zone Charging Order 2006

Conformity with the MTS and other strategies

1.3.6. A charging scheme (or a variation to a charging scheme) can only be made if it directly or indirectly facilitates policies or proposals in the MTS and is in conformity with the MTS (under paragraphs 3 and 5 of Schedule 23). The VO is in conformity with and implements (directly or indirectly) the following MTS policies:

- Proposal 95 of the MTS, which in addition to setting out that the Mayor will continue to operate the existing LEZ with potential further phases, also notes the following: *'if necessary, the Mayor will consider introducing minimum requirements for other vehicles or tighter standards in particular locations in London...'.*
- Also of relevance here are Proposals 92 and 93 which set out that the Mayor, through TfL and working with London boroughs, transport operators and other stakeholders will introduce measures to reduce emissions from buses, taxis and PHVs, support the uptake of low emission vehicles. Proposal 94 states that there could also be '...targeted local measures at poor air quality priority locations to reduce emissions and improve local air quality.'

1.3.7. The conformity and implementation requirements of Schedule 23 do not apply to other Mayoral strategies, such as the MAQS or CCMES. However, the conformity, consistency and alignment of the VO's proposals with the underlying policy objectives of these strategies (both as originally published and in light of subsequent developments) are relevant considerations nonetheless.

1.3.8. Paragraph 38 of Schedule 23 of the Act gives TfL a power to revoke or vary a charging scheme. The power is exercisable in the same manner and subject to the same limitations and conditions as the making of a Scheme Order. Various amendments to the Scheme Order establishing the LEZ have been made since it was first confirmed by the then Mayor in February 2002 and a formal consolidation of all such amendments to date was consulted upon and confirmed in 2006, which has been subsequently amended. Such amendments are made by way of VOs. Under Schedule 23, any VO must be made by TfL and may be confirmed with or without modifications by the Mayor.

Climate change

1.3.9. The Mayor has a duty under section 361A of the GLA Act to address climate change, insofar as it relates to Greater London. This duty consists of each of the following:

- To take action with a view to the mitigation of, or adaptation to, climate change;

- In exercising any of his functions under this Act or any other Act (whenever passed), to take into account any policies announced by Her Majesty's government with respect to climate change or the consequences of climate change; and
- To have regard to any guidance, and comply with any directions, issued to the Authority by the Secretary of State with respect to the means by which, or manner in which, the Mayor is to perform the duties imposed on him as above.

Air Quality

1.3.10. London has a policy framework in relation to improving air quality and reducing greenhouse gas emissions based on EU and UK law. The policies are set out in the London Plan (the Mayor's spatial strategy) and in the MTS, the CCMES and the MAQS.

1.3.11. The EU Ambient Air Quality Directive (2008/50/EC) and Directive 2004/107/EC set legal limits (called 'limit values') for concentrations of pollutants in outdoor air, which have been transposed into English law by the Air Quality (Standards) Regulations 2010 (see Table 1).

Table 1: England Air Quality (Standards) Regulations 2010

Pollutant	**Concentration** (limit value)	**Averaging period**	**Legal nature**	**Permitted exceedance each year**	**Compliance assessment for 2012 in Greater London****
Fine particles ($PM_{2.5}$)	25 µg/m^3*	1 year	Target value entered into force 1.1.2010 Limit value enters into force 1.1.2015	n/a	Compliant
PM_{10}	50 µg/m^3	24 hours	Limit value entered into force 1.1.2005 (time extension granted to June 2011)	35	Compliant***
	40 µg/m^3	1 year	Limit value entered into force 1.1.2005	n/a	Compliant
Nitrogen dioxide (NO_2)	200 µg/m^3	1 hour	Limit value entered into force 1.1.2010	18	Not compliant

	40 µg/m^3	1 year	Limit value entered into force 1.1.2010	n/a	Not compliant

* *An obligation to reduce exposure to concentrations of fine particles also comes into force from 2015*

** *Defra reports on compliance to the European Commission on behalf of the UK, in accordance with the Air Quality Directive. The most recent compliance assessment is for 2012*

*** *Following the subtraction of natural sources in accordance with the directive*

1.3.12. The Department for Environment, Food and Rural Affairs (Defra) has reported compliance with particulate matter limits for 2013 across England and Wales with most non-reportable sites in London also falling below the legal limits. However, health evidence suggests that further reductions – especially for $PM_{2.5}$ – will bring about improvements in health and quality of life for Londoners. Crucially, large sections of the Capital continue to exceed both the annual mean and hourly legal limits for NO_2, which is likely to continue to occur beyond 2020 and this is why more action needs to be taken.

1.3.13. Improving air quality in the Capital is a shared responsibility. Under the GLA Act 1999, the Mayor must prepare an Air Quality Strategy for London and he leads on the implementation of measures in the city to tackle pollution emissions, reduce exposure, raise awareness and integrate air quality and public health.

1.3.14. The Environment Act 1995 requires the London boroughs to designate and develop an action plan for areas where it appears that any air quality standards or objectives are not being achieved. They must take the MAQS into account when exercising their functions. The Mayor also has powers to require them to take action.

1.3.15. The MAQS, 2010 outlines policies to improve air quality in London, alongside future proposals to meet the EU limit values and improve public health in London. The proposals are wide ranging covering 'softer measures', such as education and awareness campaigns to encourage sustainable travel behaviour, and 'harder measures', such as LEZs. Policy 5 of the MAQS states that: 'The Mayor will work with boroughs to assess the feasibility and cost effectiveness of a central London LEZ in the Congestion Charging zone.'

1.3.16. In September 2014, TfL on behalf of the Mayor published its Transport Emission Roadmap (TERM). This considers options to reduce emissions from transport in London. It reports on what TfL and the Mayor have already done and sets out a range of possible new measures that the Mayor, TfL, the London boroughs, the Government, EU and other parties should consider to help meet the challenge of reducing air pollutants and CO_2 emissions in London. The proposed ULEZ is one of the key measures proposed in the TERM.

1.4. The 2014 Variation Order

1.4.1. In order to implement the charging scheme contained within the ULEZ proposal, TfL made a VO (the Greater London Low Emission Zone Charging (Variation and Transitional Provisions) to modify the LEZ Scheme Order[8] 2014) on 22 October 2014. The VO is attached to this report at Annex A. It is for the Mayor to decide whether or not to confirm the VO, as made and published by TfL, with or without modifications.

1.4.2. The published VO proposed nine amendments to the LEZ Scheme Order in order to implement the ULEZ, namely:

1) Specifying the area of the proposed ULEZ, which is the same as the Congestion Charging zone;
2) Setting out the classes of vehicle to which the ULEZ emissions standards would apply;
3) Setting out the classes of vehicle to which the ULEZ standards would not apply ('non-chargeable vehicles', which includes taxis);
4) Specifying the emissions standards for ULEZ;
5) Stating the proposed daily charge for vehicles which do not comply with the ULEZ standards (£12.50 for cars, motorcycles, vans and minibuses and £100 for HGVs, buses and coaches);
6) Making changes to the payment methods for the scheme to enable payment of the ULEZ daily charge, including the ability to pay a 'period licence' and use Auto Pay;
7) Stating the proposed level of penalty charges for non-payment of the daily charge where a non-compliant vehicle is driven in the zone (£130 for cars, motorcycles, vans and minibuses (reduced to £65 if paid within 14 days) and £1,000 for HGVs, buses and coaches (reduced to £500 if paid within 14 days));
8) Adding some definitions and clarifications to the scheme to enable the ULEZ to operate and transitional provisions such as the time-limited Residents' Discount for ULEZ; and
9) Specifying a transitional 3 year 'sunset' period commencing on 7 September 2020 and ending on 6 September 2023 during which vehicles of residents that are registered with TfL for the 90 per cent discount on the CC would be treated as non-chargeable for the purposes of the ULEZ charge.

[8] The Greater London Low Emission Zone Charging Order 2006 as amended

1.4.3. The VO did not propose any other changes to the operation of the LEZ scheme, as specified in the Scheme Order, other than minor consequential amendments required to bring the above amendments into force and the deletion of an out-of-date section in Annex 2.

1.5. Taxi and PHV licensing regulations

1.5.1. TfL is the licensing body for taxis (black cabs) and PHVs (minicabs) in London. Taxis are licensed (cab licences) by TfL under the section 6 of the Metropolitan Public Carriage Act 1869 and Part III of the London Cab Order 1934 (SI 1934/ 1346 as amended). Under article 7 of the 1934 Order TfL must grant a cab licence to a vehicle if (inter alia) it conforms with conditions of fitness as laid down by TfL from time to time. TfL therefore approves Conditions of Fitness from time to time for this purpose. PHVs are licensed by TfL under the Private Hire Vehicles (London) Act 1998 and vehicles are granted a London PHV licence under section 7, and that the vehicles meets (inter alia) prescribed requirements (section 7(2)(c)). These prescribed requirements are contained in Schedule 1 of the Private Hire Vehicles (London PHV Licences) Regulations 2004 (the "Vehicle Regulations", as amended). TfL has powers to amend the prescribed requirements in Schedule 1 of the 2004 Regulations. TfL may make changes to both the Conditions of Fitness and PHV prescribed vehicle requirements for environmental purposes.

1.5.2. For taxis and PHVs, it was proposed that the ULEZ standards would be implemented by means of a change to licensing, rather than be set out in a VO. The requirements for taxis and PHVs differ in some ways from the proposals for private cars, additionally the taxi and PHV requirements differ. The rationale and proposal for taxis and PHVs is set out in detail in Section 2.7.

1.5.3. In order to implement the ULEZ proposal for these vehicles, changes would be made to the CoF (for taxis) and Vehicle Regulations (for PHVs), collectively known as the licensing regulations. The published proposals involving changes to the licensing regulations were as follows:

- A requirement that newly licensed taxis and PHVs be ZEC from 1 January 2018
- A reduction in the age limits for taxis from 15 years to 10 years
- Discontinuation of the five-year introductory age limit for PHVs

1.5.4. Additionally, some elements of the ULEZ proposal relating to taxis and PHVs are contained within the VO. These are:

- Exemption of taxis from the ULEZ standards

- Inclusion of PHVs in the requirement to comply with the ULEZ standards to drive in the zone without paying a charge

1.5.5. It may be useful to note here that both taxis and PHVs are exempt from the CC and there is currently no proposal to change this. Certain PHVs (which are classified as vans or minibuses) are subject to the LEZ requirements; again there is no proposal to change this at this time.

1.6. Summary of recommendations for changes to the ULEZ proposal

1.6.1. This report focuses on the proposals which were consulted on, the responses to these proposals made by the public, businesses and stakeholders, and TfL's subsequent recommendations. It may aid understanding of this report it if is summarised here at the start of the report what recommendations have been made.

1.6.2. TfL has recommended to the Mayor that, with two minor modifications, the proposals contained within the Variation Order are approved; and that the proposals for TfL buses are also approved as consulted on. However, for the proposals concerning taxis and PHVs, it is recommended that these are not confirmed at this time, owing to the uncertainties and risks identified during the consultation. Instead, it is recommended that the Mayor request TfL to undertake further consultation and engagement with the taxi and PHV trades and other relevant consulted stakeholders on the published taxi and PHV proposals as soon as practicable.

1.6.3. This recommendation, if accepted, would mean that the taxi and PHV proposals are not implemented at this point, and the expected impacts of these proposals would not be realised in the way set out in the consultation materials. However, there remains a clear recognition that taxis are a particularly significant source of emissions in London and that further action will be required to tackle this as part of the ULEZ package.

1.6.4. Since this report is a report on the consultation and comments received about the proposals published for it, it necessarily describes the complete ULEZ proposal as put forward in October 2014. More information on TfL's response to comments, and its recommendations, can be found in Chapters 10 and 11.

2. Description of the ULEZ Proposal

2.1. Introduction

2.1.1. This section provides a summary of the ULEZ proposal, how it was developed and how it would operate. This information was made available for the public consultation. It concludes with a section on the potential for changes to the ULEZ in future, such as a geographical expansion of the zone or a raising of the standards.

2.1.2. Chapter 3 provides an update to the information given in this chapter, including information which became available during the consultation, such as with regard to the TfL Business Plan and Government funding for low emission vehicles.

2.2. Development of the ULEZ proposal

2.2.1. The Mayor announced his intention to introduce an ultra low emission zone in central London on 13 February 2013[9]. This announcement also stated the Mayor's support for the development of ZEC taxis. Following this announcement, TfL began work to develop and assess different options for a potential ULEZ, taking into consideration their impacts on the reduction of NO_x and CO_2 and the compliance costs associated with each option. Stakeholder engagement on the preliminary approach to options began in late 2013 (as set out in Chapter 4). TfL updated the Mayor on the emerging package over the following eighteen months and was instructed in summer 2014 to undertake a public and stakeholder consultation on the proposal.

2.2.2. In early 2014, TfL undertook an 'Air Quality in London' survey[10], which invited respondents to complete an online survey about the importance of improving air quality in London. Almost all respondents (just over 95 per cent) stated that they were concerned about air quality in London, with most citing the impacts on health as the main cause of concern. Similarly, just over 95 per cent of respondents agreed that TfL should do more to limit pollution from road vehicles. Respondents were asked how far newer and cleaner vehicles should be encouraged and a wide range of possible vehicle types were listed; in all instances a clear majority agreed that lower-emitting types should be encouraged.

2.2.3. Detailed information about the development and appraisal of the options is given in Part 2 of the Supplementary Information document published for the consultation. This describes the options as developed within three parameters: geographical area; hours of operation; and emissions standards for each vehicle

[9] www.london.gov.uk/media/mayor-press-releases/2013/02/mayor-of-london-announces-game-changer-for-air-quality-in-the

[10] 3 March-13 April 2014. 1329 responses

type. However it may also be useful to summarise these in this chapter, beginning with an overview of the entire proposal and then moving on to a fuller description of the approach by vehicle type.

2.2.4. The proposal would cover the area of central London where the CC already operates: this has advantages in terms of being a familiar zone and will offer cost savings as much of the infrastructure is already in place. This is also the area where air quality most needs to be addressed (because concentrations of air pollution are highest and there are the highest concentrations of people exposed) and where changes to road transport emissions can have most impact. In future, the zone could be expanded, subject to further development work and following a further public consultation.

2.2.5. TfL's assessment considered whether the hours of operation should match the CCZ (peak times only) or operate 24/7 (like the LEZ); because air pollutants are emitted from vehicles at all times, and to maximise the impact of the scheme, a 24/7 option has been put forward. Much smaller air quality improvements would be expected from a peak hour-only scheme.

2.2.6. All vehicles contribute to road transport emissions and in order to maximise the effect of the proposed ULEZ, the proposal would require all vehicles travelling in central London to meet exhaust emissions standards in order to drive in the zone without paying a charge. An outright ban on 'high polluting' vehicles has also been considered (for example, a ban on diesel vehicles) but is not considered an appropriate approach as set out in the Supplementary Information published as part of the consultation. A charging scheme is considered to balance the need to optimise the air quality benefits while at the same time recognising compliance costs for drivers and businesses. In addition, for heavy vehicles such as HGVs and coaches, the range of low emission and alternatively fuelled vehicles is limited and diesel is likely to continue to predominate. While it is important to encourage the use of the cleanest available vehicles available for each vehicle type, it is also important to recognise the limitations of technology and the market by providing flexibility in how drivers can respond to the implementation of ULEZ.

2.2.7. The approaches to implementing the ULEZ would differ by vehicle type. A charging scheme would be put in place for cars, motorcycles, vans, minibuses, buses and coaches and HGVs. As TfL is the licensing body for taxis and PHVs in London, it is considered more effective to implement the standards via the licensing regime. TfL's buses would also be subject to the ULEZ standards where compliance would be achieved via TfL's procurement, which has already introduced a much cleaner bus fleet across the Capital. For the charging scheme, Euro standards have been used to set standards. These are European standards that define the limits for exhaust emissions for new vehicles sold in EU member states. From specified dates onwards, vehicle manufacturers may only sell new vehicles that comply with these standards. An alternative set of standards, with

the required testing and certification, is not in place and it would be prohibitively expensive for TfL to establish one and create significant inconvenience for the public having to put their vehicles through this additional test.

2.2.8. For taxis and PHVs, requirements for Euro standards are already in place (Euro 4 for newly-licensed PHVs and Euro 5 for taxis). Taxis are projected to be responsible for 18 per cent of NO_x emissions, and 19 per cent of PM_{10} emissions in central London in 2020. This is due to their high mileage within this area and the diesel engines used. PHVs are a more diverse fleet in terms of vehicle type (essentially the same as private cars) and enter the zone much more infrequently than taxis. It is therefore considered appropriate to take a different approach to taxis and PHVs than that proposed for cars, and for the taxi and PHV proposals themselves to differ.

2.2.9. TfL's bus fleet is already the youngest of any major European or world city with an average age of six years. To meet the ULEZ standard, TfL would, from 2016, accelerate the introduction of low emission buses into its fleet (or implement a retrofit solution). Currently it is proposed that this standard would be met by ensuring that, in central London, all double deck buses would be hybrid and all single deck buses would be electric. These buses would also operate outside central London. The ULEZ standards for vehicles, including TfL buses, are contained within the VO, which also provides that taxis would be exempt from the charging scheme and that PHVs would need to comply with the ULEZ standards.

2.2.10. With regard to taxis and PHVs, the proposal was developed to build on existing policy and encourage a move to the lowest emitting vehicles in future: age limits and the ZEC requirement Age limits have already been successful in removing the oldest, most polluting taxis from London's roads and it was proposed to reduce the age limit from 15 to 10 years (which is the current limit of 10 years for PHVs, proposed to remain in place). For PHVs, it was proposed that all new vehicles presented for licensing (less than 18 months since the vehicle was first registered and licenced to drive on the public highway) from 1 January 2018 must be zero emission capable. For taxis, it was proposed that all newly licensed taxis must be ZEC from the same date (1 January 2018). These proposals would have applied to taxis and PHVs London wide, increasing the benefits of the ULEZ across London.

2.2.11. Most of the changes proposed in relation to taxis and PHVs would be implemented by means of a change to the licensing requirements (rather than a VO): the CoF for taxis and the Vehicle Regulations for PHVs. Nevertheless, the ULEZ (taken together with proposals for taxis and PHVs once these are confirmed or finalised) should be considered as a single overarching proposal with the objective of reducing air pollutant and CO_2 emissions from road transport, promoting sustainable travel and stimulating the low emission vehicle economy.

2.3. The ULEZ standards

2.5.1. The ULEZ will require all vehicles driving in central London to meet new exhaust emissions standards (ULEZ standards). These are proposed to reflect vehicle size, fuel and contribution to emissions on an individual basis.

2.5.2. It is proposed the ULEZ standards would be based on 'Euro standards', which are already used in the London wide LEZ. These are European standards that define the limits for exhaust emissions for new vehicles sold in EU member states. From specified dates onwards, vehicle manufacturers may only sell new vehicles that comply with these standards. Table 2 below sets out the proposed minimum Euro standards for different vehicle types and the mandatory date from which newly sold vehicles need to meet this standard.

2.5.3. As set out above, while all vehicles are responsible for air pollutant emissions, the contribution of an individual vehicle type depends on its engine type, age and vehicle mileage. For this reason, the Euro standards proposed differ to some extent by fuel type. Petrol engine vehicles have significantly lower air pollutant emissions (ie NO_x and PM) than diesel engines, as such Euro standards have been set at lower levels sooner for petrol engine vehicles than diesel engine vehicles. Therefore a later Euro standard has therefore been put forward for cars, large vans and minibuses which use diesel.

2.5.4. The proposed VO states that 'relevant' vehicles for the ULEZ standard are those which are 'a compression ignition vehicle or a positive ignition vehicle'[11], which pertains to diesel and petrol engines respectively. Where a vehicle is powered by an alternative fuel, such as LPG, this is normally an aftermarket conversion from a petrol engine and the engine uses a combination of petrol and LPG. For the purposes of ULEZ, then, it remains a petrol engine and needs to meet the Euro standard specified for that petrol vehicle type in order to drive in the zone without paying a charge.

2.5.5. Hybrid vehicles run on a combination of a conventional combustion engine (usually petrol) and an electric motor powered by a battery. Similarly, Plug-in Hybrid Electric Vehicles are powered by a conventional fuel and an electric motor (which can be topped up from the mains). These vehicles are subject to the ULEZ standards and, as for pure petrol or diesel engines, must comply with Euro standards. Pure Electric Vehicles do not have a conventional engine and are not subject to Euro emission standards and so are not subject to the ULEZ standards.

2.5.6. For heavy vehicles like HGVs, buses and coaches, diesel is almost always used (and currently there is a very limited range of alternative fuels available, unlike for smaller vehicles). Therefore there is no need to specify a petrol standard and it is appropriate to retain the most recent Euro standard (Euro VI), because these

[11] Positive ignition is sometimes referred to as spark ignition

vehicles are highly-polluting both on an individual basis and as a proportion of overall road transport emissions, owing to their diesel engines and high mileage in central London. This reflects the approach taken in the LEZ, which applies only to the heavy diesel vehicles.

Table 2: Proposed emissions standards and charges

Vehicle name	Vehicle type approval[12]	Description	Proposed emissions standard[13]	Date when manufacturers must sell new vehicles meeting the emissions standards[14]	Charge level if not compliant
Motorcycle, moped etc	L	Any motorcycle or moped, (tricycle or quadricycle).	Euro 3	From 1 July 2007	£12.50
Car and small van[15]	M1 N1 (i)	A passenger vehicle with no more than 8 seats in addition to the driver`s seat. A goods vehicle with weight when empty less than 1205 kg.	Euro 4 (petrol) Euro 6 (diesel)	From 1 January 2006 From 1 September 2015	£12.50
Large van and minibus	N1 (ii,iii) M2	Goods vehicle with a gross weight of 3.5 tonnes or less. Passenger vehicle with more than 8 passenger seats & gross vehicle weight of 5 tonnes or less.	Euro 4 (petrol) Euro 6 (diesel)	From 1 January 2007 From 1 September 2016	£12.50
HGV	N2, N3	Lorries and specialist vehicles of more than 3.5 tonnes gross vehicle weight	Euro VI	From 1 January 2014	£100
Bus/coach[16]	M3	Passenger vehicles with more than 8 passenger seats of more than 5 tonnes gross vehicle weight	Euro VI	From 1 January 2014	£100

[12] http://www.dft.gov.uk/vca/vehicletype/definition-of-vehicle-categories.asp
[13] Euro standards for heavy-duty diesel engines use Roman numerals and for light-duty vehicle standards use Arabic numerals.
[14] These are usually a year earlier for early adopters.
[15] Car-derived van
[16] Technically some New Routemasters are Euro V but perform close to Euro VI

Compliance rates and charge level

2.5.7. Before describing more about how the ULEZ standards will work, it is worth setting out that a relatively high level of compliance with these standards is expected *without action* by 2020. This means that most vehicle owners will not need to pay a charge or replace their vehicle. The intention of the ULEZ standards is to accelerate the uptake of compliant vehicles beyond what would occur without the ULEZ in place. The levels of compliance projected for 2020 vary by vehicle type.

2.5.8. By 2020, the oldest Euro VI HGV will be six years old, the oldest Euro 6 diesel car will be five years old and the oldest Euro 4 petrol car would be fourteen years old. Because of this, even without the ULEZ, it is estimated there will be a substantial number of Euro VI/6 (diesel) or Euro 4 (petrol) vehicles driven in central London – approximately 77 per cent of HGVs, 73 per cent of cars, 67 per cent of coaches and non-TfL buses and 44 per cent of vans driven on an average day in 2020 will be compliant and would not be charged under the ULEZ proposals.

2.5.9. For motorcycles, 87 per cent of these vehicles would be expected to be compliant by 2020 without the ULEZ (ie meet the Euro 3 standard). By 2020, these vehicles could be up to 13 years old. With the ULEZ in place, this compliance level is projected to rise to 95 per cent.

2.5.10. With a ULEZ in place it is expected that these proportions will increase as people upgrade their vehicles (or choose not to drive in central London). It is projected that 98 per cent of HGVs, 94 per cent of coaches, 93 per cent of cars and 83 per cent of vans on an average day will be compliant with the ULEZ. The remainder will be liable for the ULEZ charge.

Table 3: Expected compliance rates in terms of ULEZ emissions standards

Vehicle	% of vehicles compliant on an average day without ULEZ	% change in central London kilometres as a result of ULEZ	% of remaining vehicles compliant on an average day with ULEZ
Car	73%	-5%	93%
Van	44%	-5%	83%
HGV	77%	-2%	98%
Coach	67%	-4%	94%

2.5.11. The charge has also been set at two different levels: £12.50 and £100. This is based on the contribution to emissions of each vehicle type, the propensity to travel in the zone and the likely response of the vehicle owner/driver. For example, cars are not as polluting as HGVs or buses on an individual basis, but are much more numerous.

2.5.12. The Supplementary Information published as part of the consultation material (section 15.2) sets out the work TfL has carried out to determine the extent to which different groups will respond to a charge (and different charge levels), known as the 'behavioural response'. The options available are: stay and pay; upgrade a vehicle; not make a journey.

2.5.13. Responses for drivers of non-compliant vehicles (which, as set out above, are expected to be in the minority overall) were modelled. The cost per trip of buying a compliant vehicle was compared with the cost of making a trip in an existing, non-compliant vehicle (ie staying and paying the daily charge). The more frequently a user enters the ULEZ, the more frequently they become liable for the daily charge if they drive a non-compliant vehicle. Consequently, the more frequently a user enters the ULEZ, the more likely they are to buy a compliant vehicle to avoid this charge. Whilst frequent users of the zone make up a small proportion of total unique vehicles that enter the ULEZ over a period of a year, they contribute a large proportion of the distance driven on a given day (and thus emissions). This of course varies by vehicle type.

2.5.14. The decision on whether to incur the relative costs of paying a daily charge or upgrading a vehicle is dependent on the price elasticity of demand. This was calculated using values derived by TfL[17], and academic studies[18] , applied to each of the different vehicle types. This allowed an estimate to be made of the proportion of users who were likely to upgrade, pay or stop driving in the ULEZ during the period of enforcement.

2.5.15. Using this data, TfL modelled the expected response for different vehicle types to a high and low charge. Generally, a higher charge leads to a higher uptake of compliant vehicles but also a higher number of journeys not made, especially for car and van uses. For heavier vehicles, which are usually in commercial use and so have less choice about not making the trip, the response is more likely to be to upgrade the vehicle (if it is not already compliant).

2.5.16. The objective of the ULEZ is to reduce air pollutant emissions from road transport; it is not intended to reduce traffic per se. Therefore the desirable response is for users who are not compliant with the ULEZ standards to upgrade their vehicle. However it is appropriate to tailor the charge to the characteristics of different vehicle types. A lower charge for cars, vans and motorcycles recognises the relatively infrequent use of the zone for most of these users and the need to allow for some occasional trips in non-compliant vehicles. For those who make frequent trips, a vehicle upgrade will be more cost-effective.

[17] www.tfl.gov.uk/assets/downloads/demand-elasticities-for-car-trips-to-central-london.pdf https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/232294/hgv-charging-tax-information.pdf

[18] Graham, D. J., & Glaister, S. (2004). Road traffic demand elasticity estimates: a review. Transport reviews, 24(3), 261-274.

2.5.17. For heavier vehicles, a higher charge is appropriate because the cost of purchase of these vehicles is higher than for light vehicles and therefore a higher charge is needed in order to make the adoption of these vehicles a more favourable option. It is also more important to deter these vehicles, which are more polluting on an individual basis. Again, the relatively high compliance rates of HGVs and coaches, as shown in Table 3 above, should be borne in mind. The majority of drivers will not need to make the decision about whether to pay the charge or upgrade their vehicle since it will already be compliant in 2020.

2.5.18. The modelling has assumed that the options for the owner of a non-compliant vehicle are to upgrade the vehicle, pay the charge or not make the trip. The option of making changes to the existing vehicle, which is an option for compliance with the LEZ, for example – has not been included. Retrofit technology such as the fitting of a filter, can sometimes be used to enable older vehicles to meet Euro standards that were mandatory for newer vehicles.

2.5.19. Currently a mainstream retrofit solution to achieve the Euro VI emission standard does not exist. It is not expected to be developed for lighter vehicles such as cars, however, this is a fast-developing area and it is possible a solution may be found for heavier vehicles in the next few years. However any solution would be for heavier vehicles only and work only for Euro V vehicles. The proposed legislation for ULEZ allows for the possibility of retrofit and, subject to its development and emergence on the market, TfL would consider if it was an acceptable way to meet the ULEZ standards. In the future, and subject to its meeting these requirements, users could in principle then register their retrofitted vehicle with TfL and not have to pay the charge.

2.5.20. As set out in the section below, TfL will actively seek a retrofit solution for its Euro V hybrid buses to ensure compliance with the ULEZ standards. Should the ULEZ be confirmed, it could act as a stimulus to the development and production of retrofit solutions owing to the existence of a large and ready market.

2.6. TfL Buses

2.6.1. For private and commercial vehicles including buses, a charging scheme is the most appropriate way to encourage the use of lower emission vehicles in the ULEZ, because this enables TfL to influence purchasing and driving behaviour in this sector. The ULEZ standards set out in Table 2 above will apply to TfL buses as well as non-TfL buses, but it is intended that TfL will comply with the standards through its procurement programme (ie it will specify that only compliant vehicles are used in the zone in its operating procedures). The VO requires TfL buses to meet the ULEZ standard when operating in central London.

2.6.2. Although this report necessarily focuses on the ULEZ proposal, it is useful to also provide some context on TfL's overall approach to its London wide bus fleet.

Considerable work has already been done to reduce emissions from the fleet and this continues and applies to buses across the Capital, not just central London. Additionally, the further improvement to the fleet as a result of ULEZ will extend air quality to benefits beyond the zone.

2.6.3. TfL expects to continue to introduce new Euro VI vehicles in outer as well as central London as part of the normal and continuing fleet replacement. By 2016 there will be more than 1,700 hybrid buses in service on London's roads representing 20 per cent of the total bus fleet. TfL has also completed an extensive retrofit programme of over 1,000 older buses, with plans for a further 800 to be retrofitted. The retrofit programme involves fitting buses with an innovative system called Selective Catalytic Reduction (SCR), reducing emissions of harmful NO_x by up to 88 per cent. By 2020 nearly all buses in inner London will be hybrid.

2.6.4. Phase 5 of the LEZ commences from late 2015 and will apply exclusively to London's bus fleet, requiring them to meet Euro IV for NO_x. The fleet is well on its way to meeting this requirement, with 1,600 hybrid buses planned to be in operation by 2016. Additionally, TfL is trialling zero emission hydrogen and electric buses and, subject to developments in technology and infrastructure, these could be rolled out more widely in future.

2.6.5. Although the charging scheme and the bus standards will apply only in the central London zone, the benefits will be spread beyond this zone as cleaner vehicles are used for journeys that start or end outside this zone; relatively few routes run exclusively within central London as routes usually extend beyond this zone.

2.6.6. As set out above, the current approach to compliance with ULEZ is that all double deck buses would be Euro VI hybrid (diesel-electric) and all single deck buses would be electric in central London by 2020. TfL would begin to introduce these in larger numbers from 2016, although there are already a considerable number of these in operation. Electric single deck buses are already being trialled on shorter routes 507, 521 and H98 (the route must allow for battery recharging). Recently TfL announced that, from September 2015, route 312 would become London's first all-electric bus route. Currently there are no buses available which would uniformly meet all TfL's standards for longer routes; however this is a rapidly-developing area and TfL continues to look at developments in vehicle technology and charging. In the future, wireless charging may be an opportunity to introduce more electric vehicles, as may the inclusion of hydrogen fuel cells to allow longer range for electric vehicles.

2.6.7. A single deck hydrogen-powered bus is already in use on route 'RV1' and, should the costs and infrastructure be available, this might also be an option for the ULEZ. This is a rapidly-developing area of technology, and given that one of the aims of the ULEZ is to stimulate the low emission vehicle market so that a

diversity of vehicles are available at lower cost, it is quite likely that more options will be on offer over the next few years.

2.6.8. For older buses, a retrofit solution will be used to ensure compliance with the Euro VI standard, and TfL is working with manufacturers on the development of this equipment.

2.6.9. Recently TfL has introduced the New Routemaster (NRM) bus onto London's roads, and 600 are planned to be in service by 2016. The NRM has an advanced diesel-electric hybrid engine, much greater fuel efficiency and around half the CO_2 emissions and a quarter of the air pollutant emissions of a conventional bus.

2.6.10. Like some of TfL's other hybrid buses, some of the NRMs are Euro V, so would not meet the Euro VI standard specified for ULEZ. TfL will seek a retrofit solution for the non-NRM buses (of which there are around 400) in order to bring them up to Euro VI standard. For the NRMs, of which there are around 300, it is proposed that these would continue to operate in the zone without modification, because their NO_x emissions are much closer to Euro VI than that of a non-NRM Euro V bus and the cost of retrofitting (some £7m) could be used more effectively on the bus fleet as a whole. From 2015 all new NRMs in the TfL fleet will be Euro VI.

2.6.11. The Euro V NRMs are not exempted from the ULEZ. Instead, a Euro VI standard has been specified for all buses (TfL and non-TfL). The limit value for Euro VI is 0.46g/kwh for NO_x. This standard must be met in ULEZ for buses unless TfL is satisfied that the bus:

- uses an electric engine (ie is hybrid);
- meets Euro V emissions standards;
- emits less than 2.05 g/km of NO_x on MLTB[19]; and
- is used to provide a local bus service as defined (ie a TfL bus).

2.7. Taxis and PHVs

2.7.1. The proposals for taxis and PHVs were tailored to reflect the characteristics of each fleet, including the requirements to operate these vehicles, their propensity to drive in the zone and their contribution to air pollutant emissions. Taxis are projected to contribute 18 per cent of all NO_x emissions from road transport in 2020 and 19 per cent of PM_{10}. For PHVs, the contribution is projected to be 4 per cent and 5 per cent respectively.

2.7.2. There are only a few models of taxi available, which is a reflection of their licensing requirements, such as a minimum turning circle and accessibility, and all

[19] Millbrook London Transport Bus test cycle

models have relatively high-emitting diesel engines, which has led to a greater contribution to emissions from taxis. Unlike PHVs, taxis may ply for hire on the street, which contributes to their high mileage, particularly within central London. Additionally, taxis are obliged to pick up passengers who hail on-street; PHVs have more flexibility in how they plan journeys and many do not operate in central London.

2.7.3. Taxis are in general more expensive to buy than PHVs, at around £30,000 for a new vehicle. Several manufacturers are currently developing a ZEC model and it is envisaged that vehicles will be available to purchase from 2016. The purchase price of these ZEC models is not yet known but is likely to be greater than that of a conventional taxi, making it a significant outlay, even if running costs are lower.

2.7.4. There are around 22,000 taxis licensed in London and most drive within the proposed ULEZ on a regular basis. There are more than twice as many PHVs (53,000) licensed in London and many rarely or never enter the zone. There are approximately 1,400 taxis new to licensing every year and nearly all of these are newly manufactured. There are around ten times as many PHVs as taxis licensed for the first time each year (14,000) and unlike taxis, many of these are second hand and not newly-manufactured.

2.7.5. While there are requirements for licensing a PHV in London, the range of models available is much more diverse (in effect the fleet is similar to the private car fleet) and currently comprises around seventeen per cent hybrid models. However, it is important to note the number of specialist operators in the PHV sector providing chauffeur services and adapted vehicles, for example. It should also be noted that there are particular requirements for these vehicles in terms of models and that they will generally be more expensive than the typical saloon car used in most PHV services.

2.7.6. For both taxis and PHVs, the proposals were developed in order to encourage the uptake of the newest, zero emission vehicles while at the same time removing the oldest and most polluting vehicles from the fleet. From 2018 it was proposed to set a requirement that all taxis and new[20] PHVs presented for licensing from 1 January 2018 would need to be ZEC. For both taxis and PHVs, ZEC is defined as:

- Utilise plug-in / battery electric technology or equivalent to achieve a maximum output of 50g/km CO_2
- Achieve a minimum zero emission range of 30 miles to ensure capability of operating in the ULEZ for extended periods whilst in zero emission mode.

[20] No more than 18 months from the date the vehicle first registered and licensed for driving on the public highway.

2.7.7. As set out above, there are already models available for PHV licensing and ZEC taxis are in development. TfL has been working with several manufacturers to develop ZEC taxis, including Frazer-Nash, Karsan, London Taxi Company and Mercedes. TfL will continue to work with manufacturers on bringing these to market. It is expected that these will be range extended electric vehicles (ie using battery power to drive the vehicle but with a small ultra low emission petrol engine to charge the battery when absolutely necessary). The later models will have no constraints on battery range which will suit some drivers and passengers who need to travel greater distances than normal. TfL has proposed a minimum zero emission range of 30 miles for all of the new taxi models, which means they will have the capability to travel from Heathrow to central London with zero emissions.

2.7.8. In terms of removing the oldest and most polluting vehicles, it was proposed in the public consultation to reduce the taxi age limit from 15 to 10 years. This would apply to vehicles already licensed, and would apply London wide from January 2018. Age limits for PHVs and taxis were introduced from January 2012, following a commitment in the MAQS. The limits were introduced as a 15-year rolling age limit for taxis and a 10-year rolling age limit for PHVs. Additionally a requirement was implemented that from April 2012, all newly-licensed PHVs must meet Euro 4 standard for emissions and be no more than five years old; and newly-licensed taxis must meet Euro 5 emissions standard. These standards are still in place.

2.7.9. Separate to the ULEZ proposal, a recent change to the PHV licensing requirements (TPH Notice 17/14) has been made which removes the introductory 5-year age limit for new PHVs which are hybrid and emit less than 110g/km CO_2.

2.7.10. A reduction to the age limits has been proven to be an effective way to retire older vehicles. In 2012 alone, 2,300 older taxis were taken out of service due to the age limits[21]. A tightening of the taxi age limit by five years to a 10 year age limit is expected to almost halve the total NO_x from taxis (46 per cent reduction) and accelerate the introduction of ZEC taxis if coupled with a newly licensed requirement in 2018. Unlike the previous age limits, the proposed new 10 year age limit would apply to all taxis regardless of when they were licensed. For example a newly-manufactured taxi licensed in 2014 (under the existing 15-year age limit) could not be licensed from 2024. ZEC taxis would retain a 15 year age limit.

2.7.11. Taxis would be exempt from the ULEZ standard: requiring them to meet the Euro VI standard was considered in option development but has not been taken forward due to the magnitude of its impacts on the trade. Changes to licensing as outlined here are considered to be a better approach and to achieve a more balanced trade-off between emissions savings and compliance costs.

[21] Age limits for taxis in London were introduced from 1 January 2012

2.7.12. A ten year age limit is already in place for PHVs and it is not proposed to change this, given the relatively low proportion of vehicle mileage in the zone and small contribution to air pollutant emissions. Instead, and in conjunction with the introduction of the ZEC requirement from 2018, PHVs would be required to comply with the ULEZ standards in order to drive in the zone without charge from September 2020.

2.7.13. Table 4 summarises the proposals for taxis and PHVs which were put forward in the consultation.

Table 4: Summary of proposals for Taxis and PHVs

Year	Taxis	PHVs
2018	All newly licensed taxis from 1 January 2018 must be zero emissions capable ZEC taxi: Minimum zero emission range 30 miles. Maximum 50g/km CO_2. ZEC taxi to retain a 15 year age limit	All newly licensed new (newly manufactured) PHVs from 1 January 2018 must be zero emission capable. ZEC PHV: Minimum zero emission range 30 miles. Maximum 50g/km CO_2 Second hand newly licensed, PHVs must be not less than 18 months of age and meet ULEZ standards: Euro 4 petrol or Euro 6 diesel. Five year introductory age limit discontinued
2020	10 year age limit for all non zero emission taxis.	10 year age limit (no change)

2.7.14. The published taxi and PHV licensing proposals would apply London wide, reflecting both the existing operation of licensing for these vehicles and the relatively high mileage and emissions contribution of these vehicles. While PHVs that are not zero-emission capable would be required to comply with the ULEZ standards in order to drive in central London without paying a charge, they would not be required to meet these standards outside the zone.

2.7.15. It was intended that grants be made available for the purchase of ZECs, using money from the Government's Office for Low Emission Vehicles (OLEV). Additionally, TfL has made available an amount of money in the TfL business plan for a fund to help compensate taxi drivers affected by the reduced age limits.

2.8. Operation of the ULEZ

Enforcement

2.8.1. It is proposed the ULEZ standards would be enforced using the existing Automatic Number Plate Recognition (ANPR) cameras – both fixed and mobile – already installed within the ULEZ area, which are also used for CC enforcement. The cameras would capture the number plates of vehicles and check vehicle details against a database of vehicles that meet the requirement emission standards as well as vehicles that don't meet the required emissions standards but for which the daily charge had been paid.

2.8.2. If a vehicle did not meet the emissions standards and the daily charge had not been paid by the specified time, a Penalty Charge Notice (PCN) would be issued to the registered keeper of the vehicle. It is proposed this would be £1,000 (reduced to £500 if paid within 14 days) for heavy vehicles and £130 (reduced to £65 if paid within 14 days) for light vehicles (cars, vans, motorcycles and other L1[22] vehicles). Unpaid penalty charges would be recovered by TfL.

2.8.3. The ULEZ will apply to foreign-registered vehicles as well as UK vehicles. TfL has extensive experience of enforcing against these vehicles from operating both the CC and LEZ, and collection rates have improved significantly over the period since CC began in 2003. Its service provider for recovering penalty charges has established links with many non-UK Vehicle Licensing Agencies and the number continues to increase.

2.8.4. Should the Mayor confirm the implementation of ULEZ, TfL would undertake an extensive publicity campaign so that drivers and vehicle owners are aware of the ULEZ requirements and would be similar to that used to publicise the introduction of the LEZ and CC.

Payment

2.8.5. As already set out, it is projected that most vehicles will be compliant with the ULEZ in 2020 and therefore most drivers will not need to pay the daily charge. It is not the intention of the ULEZ to reduce traffic: rather the objective is to ensure that those vehicles driven in the zone comply with the standard in order to improve air quality in London. For the minority of drivers who do not have a compliant vehicle but continue to drive in the zone from September 2020, a charge will need to be paid unless a discount or exemption applies. In order to make the payment as simple as possible, and to manage the cost associated with their administration, TfL will incorporate the ULEZ into the existing CC payment system (which is also used for LEZ).

[22] http://www.dft.gov.uk/vca/vehicletype/definition-of-vehicle-categories.asp

2.8.6. Drivers using the CCZ can already register with TfL for CC AutoPay and be automatically billed for their use of the CCZ each month, with the added benefit of not needing to remember to pay the charge and so removing the risk of a PCN. For these drivers, the combination of Congestion and ULEZ charges would be automatically calculated and billed (this does not include any penalty charges for which a separate procedure exists).

2.8.7. For drivers who are not registered but are paying the CC, a daily ULEZ charge would automatically be added if applicable and itemised accordingly. Anyone who is not registered and is driving in the ULEZ would need to remember to pay the daily ULEZ charge if their vehicle is not compliant with the ULEZ standards (unless an exemption or discount applies).

2.8.8. For non-registered users, it is expected that the payment channels for the ULEZ daily charge will be in line with those available for the CC and include for example online payments and payments by phone. Options to pay a daily charge, a weekly charge and to pay next day would be available. Further information would be made available and publicised closer to the launch of the scheme.

Early and Late adopters

2.8.9. TfL would use its ANPR camera network to record the movements into, out of and within the ULEZ, as it does for the CCZ. The images captured by the camera of the Vehicle Registration Mark (VRM) are then checked to its database, to determine whether the vehicle is compliant, or if it is not compliant, if a daily charge had been paid. The database for GB-registered vehicles uses data from the DVLA, SMMT, VOSA and information supplied by vehicle owners. The data of vehicle manufacture, as explained in the consultation materials, is a good proxy for the Euro standard of the vehicle.

2.8.10. However, certain vehicles will comply with the Euro standards specified in the ULEZ before that Euro standard becomes mandatory (‘early adopters’). In the case of these vehicles, reliance on the date of manufacture may not by itself suffice for TfL to identify whether the vehicle is compliant or not. This issue also arose for the LEZ and has been largely addressed by having a process whereby owners of these vehicles can register their vehicle with TfL.

2.8.11. For vehicles manufactured since 2001, manufacturers have been required to provide the DVLA with the overall emissions standard of the vehicle when it is first registered. So by 2020, most vehicles on the road will have a recorded emissions standard that can be used by TfL to determine whether it is compliant with ULEZ or not. The date of manufacture will not be the sole determinant.

2.8.12. Conversely, a number of manufacturers, usually of smaller and/or specialist vehicles, have been permitted to produce vehicles meeting a certain Euro

standard past the mandatory date of the next Euro standard ('late adopters'). Again the DVLA data will mean that TfL should be able to identify these vehicles.

2.8.13. If the scheme is confirmed by the Mayor, TfL will, prior to its commencement in 2020, seek to identify both types of vehicles and record them on the enforcement database. Work is already underway with the DVLA to ensure that the appropriate data is available to TfL for enforcement of the scheme.

NO_x Retrofit

2.8.14. There is currently no retrofit solution to allow an earlier vehicle to comply with the Euro 6/VI standards. TfL is working with major manufacturers of emissions control systems to develop a retrofit system for use on Euro V TfL buses. This would take the form of an advanced Selective Catalytic Reduction (SCR) system linked with a Diesel Particulate Filter (DPF). This is currently under development and no working system is available, nor prototypes tested at this stage. The system is being developed for Euro V engines only, because these have On-Board Diagnostics and the facility to 'de-rate', or reduce the torque output of the engine should the SCR system malfunction. This does mean that integrating the retrofit with the existing vehicle poses a significant challenge.

2.8.15. Should development of a retrofit system be successful, it is hoped that the technology may be applied to a wider range of vehicles. Systems must be optimised for specific engine applications and potentially specific duty cycles too, so availability may be limited to the most popular types.

2.8.16. If a Euro VI retrofit solution becomes available, an accreditation scheme will be necessary to allow TfL to identify equipment which meets the specified emissions standards. A certification scheme will also be required to allow TfL to identify compliant vehicles. The accreditation and certification schemes should allow vehicle operators to prove that their vehicles meet the required emissions standards, and should also enable TfL to easily identify compliant vehicles. Since other cities may adopt similar measures, TfL's preferred option would be that these schemes should be organised on a national basis. These schemes could also be organised on a European or international basis, provided that the standards were linked to recognised emissions standards which could easily be tied back to those set by the scheme order.

2.8.17. Although not currently on the market, it is expected that, for some vehicles, a retrofit solution will be available by 2020, to enable older vehicles to meet the Euro VI standard for diesel. As set out earlier in this chapter, TfL is working with manufacturers on such a solution for its bus fleet and this is expected to help advance the retrofit market more generally.

2.9. ULEZ Implementation and operational costs

2.9.1. The net cost of the project up to and including the 2023/24 financial year (which is a 10 year period covering design development, implementation and the first four years of operation) is estimated at £343m which also includes a risk provision and is net of the income generated.

2.9.2. This includes a range of costs to TfL: development and implementation of the scheme; compliance costs for TfL's bus fleet, Dial-a-Ride and support fleets; and operational costs. The expected revenue from ULEZ has also been considered in this estimate.

2.9.3. The cost associated with taxi compensation and rapid charging infrastructure are under review and will be updated before changes to taxi and PHV licencing requirements are made.

2.9.4. TfL estimates that it would cost around £30m to develop and implement the ULEZ. TfL estimates that the annual average operating costs will be around £12m per year.

2.9.5. There is expected to be a reduction in CC revenue as a result of vehicles not compliant with the ULEZ standards not entering the CCZ, estimated at £4m in the first year and diminishing over time as compliance rates increase.

2.9.6. The ULEZ is not designed to raise revenue and has been formulated to ensure a very high rate of compliance. However, revenue in the region of £12m is expected in the first year of operation from charges for non-compliant vehicles. Again, this will diminish over time and is expected to fall to zero after 2025. Any income generated will be used to partly offset the costs of the project or used to further the objectives of the Mayor's Transport Strategy.

2.9.7. By law, revenue raised from road user charging schemes must be spent on furthering the aims of the MTS. In effect this means that any revenue from ULEZ is used to improve roads, public transport, facilities for cyclists and pedestrians in London, improve air quality and mitigate and adapt for climate change. Since the introduction of the CC, £1.2bn of revenue from that scheme has been invested in London's transport. Although ULEZ revenue would be much less significant, it would be used in a similar way.

2.10. The Congestion Charging Zone (CCZ) and the Low Emission Zone (LEZ)

2.10.1. The proposed ULEZ would, if approved by the Mayor, be implemented under the same road user charging powers as have been used to introduce and operate the CCZ and LEZ. The ULEZ is similar to both these schemes and it may be useful to briefly describe their operation and objectives in order to better understand the ULEZ proposal and how the schemes would interact. The ULEZ proposal

contains no changes to either LEZ or CCZ however it should be noted that both schemes are kept under review and modifications are made from time to time following public and stakeholder consultation. Recently TfL consulted on changes to the CC scheme including the ability to refuse payments from unofficial websites, to discontinue the text message payment channel and introduce an app payment facility.

2.10.2. The CCZ has been in operation since February 2003. The objective of the CC is to manage traffic congestion in central London by acting as a deterrent to driving in the area. The operation of the ULEZ would not affect the operation of the CC, which will continue to operate as usual in peak hours (Monday – Friday 07:00-18:00). The current daily CC is £11.50, and certain vehicles and drivers are eligible for a discount or exemption.

2.10.3. The LEZ has been in operation since 2008 (introduced in two phases, February and July, with further amendment phases subsequently). The objective of the LEZ is to improve air quality by reducing emissions from the heaviest and most polluting diesel vehicles. It applies to vans, minibuses, coaches and HGVs and, like the ULEZ, specifies emission standards (although in the case of the LEZ, these have so far pertained to PM, with a NO_x standard for buses from 2015). There are a very small number of exemptions to the LEZ scheme, and it is proposed that these would also apply for the ULEZ.

2.10.4. The LEZ covers most of Greater London and operates 24/7. Vehicles which do not meet the requirements must pay a daily charge which is set at a level which acts as a deterrent to these vehicles (£200 or £100, depending on the vehicle type). It has been very successful in reducing the number of the most-polluting vehicles in London with 99 per cent of HGVs, buses and coaches currently compliant and 97 per cent of larger vans and minibuses.

2.10.5. The ULEZ, the LEZ and the CCZ would operate in tandem, although as set out above the operating hours, vehicles affected and charge levels are not the same in each scheme, reflecting their different objectives. In principle a vehicle subject to all three schemes could be liable to pay charges for all three on a given day, if it was driven in central London during CC hours and did not comply with ULEZ and LEZ, and was not eligible for discounts or exemptions. However, instances of this are expected to be very rare, given the high current compliance with LEZ.

2.10.6. As already stated, it is proposed that the ULEZ would cover the same area of London as the CCZ. Like the LEZ, the ULEZ would seek to improve air quality in London by reducing air pollutant emissions from road vehicles and would operate 24 hours per day, 365 days per year in order to achieve the maximum improvement to air quality. Also, the ULEZ would base its emissions standards on ‘Euro standards’ in the same way as the LEZ (although the actual requirements would be different).

2.11. Future of the ULEZ

2.11.1. While the standards set out in Section 2.3 above constitute the current proposal for these vehicles in 2020, it is possible that, as low emission vehicle technology and markets develop, a further strengthening of the ULEZ standards could be proposed at a later date. The Mayor is considering the introduction of a tighter ZEC standard from 2025. This could achieve further emissions reductions, position London as a leader in this field and support the UK in this rapidly developing economic sector.

2.11.2. Any such change would be subject to statutory processes including another public and stakeholder consultation and it will be informed by an appraisal of compliance costs, availability of vehicles on the market and the air quality impacts.

2.11.3. The approach for taxis, PHVs and TfL buses proposed in the consultation for 2020 is set out in Sections 2.6 and 2.7 above, and includes a ZEC requirement from 2018. This was considered right for these vehicles owing to their contribution to emissions and the current and expected availability of suitable vehicles. Government support to help owners and drivers will nevertheless be critical.

2.11.4. TfL also considered the potential for a ZEC standard for cars and other light vehicles in its development of the ULEZ proposal. In light of the availability of vehicles, their cost and the current barriers to widespread adoption, there was no proposal to include a ZEC requirement for every vehicle at this time. Instead, taxis, PHVs and TfL buses are proposed to help lead on this requirement.

2.11.5. However, the Mayor has stated his ambition to achieve a step-change in the uptake of electric vehicles in London and, if the ULEZ is approved by the Mayor, TfL would monitor its impacts and could consult on ZEC standards in the future, potentially for implementation from 2025. This would be the subject of an additional, separate VO consultation.

2.11.6. The consultation questionnaire invited respondents' views on a potential expansion of the ULEZ and a strengthening of standards in the future. An analysis of responses to this matter is given later in this report.

3. Supporting the ULEZ

3.1. Introduction

3.1.1. The consultation materials, in particular the Supplementary Information document, set out in brief how the ULEZ proposal would be supported. It may be useful to set out here some further information about this, some of which has emerged during the consultation period. This includes material relating to the funding of the proposal, the supporting infrastructure and the supporting policies in place or proposed.

3.1.2. The ULEZ is a wide-ranging and ambitious scheme, and, to achieve optimal effect, must fit with other policies and developments in London and the UK. In the consultation responses, many respondents asked for information regarding the themes in this chapter. This is set out in detail here and is referenced in response to specific issues in the analysis of themes set out in Chapter 10.

3.2. TfL Funding

3.2.1. Funding of £327m has been allocated in the 2014 TfL Business Plan. £40m of this is reserved for taxi driver/owner financial assistance, which means £287m is available to cover the implementation and operational costs associated with the Scheme Order. TfL is confident that the funding gap of £56m will be met securing OLEV funding and additional funding as opportunities arise.

3.2.2. An additional £10m was included in the Government's National Infrastructure Plan, announced in the Autumn Statement, to support the implementation of ULEZ. This is additional to information about funding provided in the consultation materials and is new in winter 2014. This could be put toward the funding gap, highlighted above, or be used to help fund the implementation of rapid charging infrastructure, although this is not yet decided.

3.3. Office for Low Emission Vehicles (OLEV) funding

3.3.1. In the Autumn Statement 2014, the Chancellor announced Government support for the uptake of low and ultra low emission vehicles (ULEVs) in the UK, including a national pot of £500m to drive the uptake of Ultra Low Emission Vehicles (ULEVs), which will be administered by the Government’s OLEV. This is in addition to £10m to specifically support ULEZ. TfL and the GLA continue to lobby OLEV for funding to be allocated directly to London to support ULEZ. However, TfL and the GLA will also work with relevant stakeholders to bid for funding from the various pots that the £500m is divided into, which are listed below:

- **£20m taxis** (including PHVs. For infrastructure and top-up to plug-in grant for drivers)
- **£35m city schemes** (eg cost of implementing a LEZ)
- **£30m buses** (eg electric buses)
- **£32m** rapid charging
- £31m vans
- £4m HGV gas infrastructure
- £200m plug-in vehicle grant (operated by OLEV to directly reduce premiums if ULEVs)
- £100m research and development
- **£48m unallocated**

3.3.2. The pots that could help support ULEZ, either directly or indirectly are shown in bold above, including £48m which is yet to be allocated by OLEV. These funds are UK wide and TfL, in partnership with the relevant stakeholders, must bid against the rest of the UK, and this bidding process is taking place during 2015.

Charging infrastructure

3.3.3. TfL will publish a Delivery Plan for Ultra Low Emission Vehicles in summer 2015 to further enable and encourage the uptake of ULEVs. This document aims to tackle the remaining barriers to the uptake of ULEVs, and will set out the actions that will help accelerate the normalisation of ULEVs.

3.3.4. It will outline a deployment strategy for rapid charging in London. This will set out TfL's preferred model for delivery, specify the type and extent of charging infrastructure that will need to be in place to support the uptake of different types of ULEVs and outline when this will need to be in place to deliver the ULEZ proposals, particularly the requirements for ZEC taxis and PHVs.

3.3.5. TfL recognises that additional charging infrastructure will be required to support the proposed requirements for ZEC taxis and PHVs in London. The current Source London charging network comprises mainly 3kW and 7kW charge points. These charge points are publicly accessible and are capable of delivering a full charge of an average electric vehicle in four to eight hours. Whilst Source London provides a vital service to London's electric vehicle drivers, this speed of charging will not always be sufficient to support the use of electric vehicles in commercial fleets with intensive duty cycles, such as taxis, private hire, freight delivery and servicing fleets and car clubs. As rapid charge points have the ability to charge a vehicle battery in as little as 20-30 minutes, they can significantly improve the viability of including electric vehicles in commercial fleets.

3.3.6. Both TfL and the Government recognise that the initial installation of a rapid charging network will require significant capital investment, particularly where there is a need to also upgrade or provide added resilience in the existing distribution network. TfL will be bidding for funding for a rapid charging network through OLEV's £32m fund for the installation of new charging infrastructure across the UK. As well as public sector sources of funding, consideration will be given to attracting investment in charging infrastructure from the private sector.

3.4. Financial support for taxi owners and operators

3.4.1. TfL has reserved £40m in its Business Plan to support the delivery of the proposed taxi requirements. In developing the ULEZ proposal, TfL undertook a preliminary analysis of the associated costs of changes to taxi licensing policy, based on an understanding of likely driver response, vehicle cost and other factors.

3.4.2. TfL has commissioned Cambridge Economic Policy Associates (CEPA) to advise TfL on its proposals for a taxi compensation scheme. They are conducting an independent review of the current taxi vehicle market in London and will estimate how this may change as a result of the proposals for taxis and PHVs put forward in the ULEZ consultation.

3.4.3. This study is required to provide assurance to the industry, and was originally envisaged to help design a compensation scheme to assist the drivers most affected by the change in the existing rolling age limit. Although it is now not recommended that the proposals be implemented at this time, this work is still important for the policy review which has been recommended.

3.4.4. Since appointment, CEPA has engaged with TfL and the taxi trade group (taxi trade associations, taxi vehicle manufacturers, and the taxi fleet owners), reviewed TfL's preliminary analysis and conducted further research and analysis.

3.4.5. CEPA's interim outputs have built on previous analysis and set out a view of the London taxi market today and how it might change as a result of the proposed policies in particular looking at the sensitivity of the total funding required to different depreciation profiles. These initial findings have formed the inputs for the London taxi model CEPA is currently developing.

3.4.6. TfL's original £40m estimate may increase in light of the work CEPA are carrying out. This in part due to consideration of the taxi trade's consultation response where it was argued that all vehicles affected by the age limit should receive compensation, not just those that will be removed from the fleet in the first year. This work would be encompassed within the further consultation and engagement work which is recommended for the taxi and PHV proposals.

3.5. TfL's approach to road transport and emissions

3.5.1. TfL's overall approach to the road network is informed by the need to develop the transport capacity that sustains growth while also ensuring that we have attractive streets and places, and manage the environmental impacts of road traffic effectively. This approach was set out in TfL's response to the Roads Task Force Report (2013)[23] and is summarised here.

3.5.2. London's road network is the backbone of our transport system, supporting 80 per cent of passenger journeys and more than 90 per cent of freight movements in the Capital. London's population continues to grow and is set to increase to 10 million by 2030, bringing with it the need for 400,000 new homes, and more jobs and business developments such as the Royal Docks and the Vauxhall Nine Elms Battersea development areas. Without action, our road network will be blighted by more congestion, worsening reliability and a declining environmental and safety performance.

3.5.3. This will mean both better managing the existing network and in certain circumstances it will entail adding new, replacement or enhanced road space. This has to be understood in the wider context of added public transport capacity such as the Tube upgrade and Crossrail and massively enhanced cycling capacity through the addition of new Cycle Superhighways.

3.5.4. Through TfL's £4bn Roads Modernisation Plan we are investing now to support London's growth and to meet the other challenges ahead. In some cases this means new schemes to tackle congestion and to ensure that the city can keep moving; in other cases it is about ensuring we create the environment and opportunities for sustainable travel and the public spaces that contribute to a high-quality of life: a city where people want to live.

3.5.5. There is also a need for strategic measures to tackle congestion and pollution, for example. The ULEZ will encourage the use of cleaner vehicles on London's roads and thus contribute to achieving the Mayor's vision of a competitive and sustainable Capital.

[23] http://www.tfl.gov.uk/corporate/about-tfl/how-we-work/planning-for-the-future/roads-task-force#on-this-page-1

4. Air Quality in London

4.1. Introduction

4.1.1. The principal objective of the ULEZ is to improve London's air quality and this chapter provides some more information on how it would achieve this and how other measures will work alongside the policy. This chapter begins with a description of the two pollutants of concern and the legal requirements set for air pollutants. It then sets out how the ULEZ is projected to impact on air quality and human health.

4.1.2. A key part of the ULEZ proposal is the Euro 6/VI standard for diesel vehicles; this standard, and Euro standards in general, have been criticised for failing to perform as expected. TfL has commissioned its own research into this which is summarised here. This chapter concludes with a brief description of other measures which are or could be used to improve London's air quality.

4.1.3. London's air quality has improved significantly in recent years and is now considered compliant for all but one air pollutant for which the European Union has set legal limits. This pollutant is nitrogen dioxide (NO_2), which has impacts on public health. An equivalent of 4,300 deaths in London is attributed to air quality related illness. The Capital also faces challenging targets to mitigate the effects of climate change.

4.1.4. This means further action is needed to reduce air pollutant and carbon dioxide (CO_2) emissions from transport to improve quality of life and public health. In recognition of this, the Mayor and TfL have developed a proposal for an ULEZ in central London.

4.1.5. The health impacts of the two pollutants of concern in London are listed below[24].

- **Nitrogen dioxide (NO_2):** At high concentrations, NO_2 causes inflammation of the airways. Long-term exposure is associated with an increase in symptoms of bronchitis in asthmatic children and reduced lung function growth.
- **Particulate matter (PM):** Long term exposure to particulate matter contributes to the risk of developing cardiovascular and respiratory diseases, as well as of lung cancer. Research shows that particles with a diameter of ten microns and smaller (PM_{10}) are likely to be inhaled deep into the respiratory tract. The health impacts of $PM_{2.5}$ are especially significant as smaller particles can penetrate even deeper.

[24] http://www.who.int/mediacentre/factsheets/fs313/en/

4.2. EU limits and infraction proceedings

4.2.1. To protect human health the EU Ambient Air Quality Directive (2008/50/EC) and Directive 2004/107/EC set legal limits (called 'limit values') for concentrations of pollutants in outdoor air, which have been transposed into English law by the Air Quality (Standards) Regulations 2010 (see Table 5).

Table 5: Legal limits for pollutants of most concern in London[25]

Pollutant	**Concentration** (limit value)	**Averaging period**	**Legal nature**	**Permitted exceedance each year**	**Compliance assessment for 2012 in Greater London****
Fine particles ($PM_{2.5}$) *	25 µg/m^3	1 year	Target value entered into force 1.1.2010 Limit value enters into force 1.1.2015	n/a	Compliant
PM_{10}	50 µg/m^3	24 hours	Limit value entered into force 1.1.2005 (time extension granted to June 2011)	35	Compliant***
	40 µg/m^3	1 year	Limit value entered into force 1.1.2005	n/a	Compliant
Nitrogen dioxide (NO_2)	200 µg/m^3	1 hour	Limit value entered into force 1.1.2010	18	Not compliant
	40 µg/m^3	1 year	Limit value entered into force 1.1.2010	n/a	Not compliant

*

A tighter average exposure obligation of 20µg/m3 averaged over 3 years comes into force in 2015 as well as an exposure reduction target in 2020. These are both calculated across the UK as a whole.

** *Defra reports on compliance to the European Commission on behalf of the UK, in accordance with the Air Quality Directive. The most recent compliance assessment is for 2012*

*** *Following the subtraction of natural sources in accordance with the directive*

4.2.2. London is currently compliant with all EU limit values except those for NO_2. Although Defra has reported compliance with particulate matter (PM) limits for 2013, and most non-reportable sites also falling below the limit value, PM is still considered a problem in terms of impact on human health, particularly for smaller particles which are not currently subject to limit values. There is no 'safe' level of

[25]Taken from http://ec.europa.eu/environment/air/quality/standards.htm

fine particulate matter, as even low concentrations have an impact on human health.

4.2.3. Any member state which is in breach of the EU air quality directives can be infracted by the European Commission (EU) and fined. These fines can be substantial, potentially in the order of hundreds of millions of pounds, although actual figure is not known. All arms of the State are under a common legal duty to take such measures as are within their competence to bring the breach of the Air Quality Directive to an end as soon as possible.

4.2.4. The UK has 43 Zones for assessing air quality and reporting compliance for a number of targets to the EU, each of which includes more than one local authority. 'The Greater London Area' is one of these zones.

4.2.5. Although the date for compliance with the NO_2 air quality limits was 1 January 2010, member states were allowed to apply to a time extension of 5 years, if they submitted air quality plans to show what measures were being taken to achieve compliance by that extended date. In September 2011, Defra and the devolved administrations submitted updated air quality plans for the achievement of the NO_2 limits in the UK as soon as possible. The submitted air quality plan for London took account of past, present and future measures, including those in the MAQS (published 2010).

4.2.6. These air quality plans formed the basis of Defra's projections for compliance with EU NO_2 limit values, which have recently been updated. These latest projections show that 5 of 43 zones will be compliant by 2015, 15 zones by 2020, 38 by 2025 and 40 out of 43 by 2030. London, along with Birmingham and Leeds, are the three locations that are not expected to be compliant until after 2030, at least twenty years after the EU deadline for compliance (1 January 2010). For this reason Defra did not seek a formal time extension to 2015.

4.2.7. Defra's projections do not take account of any possible uncommitted actions, such as ULEZ. Given enough time, the UK would be expected to become compliant due to the 'natural' turnover of the vehicle fleet, as older vehicles are replaced by newer and cleaner vehicles, assuming that air pollution from other sources continues to reduce, such as from domestic heating. The ULEZ proposal for central London is considered essential action by the Mayor and TfL to contribute towards bringing forward the date of London's compliance so as to help minimise the public health impacts of high NO_2 levels and as a step change towards ensuring the Capital complies with limit values as soon as possible.

4.2.8. The UK's non-compliance with NO_2 limit values was the subject of a case heard by the Supreme Court in 2013, brought by the campaign group ClientEarth against the Secretary of State for Defra. The Court declared that the UK was in breach of the Air Quality Directive and held that the Government should have

sought a time extension for compliance to 2015, notwithstanding compliance by that date was unachievable.

4.2.9. In light of this, the EC started infraction proceedings against the UK Government in February 2014 when it issued a Letter of Formal Notice. These legal proceedings are likely to take several years to come to a conclusion. The Government has responded to the Commission and its response is awaited.

4.2.10. By 2020, air quality in London is expected to have improved. Emissions of NO_x, PM and $PM_{2.5}$ from all sources are projected to decrease owing to technological advances in vehicle design as well as policies and legislation already in place to reduce emissions across London, the UK and Europe. Specifically, the roll out of a new emission standard for vehicles (ie Euro 6/VI) is anticipated to be more successful at reducing pollutants in urban driving conditions than previous Euro standards. Although it is expected that PM emissions will remain within legal limits, levels of NO_2 will continue to exceed legal limits in some areas of London, even with the ULEZ in place in central London.

4.2.11. The proportion of London's area where annual average NO_2 concentrations exceed the legal limit is also expected to greatly reduce with the inclusion of ULEZ in 2020. However modelling indicates that, if nothing further is done, concentrations will continue to exceed limit values in central and inner London, and in the vicinity of Heathrow airport, construction sites and near major roads in outer London.

4.3. Projected impacts of ULEZ on air quality and health (as presented in consultation)

4.3.1. The impacts presented here (which are the same as in the consultation materials) relate to the entire ULEZ package as consulted on, including proposals for taxis and PHVs, and so it follows that the impacts of the proposals as a whole, including those on air quality, will be reduced if any part of the package were not to be implemented.

4.3.2. Based on current calculations, the ULEZ proposal as specified above would deliver a 51 per cent reduction in NO_x emissions, a 64 per cent reduction in PM_{10} exhaust emissions and a 15 per cent reduction in CO_2 emissions from road transport in the ULEZ in 2020[26]. However, it is recommended that the taxi and PHV proposals are not confirmed at this time and if this is approved, the level of emission reduction achieved would be diminished. Without the taxi age limits in place, for NOx this would fall to a 42 per cent reduction in emissions in central London, compared to the 51 per cent stated in the consultation materials. Not

[26] These are the latest emissions calculations following analysis by King's College London

having the ZEC requirements for taxis and PHVs would have a further reduction in impact, albeit negligible in scale.

4.3.3. Emission reductions from the ULEZ proposal will take London well towards meeting legal limits for NO_2. With the ULEZ proposal in place as it was consulted on, the number of people living with levels of NO_2 that exceed legal limits would reduce by 74 per cent in central London. There will also be a positive impact on concentrations of PM_{10} and $PM_{2.5}$. Further reductions will be brought about once the proposals for taxis and PHVs are finalised and implemented. However, the ULEZ by itself would not ensure that London achieves compliance with the limit values for NO_x.

Table 6: Proportion of population living in areas of NO_2 exceedance in 2020[27]

Area	Estimated population in 2020	Proportion of population living in areas of NO_2 exceedance in 2020	
		Without ULEZ	With ULEZ
ULEZ	195,877	63%	16%
Inner London	3,408,410	13%	6%
Outer London	5,523,280	2%	1%
Greater London	9,127,567	7%	1%

4.4. Real-world testing of Euro 6/VI diesel vehicles

4.4.1. The Euro standards are a range of successively tightening emissions limits for petrol, gas and diesel engines. The Euro VI standard is the emissions standard proposed for diesel engines in the ULEZ.

4.4.2. European Regulation UN ECE 595/2009 introduces the Euro VI standard for heavy duty diesel engines. It reduces the limit for NO_x emissions by 77 per cent, compared with Euro V, whilst continuing to set demanding limits for control of particulates and other gases. In addition, the test protocol has been changed to broaden the range of speed/load conditions over which the engine must meet the emissions limits.

4.4.3. The Euro 6 standard for emissions from light duty cars and vans was defined in UN ECE Regulation 715/2007. The main focus is further NO_x reduction. For diesel cars at Euro 6, compared with Euro 5b, the NO_x limit reduces by 55 per cent from 0.18g/km to 0.08g/km, whilst the other legislated emissions remain unchanged from Euro 5b. For petrol cars, all emissions limits are the same as for

[27] If the ULEZ proposals in full were implemented

Euro 5, except for the introduction of a particle number limit, in line with that of diesel engines. For larger vans (N1 class II and N1 class III), the diesel engine NO_x limit is similarly decreased by fifty five per cent.

4.4.4. There have been concerns raised Europe-wide about the effectiveness of Euro 5/V and its real-world performance and a failure to reduce NO_x emissions from vehicles in service, compared to previous Euro standards. This is largely a failing of the regulated test cycles to simulate real world operating characteristics and the prevalence of so called, 'off-cycle emissions'. It seems likely that this situation will be effectively addressed by Euro 6/VI. This is important for ULEZ, given that Euro 6/VI is the specified diesel emissions standard.

4.4.5. TfL has commissioned a programme of emissions testing, carried out by Millbrook, to assess the effectiveness of the new Euro VI standard for heavy duty engines and the forthcoming Euro 6 standard for light duty vehicles.

4.4.6. The testing utilises the TfL suite of drive cycles, which are bespoke for London roads and therefore provide a 'real-world' test to verify, or otherwise, the performance of heavy duty engines and light duty vehicles type-approved using the existing procedures.

4.4.7. In determining the 'success' of Euro 6/VI it is important to note that comparison of 'real-world' emissions test results with the type approval limits is of limited value. What is important to ensure reducing emissions from vehicles is improvement over vehicles of earlier Euro standards in on-highway driving.

4.4.8. TfL has a suite of drive cycles developed to enable London urban driving conditions to be replicated in the test laboratory and these are being used to assess the emissions from a range of vehicles chosen to represent the broad range of vehicle types currently in-service. The data collected in this way allows a direct comparison with tests carried out on similar vehicles of earlier Euro standards. The specific area of interest is NO_x emissions and more particularly, as they apply to vehicles circulating on London streets. The list below reveals the vehicle types included in the TfL test programme. One example from each market sector was tested.

Passenger cars:-

- Compact
- Supermini
- Small family
- Hybrid Saloon - Gasoline
- Hybrid Saloon - Plug-in hybrid
- Family saloon/MPV
- Prestige saloon/sports
- SUV/4X4

Goods vehicles:-

- Light commercial vehicle - N1 class III - Diesel - 3500 kg GVW
- Heavy Goods Vehicle - N3 - 2 axle rigid - Diesel - 18000 kg GVW
- Heavy Goods Vehicle - N3 - 6 axle artic - Diesel - 40,000 kg GVW

4.4.9. For each of the passenger cars, emissions tests were completed using the Transport for London Urban, Suburban and Motorway drive cycles, from a warm start. For the goods vehicles, the Suburban drive cycle was used, but in both unladen and laden condition. Emissions were sampled over the entirety of the drive cycle and on a second-by-second (1 Hz) basis, allowing detailed analysis to be carried out. Average speeds for the urban and suburban cycles are noted in

4.4.10. Table 7 below.

Table 7: Average speeds for the urban and suburban drive cycles

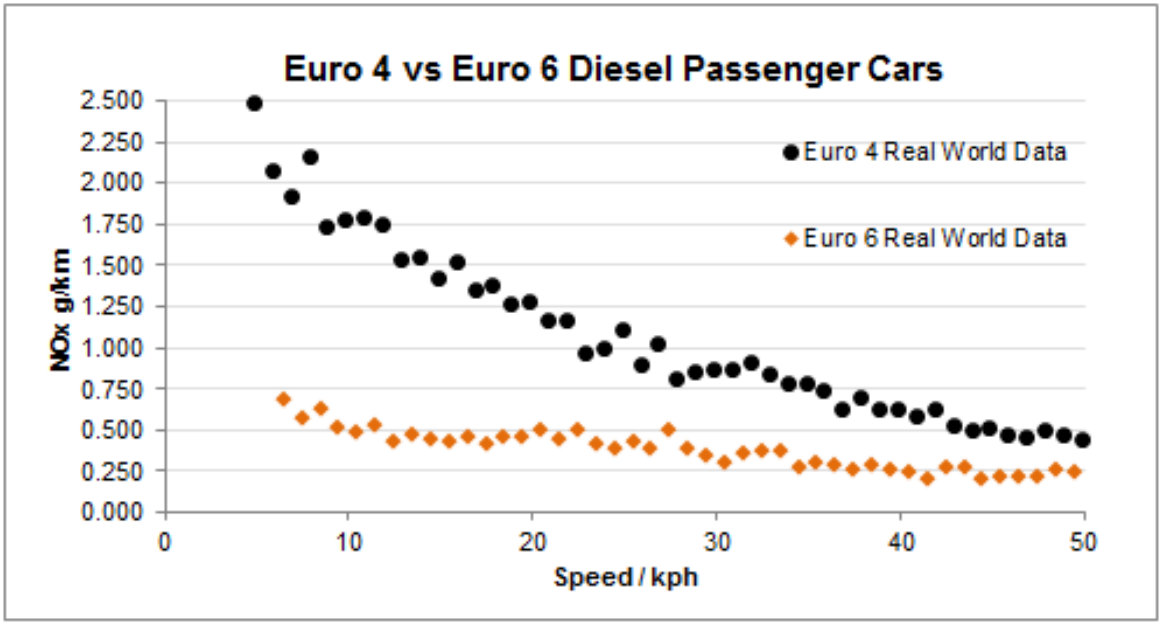
	Urban Free Flow	Urban AM Peak	Urban Inter Peak	Suburban Free Flow	Suburban AM Peak	Suburban Inter Peak
Cycle average speed	26.7	15.7	13.9	49.3	25.3	30.2

4.4.11. Urban Inter Peak average speed (13.9kph) is close to the CCZ average speed of 14.5kph.

4.4.12. The vehicle emissions have been measured on a second-by second basis allowing for the emissions to be plotted and compared at a range of speeds. From the passenger cars tested, the emissions of three diesel cars of each Euro standard have been averaged for each 1kph speed increment. This allows the data to be compared with similar data collected previously for Euro 4 cars.

4.4.13. Figure 4 below shows the comparison between average emissions at speed for Euro 4 versus Euro 6 diesel passenger cars tested over the TfL cycles. (The comparator is Euro 4 because this is the data that TfL has to hand from earlier testing). These indicate that the NO_x emissions are substantially reduced at Euro 6. At 14.5kph, the average speed of traffic in the CCZ, NO_x emissions are reduced by 50 per cent. This illustrates a substantial reduction in emissions of NO_x from diesel passenger cars.

Figure 4: Euro 4 vs Euro 6 Diesel Passenger Cars



4.4.14. For the HGVs, the emissions have been plotted in 5kph speed increments allowing comparison with earlier data measured over the same drive cycles for Euro V vehicles. The vehicles chosen represent some of the most common HGV vehicles in use, an 18 tonne two-axle rigid truck and a 40 tonne 6-axle articulated truck. In both cases the results shown are for a fully laden vehicle, demonstrating emissions measured under the conditions that the HGV might be used. The charts illustrate a significant reduction in emissions from Euro V to Euro VI. At 14.5kph, the average speed of traffic in the CCZ, the 18 tonne truck demonstrated a 99 per cent reduction in emissions of NO_x. The 40 tonne vehicle produced a 68 per cent reduction in NO_x compared with the equivalent vehicle at Euro V.

Figure 5: Euro V Rigid 18t Lorry 100% Load

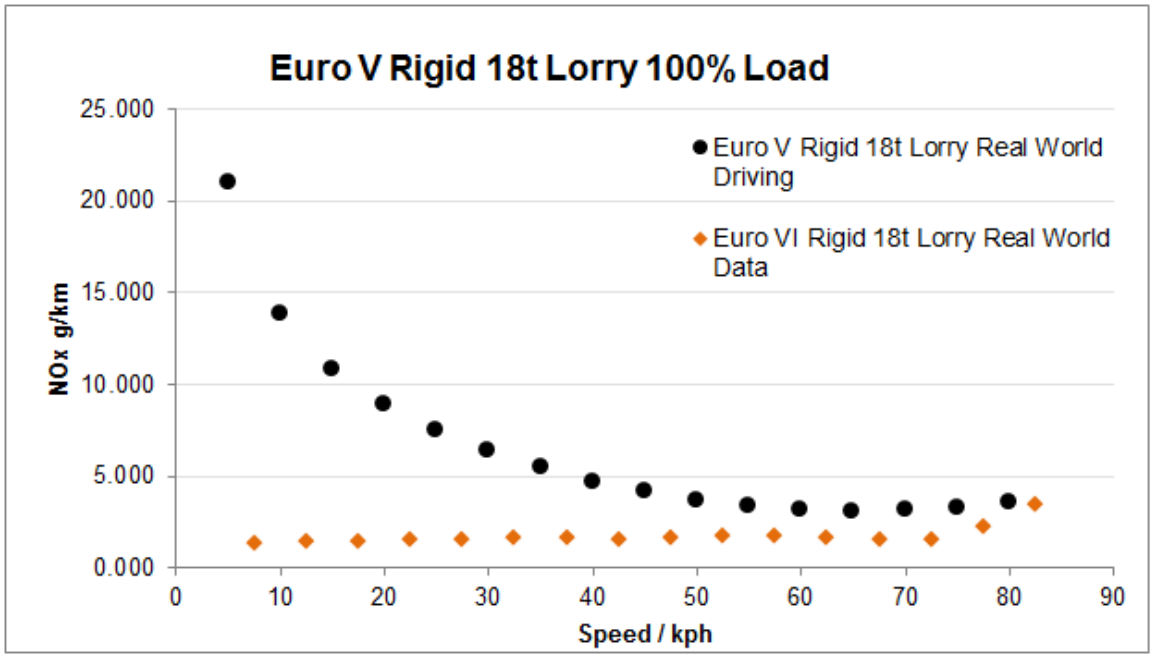
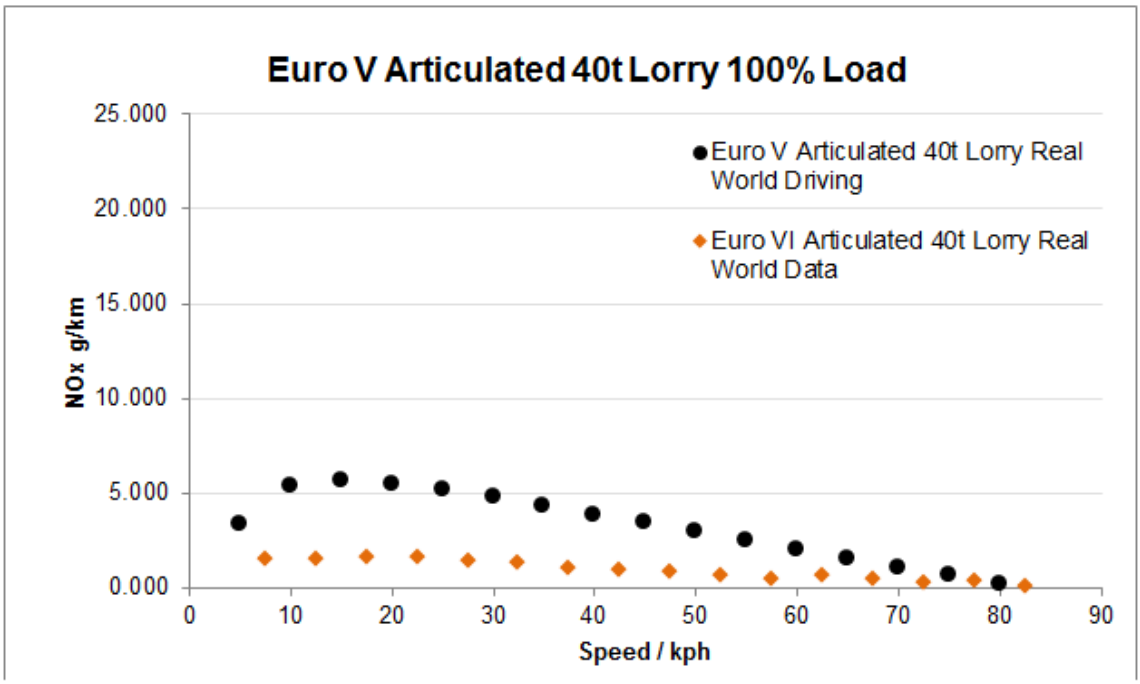


Figure 6: Euro V Articulated 40t Lorry 100% Load



4.4.15. Separately, TfL conducts testing of all new models of bus prior to them entering service, using the London bus test cycle (MLTB). Under these conditions the NO_x emissions of a Euro VI double-deck bus have been found to be 98 per cent lower than those of an equivalent Euro V bus (down from 9g/km to 0.2g/km). This indicates, significantly, that Euro VI buses will have NO_x emissions in line with new diesel passenger cars.

4.4.16. In conclusion, the Euro 6/VI testing commissioned by TfL demonstrates that there are worthwhile emissions savings from the Euro 6/VI standard across a range of vehicles in a typical London driving environment, albeit that these do not always meet the type-approval limits under these operating conditions. For the most part, gasoline powered vehicles surpass the requirements of Euro 6 over the London drive cycles.

4.5. Other initiatives to tackle air pollution from transport in London

4.5.1. Road transport is a significant contributor to overall NO_x and PM_{10} emissions in London (see Chapter 1) but the majority of emissions come from other sources: principally non-domestic gas use for NO_x and resuspension (settled PM that becomes airborne through wind or turbulence caused by vehicle movements) for PM_{10}. Road transport is a relatively small contributor to overall CO_2 emissions, the bulk of which come from domestic and commercial energy use. This means that the ULEZ cannot by itself be the solution for London's emissions challenges.

4.5.2. Initiatives to reduce transport emissions focus on four main areas set out in the CCMES and MAQS and developed in TERM. These are: encouraging a shift towards walking, cycling and public transport; encouraging more efficient use of existing vehicles and technology; encouraging the development and uptake of low emission vehicles and technology; and measures to tackle local air quality hotspots

4.5.3. There are several ongoing programmes that have benefits in reducing emissions. The Tube upgrades, Crossrail and the Mayor's cycling vision all help to support alternatives to private vehicle usage. As part of the Tube upgrades TfL is introducing regenerative braking technology to improve the energy efficiency of the network and are also developing plans for Greenwich power station which will help to provide carbon efficient electricity for the transport network. The modernisation of the bus fleet throughout London is ongoing and will be accelerated by ULEZ and London is developing and expanding its electric charging network to encourage the uptake of low emission vehicles. The Mayor's air quality fund offers funding for boroughs to projects to tackle air pollution in local hotspot areas.

4.5.4. There are a series of programmes to tackle non-transport emissions, including a massive retrofit programme of homes (RE:FIT) and public buildings (RE:NEW) to tackle CO_2 emissions and implementing Supplementary Planning Guidance to set minimum standards for Non-road mobile machinery (NRMM) to tackle air pollutant emissions from this source.

4.5.5. TERM proposes several further actions to reduce transport emissions including: tightening the standards for the Londonwide LEZ; introducing a system of pay as you drive road user charging; accelerating the London-wide uptake of low

emission vehicles; and introducing Low Emission Neighbourhoods. These proposals are currently unfunded and in need of further development, although work is ongoing to take them forward. TfL is working with stakeholders to develop a freight strategy that will include measures to reduce freight emissions. A delivery plan for ULEVs is also being developed that will outline how TfL will encourage the uptake of alternatively fuelled low emission vehicles in the near future.

4.5.6. Whilst London can and is taking significant action to reduce emissions, Government and EU action is required to tackle the issue. Specific measures that are identified in TERM include: modifying the VED and company car tax structure to reduce the financial incentives for diesel vehicles; introducing a scrappage scheme for older, more polluting diesel vehicles; providing clearer information to consumers around the air pollutants emitted from vehicles; ensuring that the new test cycle for vehicles is robust and properly reflects real world driving conditions; setting standards for manufacturers to reduce vehicle tyre and brake wear emissions; developing a national infrastructure for alternative fuels, including upgrades to the electricity grid where required and providing adequate funding for the introduction of local measures to reduce emissions.

5. Impacts of the ULEZ proposal

5.1. Introduction

5.1.1. In developing ULEZ TfL modelled the projected impacts for 2020 in terms of air quality and health of different options, as set out in Chapter 3. This assessment was used to inform the decision on what options should be taken forward for consultation. In addition, where changes to the proposals are being put forward subsequent to the consultation, an impacts assessment has been undertaken on these changes where appropriate (see section 5.8).

5.1.2. In addition, and once a preferred option had been identified, TfL also commissioned Jacobs Consulting to undertake an Integrated Impact Assessment (IIA) of the ULEZ proposals. This IIA had four component assessments in relation to the environment, health, equality, and economic and business. IIA objectives and criteria from the MTS were used to develop the topics and objectives which were in turn used for assessing the impacts of the ULEZ proposals on each of the four categories noted above. In producing these assessments, Jacobs used the projected impacts on air quality and health produced by TfL.

5.1.3. In structuring the assessment, Jacobs began with the objectives used in the IIA of the MTS[28], however these were re-framed in order to make for a clearer assessment. The topics considered for each assessment, and their associated objectives, are set out in Table 8 below.

5.1.4. A scoping report was prepared prior to the undertaking of the full assessment, and stakeholders were given the opportunity to comment. Further stakeholder engagement took place at the workshops held to inform each assessment, and details of these are given in the IIA. A small number of topics – water, for example, were scoped out of the assessment given that there would be no impact from the proposal.

5.1.5. It should be noted that the IIA relates to the entire ULEZ package as consulted on, including proposals for taxis and PHVs, and so it follows that the impacts of the proposals as a whole, including those on air quality, will be reduced if any part of the package were not to be implemented.

Table 8: IIA Topics and Objectives

Assessment	IIA Topic	IIA Objective
EA	Air quality	To contribute to a reduction in air pollutant emissions and compliance with EU limit values

[28] www.london.gov.uk/sites/default/files/MTS%20IIA.pdf

Assessment	IIA Topic	IIA Objective
	Noise	To reduce disturbance from general traffic noise
	Climate change	To reduce CO_2 emissions and contribute to the mitigation of climate change
	Biodiversity including flora and fauna	To protect and enhance the natural environment, including biodiversity, flora and fauna
	Cultural heritage	To protect and enhance historic, archaeological and socio-cultural environment
	Water	To protect and enhance river spaces and waterways through planning and operation
	Material resources and waste	To promote more sustainable resource use and waste management
	Landscape, townscape and urban realm	To protect and enhance the built environment and streetscape
HIA	Health and well being	To contribute to enhanced health and wellbeing for all within London
EqIA	Population and equality	To enhance equality and social inclusion
EBIA	London's economic competitiveness	Provide an environment which will help to attract and retain internationally mobile businesses
	SMEs	Support the growth and creation of SMEs

5.2. Health Impact Assessment

5.2.1. As part of the IIA completed by Jacobs, a Health Impact Assessment was carried out with the impacts assessed in relation to the objective 'to contribute to enhanced health and wellbeing for all within London.' The assessment assessed the extent to which the ULEZ would achieve this objective while having regard to the following six topics:

- air quality;
- noise and neighbourhood amenity;
- active travel;
- crime reduction and community safety;
- social cohesion and lifetime neighbourhoods; and
- climate change.

5.2.2. The outcome of the assessment showed that health benefits resulting from air quality improvements from the ULEZ are the most notable in contributing to enhanced health and wellbeing for all within London. ULEZ would also result in improvements to noise and neighbourhood safety, active travel and climate change. Impacts on crime reduction and community safety as well as social cohesion and lifetime neighbourhoods are less notable.

5.2.3. In addition to positive benefits from air quality small positive impacts on health in relation to noise would result from the ULEZ. Specifically, a reduction in noise and vibration annoyance and disruption for some receptors and communities (where overall road traffic noise along some roads decreases as a result of increased usage of low and zero emission vehicles, initially in central London).

5.2.4. ULEZ would also contribute towards the promotion of active travel by providing a less polluted urban environment. For those entering the ULEZ who do not have a compliant vehicle, the ULEZ may also deter them from entering the zone or result in a modal shift to greener transport modes such as buses, tubes, trains or cycling. Small improvements in road safety as a result of increased newer vehicles on the road may also help to promote active travel.

5.3. Environmental Assessment

5.3.1. As part of the IIA, an Environmental Assessment was also undertaken where the following objectives were used in assessing the ULEZ proposals:

Table 9: ULEZ Environmental Assessment Objectives

IIA Topic	IIA Objective
Air quality	To contribute to a reduction in air pollutant emissions and compliance with EU limit values.
Noise	To reduce disturbance from general traffic noise.
Climate change	To reduce CO_2 emissions and contribute to the mitigation of climate change
Biodiversity including flora and fauna	To protect and enhance the natural environment, including biodiversity, flora and fauna
Cultural heritage	To protect and enhance the historic, archaeological and sociocultural environment
Material resources and waste	To promote more sustainable resource use and waste management
Landscape, townscape and urban realm	To protect and enhance the built environment and streetscape

5.3.2. The outcome of the assessment showed that the following benefits and impacts would be expected as a result of the ULEZ:

Table 10: ULEZ Environmental Assessment Outcomes

IIA Topic	Outcomes
Air quality	• Improvements in central London, dissipating towards

	outer London. • A substantial number of relevant receptors would no longer be exposed to exceedances of the NO_2 objective as a result of the ULEZ, and to a lesser extent $PM_{10.}$
Noise	• Positive impact on road traffic noise through facilitating transition towards zero and low emission vehicles. Such vehicles are generally quieter and give off less vibration than conventional petroleum based engines.
Climate change	• Direct reductions in CO_2 emissions resulting from the ULEZ would be positive and would be achieved through increased uptake of low and zero emission vehicles and greater compliance with more recent and stringent Euro standards. • Indirect reductions through increased use of other transport modes such as public and non-motorised transport.
Biodiversity including flora and fauna	• Likely to have a positive impact on nature conservation sites across London through reductions of NO_x emissions. • Reductions in NO_x emissions could have positive impacts on a variety of habitats and nature conservation sites in London, particularly woodland, grassland, heathland and wetland habitats.
Cultural heritage	• Likely to have positive impacts upon cultural heritage features in London through reductions in NO_x emissions, which can cause acid rain, and reductions in PM_{10} which can cause soiling and discolouration of historic buildings.
Material resources and waste	• The introduction of a new fleet of low and zero emission vehicles as part of the ULEZ may have environmental impacts in terms of the fuel, electricity and material components required to manufacture them. • Environmental impacts may also result from replacement of the existing vehicle fleets, which would comprise a combination of hazardous and non-hazardous materials.
Landscape, townscape and urban realm	• Where new infrastructure, such as low and zero emission vehicle charging/ fuelling facilities are required to support the ULEZ, this could have a negative impact on London's streetscape. • The magnitude of the impact would depend on the technology used, its design and the number of locations at which infrastructure needs to be provided.

5.4. Equalities Assessment

5.4.1. The Equalities Impact Assessment (EqIA) undertaken as part of the IIA identified and assessed potential positive and negative impacts of the published ULEZ proposals on the following equality groups.

- age;
- disability;
- sex;
- race;
- pregnancy and maternity;
- gender reassignment;
- religion or belief;
- sexual orientation; and
- socio-economically deprived.

5.4.2. The assessment addressed the IIA topic 'population and equality' and the extent to which the proposed ULEZ works towards the associated objective 'to enhance equality and social inclusion'. For the purposes of conducting the EqIA this was broken down into the following two sub-objectives:

- to ensure no protected and disadvantaged residents of London receive disproportionate or differential adverse impacts from traffic, emissions and noise as a result of the scheme; and

- to give all users and potential users equal opportunity to access the London transport system and sustainable transport choices.

5.4.3. With regards to the first sub-objective, the assessment found that any changes in daily traffic flows caused by the ULEZ (whether increases or decreases) are likely to be extremely minor and will not lead to any additional severance of community groups and will not impact negatively on social cohesion or on road safety for equalities groups.

5.4.4. The introduction of the ULEZ is considered to positively impact all socioeconomic groups in London in terms of air quality. Most notable, it will have a minor long term beneficial impact on deprived communities and a long term beneficial impact on school age children, older people and pregnant women. A substantial number of sensitive properties including schools, care homes and hospitals would not be exposed to exceedances of the NO_2 air quality objective as a result of the ULEZ.

5.4.5. Regarding the second sub-objective, the assessment has found that there are a small number of potential impacts on particular groups within London's diverse population, which is summarised in the following table:

Table 11: Summary of potential impacts on equality groups (by mode of travel)

Mode	Other buses and coaches	Taxis/ PHVs	LGVs	Cars/ motorcycles
Age	Increased cost of access to recreation/ services (elderly)	Disproportionate impact on older (60+) taxi drivers		
Disability	Provision of charitable services to elderly	Reduced access if lower number of accessible taxis/PHVs		Potential increase in ability for disabled people who are currently Blue Badge holders to find alternative modes of accessible transport to central London
Gender		Perceived reduction in personal safety for females if fewer taxis		
Race		Potential disproportionate impact on BAME PHV drivers who operate in central London	Potential disproportionate impact on BAME owned SMEs in retail sector in central and inner London	
Pregnancy and maternity				
Religion or belief	Increased cost of access to worship (specific groups) by coach/minibus			
Sexual orientation		Perceived reduction in personal safety if fewer taxis Differential and,		

Mode	Other buses and coaches	Taxis/ PHVs	LGVs	Cars/ motorcycles
		in specific locations, disproportionate impact		
Socio-economically deprived	Potential increase cost of school trips to central London Increased cost of access to central London for leisure/services (charitable services)			Increased cost of car travel to 'out of hours' work

5.5. Economic and Business Impact Assessment

5.5.1. The following objectives were used in undertaking the Economic and Business Impact Assessment of the published ULEZ proposals as part of the IIA:

Table 12: ULEZ Economic and Business Impact Assessment Objectives

IIA Topic	IIA Objective
London's economic competitiveness	Provide an environment that will help to attract and retain internationally mobile businesses
Small and Medium Sized Enterprises (SMEs)	Support the growth and creation of SMEs

5.5.2. The assessment against these two objectives has been undertaken by vehicle type by examining the impact that the proposed ULEZ may have on vehicle use, on relevant economic sectors and on SMEs.

Table 13: Scope of the Economic and Business Impact Assessment

IIA Topic	Within Scope	Out of Scope
London's economic competitiveness	Those sectors within the proposed ULEZ that have a significant dependence on road transport such as construction, retail and the evening economy	Most sectors of the economy such as financial and business services which have little dependency on road transport to operate successfully
Small and Medium Sized Enterprises (SMEs)	SMEs providing niche services that are dependent on road transport	SMEs in sectors such as financial and business services that have little dependency on road transport to operate successfully

5.5.3. The assessment estimated that the total cost to businesses of either complying with the proposed ULEZ or paying the charge is expected to be up to £250m in the first year, but will diminish over time as the proportion of vehicles becoming compliant increases.

5.5.4. The estimated costs will be around 0.03-0.08 per cent of the annual value of London's economy (approximately £300bn). Some of the cost of compliance (eg vehicle replacement and retrofitting) will be spent within London, so it is not a total loss to the London economy. Some operators potentially impacted by the proposed ULEZ are also not based in London, so the net impact on London's economy will be less than this figure. In addition, operators that purchase new vehicles should experience reduced operating and maintenance costs. In future years, the cost will fall as a higher proportion of vehicles become compliant, so that by 2025 the cost will reduce to virtually zero, with the exception of LGV operators.

5.5.5. If the ULEZ proposal was implemented as it was consulted on (ie including taxi and PHV changes), the improved health outcomes arising from the reduction in NO_x, PM_{10} and $PM_{2.5}$ under the ULEZ for the GLA area are estimated to have a total monetised benefit of £101m in 2020 and £32m in 2025. In addition to this, improved air quality will also make central London a more pleasant place to work, live and visit. The impact on visitor numbers of this benefit cannot be quantified, but it is notable that Beijing (albeit with far greater problems than London) reported last year a significant decline in tourist numbers due to poor air quality and shows that air quality is a factor for people deciding which locations to visit.

5.5.6. The main negative impact is anticipated to be on the night-time economy, where a potential impact of £20m or one to two per cent of turnover is possible, due to a proportion of owners of non-compliant cars being deterred from travelling into the proposed ULEZ. In addition, there will be a possible loss to the tourist sector of around £15m and there is a risk that some marginal commuter coach services may be lost.

5.5.7. There may be impacts on SMEs in particular sectors. These will be felt by SMEs that use older LGVs (eg independent retailers, catering outlets, market stall holders), coach operators, and parts of the tourism sector that are used by coach parties.

HGVs

5.5.8. As there may be an impact on SMEs it is recommended that TfL works with representatives of SMEs in the freight industry in order to identify potential measures which could help to mitigate anticipated impacts.

LGVs

5.5.9. According to the assessment, LGVs will be one of the most affected by the proposed ULEZ, due to the relatively small proportion of vehicles that will be compliant without further investment by operators. There may also be considerable impacts on some SMEs across a range of sectors. To reduce these impacts, there are a number of possible mitigation factors that could be applied. For example, TfL could examine the feasibility of establishing consolidation centres on the edge of the proposed ULEZ with goods being transferred to low emission vehicles for onward movement into the ULEZ.

5.5.10. As mitigation, TfL could also work with SME representatives in those sectors of the economy that will most likely be impacted in order to identify potential measures which could help to mitigate anticipated impacts.

5.5.11. More generally, the assessment recommended that TfL should work with government to identify and assess ways, possibly including financial incentives, to assist with speeding up the replacement of older more polluting vehicles. For example, TfL could support more initiatives like Plugged in Fleets Initiatives (PiFi) which provided consultancy advice to businesses on switching to low emission electric or PHEVs.

Cars

5.5.12. A similar scale of impact to that on the night-time economy is anticipated on SMEs (potential impact of £20m or one to two per cent of turnover). The impact will reduce as the proportion of compliant cars rises. Owners who need to replace vehicles to become compliant with ULEZ proposals are able to access the plug-in car and van grants from the OLEV. This is a grant of 25 per cent towards the cost of the vehicle, up to a maximum of £5,000, when purchasing a qualifying ultra-low emission car and registering it for the first time in the UK. The report noted that the OLEV low emission purchase grants for cars and vans are only guaranteed until 2020 and OLEV have reserved the option to review the car grant value in 2017 or once 50,000 cars have been sold, whichever comes sooner.

5.5.13. However, the report identified recent and imminent significant improvements to public transport provision in London as mitigation to any negative impacts from ULEZ. This includes the ongoing improvements to the coverage and frequency of night bus services and later London underground services will also help to offset this impact.

Coaches

5.5.14. No impact is anticipated on long distance scheduled services. However, a proportion of local commuter services, sight-seeing vehicles and tourist coaches will not be compliant.

5.5.15. The report stated that it may be appropriate for TfL to examine ways of working with the Government to provide financial assistance to operators of commuter coaches to replace non-compliant vehicles with compliant vehicles. This may be cheaper than providing additional capacity on the rail network to cope with displaced passengers.

Taxis

5.5.16. As set out in more detail in Chapter 11, it is recommended that TfL undertake further consultation and engagement with regard to the proposals for taxis and PHVs. The implementation date for these proposals, and the exact detail of the changes, are therefore not necessarily as consulted on. However, it is still considered useful to set out here the assessment undertaken of the proposals which were published to inform this further consideration.

5.5.17. Should a reduction in the taxi age limit be taken forward as a result of ULEZ, TfL could establish a specific fund for drivers of older taxis to help them switch to newer vehicles. Additional work would be undertaken to develop the exact details of the administration of the scheme prior to 2018, however, it is anticipated that grants would be offered to eligible taxi owners and that the proposed scheme would be phased from 2018 to smooth the impact of a reduced age limit in 2020. TfL has commissioned independent expert advice to develop the scheme further alongside discussions with the taxi trade.

PHVs

5.5.18. As set out in more detail in Chapter 11, it is recommended that TfL undertake a policy review of the proposals for taxis and PHVs set out in the published ULEZ proposals. The implementation date for these proposals, and the exact detail of the changes, are therefore not necessarily as consulted on. However, it is still considered useful to set out here the assessment undertaken of the proposals which were published to inform the further consideration.

5.5.19. The majority of minicab trips do not enter the proposed ULEZ and large fleet operators may have some flexibility in moving vehicles around, although as most drivers are self-employed, there may be earning implications for individuals. Therefore, while there will be an impact on individual drivers, the impact on the availability of minicabs in central London would be minor and hence no impact on SMEs.

5.5.20. Other PHV operators, in particular tour guides and those who operate contracts for local authorities, may use different types of vehicles to those commonly used for minicab purposes given the nature of the work they do and new vehicles that are compliant with the requirements for newly licensed PHVs may not be available in 2018 or may be too expensive for some PHV operators and drivers.

The likely scale of impact on these operators is unable to be determined with the data available, but any impact is expected to be minor.

5.5.21. PHV operators and drivers who need to replace vehicles to become compliant with ULEZ proposals are able to access the plug-in car and van grants from the OLEV.

5.6. Mitigation and Enhancement

5.6.1. TfL is already proactively seeking ways to mitigate potential impacts of ULEZ (in addition to those mitigation measures they have already committed to and that were embedded into the assessment of the ULEZ), these include:

- investment in public transport, walking and cycling infrastructure including (but not limited to) increasing the coverage and frequency of night bus services, 24 hour London underground services on some lines and promoting a cycling revolution;
- utilising existing CCZ infrastructure (eg cameras and signs);
- promotion of the grant from the OLEV which provides a financial incentive for businesses with a UK address that need to replace vehicles to become compliant with ULEZ proposals; and
- promotion of the Mayor's Air Quality Fund which provides for local boroughs to apply to become Cleaner Air Boroughs and use funding towards delivering innovative air quality improvement projects.

5.6.2. Jacobs' assessment also recommended that TfL should engage in early and proactive communication of the ULEZ.

5.7. Recommendations for enhancement

5.7.1. Jacobs' assessment also stated that TfL should also consider the following as ways to enhance the benefits of the published ULEZ proposals:

- investigate the potential expansion of ULEZ / raising of ULEZ standards in the future (ie post 2025). This could result in further air quality benefits;
- investigate and adopt recycling options for vehicle components from replaced existing fleets and encourage private vehicle owners to do the same;
- for TfL vehicles, utilise existing facilities for disassembling batteries and recovering valuable materials such as cobalt and copper;
- examine ways of providing financial assistance at a national level for small businesses to replace non-compliant vehicles with compliant vehicles; and

- lobby for an extension of the existing OLEV grant should it expire. While guaranteed until 2020, OLEV has reserved the option to review the car grant value in 2017 or once 50,000 cars have been sold, whichever comes sooner.

5.8. Update to the IIA

5.8.1. In addition to the IIA reports commissioned to inform the public consultation described in the previous sections, TfL commissioned further work on the potential impacts of changes to the proposal which are recommended. Firstly it was determined whether the changes could potentially have any impacts on the areas under study (health, equalities, economic and business and environmental); only changes which were identified as having a potential impact were then taken forward for a full assessment.

5.8.2. The changes assessed are as follows:

- Proposed change to the historic vehicle definition from 1 Jan 1973 to 'historic' vehicle tax class (this changes to 1 Jan 1975 from April 2015 but will change in the future as/when the Government decides)
- Three year sunset period for vehicles adapted for disability needs according to vehicle tax class ('disabled' and/or 'disabled passenger vehicles')

As before, Jacobs was commissioned to carry out the independent assessment. The result of the assessment is set out in

5.8.3. Table 14 below (the historic vehicles exemption is listed as Change 1, the disabled exemption as Change 2). In summary, both of the changes cause a lessening of adverse impacts on equality. For the change related to the introduction of the disabled exemption, this results in the removal of an impact identified in the earlier IIA (on the original proposals). The impact which has been removed is that ULEZ could make it more difficult for disabled persons to find alternative modes of transport into central London. There are no changes to the air quality or health impacts of ULEZ as a result of the changes.

Table 14: Summary of impacts from the Updated IIA

Relevant impacts identified in the IIA (October 2014)	Scale of original impact	Relevant change assessed (no.)	Change to impact scale of impact
Air quality and health impacts			
Air quality improvements in nitrogen dioxide (NO_2) concentrations in 2020 and 2025	Major positive long term	1	No change
Air quality improvements in particulate matter ($PM_{2.5}$) concentrations and PM_{10} emissions in 2020 and 2025	Minor positive long term	1	No change
Reduction in the number of people living in areas above NO_2 annual limit value in 2020 and 2025	Major positive long term	1	No change
Reduction in the number of care homes, hospitals and schools in areas exceeding the NO_2 Air Quality Objectives (AQOs) across London (greatest in central London)	Major positive long term	1	No change
Equality impacts			
It may be more difficult for disabled persons to find alternative modes of accessible transport to central London.	Minor short-medium term	2	Removed
ULEZ may result in a reduction in supply of fully accessible taxis / adapted PHV.	Minor short-medium term	2	Reduced impact
Increased cost of access to central London by minibus may have differential impact on those groups reliant on charitable or voluntary services (e.g. disabled, older people, faith groups).	Minor short-medium term	2	Reduced impact

6. The consultation process

6.1. Introduction

6.1.1. This chapter provides an overview of the consultation, as well as a description of the actions and communication methods employed to promote the consultation itself and elicit views from the public and stakeholders about the proposals.

6.1.2. The primary objective of the consultation process is to understand the views of the public and stakeholders concerning the proposals. This report sets out the feedback from the consultation process which aims to inform the Mayor's decision making process.

6.1.3. The previous Mayor issued statutory guidance to TfL detailing consultation practice, entitled 'Guidance from the Mayor of London on charging schemes pursuant to schedule 23 of the Greater London Authority Act 1999'. This guidance informed the consultation strategy in advance of implementation.

6.1.4. The consultation sought views on the proposed changes to the LEZ scheme set out in the VO and on changes to the CoF for taxis and Vehicle Regulations for PHVs.

6.2. Consultation dates

6.2.1. The consultation commenced on Monday 27 October 2014 and closed on Friday 9 January 2015.

6.3. Publicising the consultation

6.3.1. A marketing campaign was developed to raise awareness of the consultation and encourage customers to have their say. Adverts were featured in a variety of London media titles including Evening Standard, Metro and City AM, trade press and digital channels.

6.3.2. A notice was also published in the London Gazette.

6.3.3. A press release was issued on 26 October (embargoed until 6am 27 October) to announce the start of the consultation. A further press release was issued on 30 December, reminding people of their opportunity to comment on the proposals. The consultation received media coverage from a number of outlets including: national print coverage in The Times, Metro and Evening Standard; local coverage in the Islington Gazette, Richmond and Twickenham Times and Hackney Gazette; web coverage on ITV News, BBC News, Air Quality News, and various industry specific sites; and broadcast coverage on BBC London, BBC 1, LBC and CNBC.

6.3.4. Social media activity included tweets that were sent from the @TfL Twitter feed throughout the consultation period.

6.3.5. Detailed information about the scheme, supporting documents and an online questionnaire was available on TfL's consultation portal website at tfl.gov.uk/ultra-low-emission-zone and this was signposted with banners throughout the TfL website. An information leaflet and questionnaire was available on request by phoning the TfL customer service line.

6.3.6. A radio advertisement notifying listeners of the ULEZ proposal and directing them to the TfL website was broadcast from the third week of the consultation period until the closing date.

6.4. Stakeholder communications and meetings

6.4.1. TfL engaged with stakeholders both in developing the proposals (prior to consultation) and during the consultation itself. In addition, stakeholder workshops were held to inform the drafting of the Impact Assessments (details are given within the assessment documents).

6.4.2. The Mayor first announced his intention to develop the ULEZ in central London on 13 February 2013[29]. In November that year, TfL organised the first stakeholder workshop to discuss the level of ambition set out by the Mayor. This event was attended by 30 stakeholder organisations.

6.4.3. A further event was held in March 2014 to present the emerging proposals and provide an opportunity for stakeholders to informally discuss them with TfL officers. This event was attended by approximately 75 stakeholder organisations. During the period between the first stakeholder event and the launch of the consultation, TfL met with many stakeholders to inform the development of the proposal.

6.4.4. A stakeholder breakfast briefing was held on 25 November 2014 as part of the consultation and was attended by over 60 stakeholder organisations. TfL gave a general overview of the ULEZ proposals and also provided an opportunity to ask questions about the scheme.

6.4.5. The public consultation was supplemented by further engagement with stakeholder organisations, as set out in Appendices F and I. This was to ensure that stakeholders were well briefed about the potential timetable for the proposed changes, to understand their issues and concerns, and to encourage participation in the consultation.

[29] www.london.gov.uk/media/mayor-press-releases/2013/02/mayor-of-london-announces-game-changer-for-air-quality-in-the

6.4.6. TfL identified key stakeholder organisations including the 33 London boroughs (including the City of London Corporation), London Councils, the Metropolitan Police Authority, business representative organisations, freight and haulage representative organisations, transport and environment representative organisations, government departments including the Environment Agency and non-departmental bodies, trade and professional associations and London TravelWatch, London Assembly members and organisations representing the local community and voluntary sectors.

6.4.7. On the consultation launch date, TfL emailed over 700 stakeholder contacts with a summary of the proposals and a link to TfL's consultation portal (see Appendix C)

6.4.8. This email also invited stakeholders to attend the breakfast briefing on 25 November to hear more about the proposal.

6.4.9. TfL also offered face-to-face meetings to a small number of stakeholder organisations in order to provide a further opportunity to explain our proposals in detail.

6.4.10. London boroughs were reminded twice by email towards the close of the consultation of their opportunity to respond.

6.5. Letters and emails

6.5.1. In addition to the stakeholder engagement outlined above, customised letters were sent to residents of the Congestion Charging zone (irrespective of whether they are currently registered for the CC Residents' Discount).

6.5.2. Letters were also sent to taxi and PHV owners, drivers and operators using the mailing list maintained by Taxi and Private Hire in TfL. TfL rented the use of a list of motorcyclists and emailed a total of 7,628 people from this list.

6.6. Targeted communications to registered Congestion Charge and other TfL customers

6.6.1. On the consultation launch date, TfL sent an email to relevant registered Congestion Charging scheme customers using a customer relationship management system. Around 492,000 customers were emailed, as shown in Table 15 below. A reminder email was sent at the start of the last week of the consultation which also included an email to registered Barclays Cycle Hire customers.

Table 15: Number of consultation emails sent to each Congestion Charging scheme customer registration type

Customer type	Customers contacted Nov 2014	Customers contacted Jan 2015
ULEZ to generic CC customers	380,586	470,306
ULED customers	691	-
Blue Badge	61,099	-
Fleets	10, 036	-
Residents' Discount	14,299	-
LEZ registrations	14,834	-
CC Exemptions (non-ULED)	3,208	-
Rented list – motorcyclists	7,628	-
Registered Cyclists (non- Barclays Cycle Hire)	-	439,419
Barclays Cycle Hire Customers	-	5,555
	492,381	**915, 280**

6.6.2. The email included a click-through link to the consultation portal where customers could share their views via the online questionnaire.

6.7. TfL website

6.7.1. TfL raised awareness of the consultation by placing banners in a number of prime areas of its website, including the TfL main home page (www.tfl.gov.uk). The click-through link sent customers to the consultation portal and an opportunity for the public to provide their views.

6.8. The consultation portal

6.8.1. The TfL online consultation portal (www.tfl.gov.uk/ultra-low-emission-zone) hosted all the relevant information relating to the ULEZ consultation. This included summary information on the proposal and a map of the zone. During the consultation period, there were 48,258 unique visitors to the ULEZ consultation page. The consultation portal provided a table of the ULEZ standards and set out the proposed implementation dates. The portal also included a link to the following documents which provided more detailed information on the proposals:

- Glossary of Terms;
- Supplementary Information;
- Integrated Impact Assessment (IIA) Summary Report;

- IIA Health Assessment;
- IIA Environmental Assessment;
- IIA Equalities Assessment;
- IIA Economic & Business Assessment;
- Scheme Variation Order;
- Schedule of Variations;
- LEZ Order with ULEZ amendments; and
- ULEZ Plan

6.8.2. Respondents were requested to complete and submit an online questionnaire to provide their feedback about the proposals. It included a number of open and closed questions providing the opportunity for respondents to indicate their views about each of the proposals as well as give additional comments and feedback.

6.9. Consultation leaflet

6.9.1. TfL produced an information leaflet, aimed at the public and businesses, which featured high level details about the proposals (consistent with the consultation portal).

6.9.2. The consultation leaflet was available on request. Ten copies of the consultation leaflet were posted directly to members of the public following requests received through the telephone customer service centre.

6.9.3. Leaflets were not the main channel for raising awareness and to keep costs down, only a relatively small number were printed. However, TfL distributed copies of the leaflet at the Quiet Cities conference (primary audience of freight and fleet operators) on 25 November 2015. Leaflets were also distributed to commuters during the morning peak at Charing Cross and Embankment stations.

6.10. Telephone information service

6.10.1. A telephone information service was established over the period of the ULEZ consultation to answer queries relating to proposed changes. The call centre did not record or address responses to the consultation.

6.10.2. Throughout the consultation period, the centre dealt with nine calls directly relating to the consultation. Callers were sent copies of the leaflet on request and in the first instance, directed to the online consultation portal to give their response to the consultation. Hard copies of the questionnaire were provided on request and a freepost address given for their return to TfL.

6.11. Late consultation responses

6.11.1. Representations from members of the public received after the consultation closed, but before this report was submitted, are analysed in Appendix H. Any representations received after this report is submitted, up to the date of the Mayor's decision, will be forwarded to the Mayor.

7. Public, community and business responses to the consultation

7.1. Introduction

7.1.1. This section of the report provides a summary of the information collected about the responses received from the general public (not stakeholders) through the consultation questionnaire. In general, the data presented here is from Questions 1-12 in the questionnaire, although information about individual email addresses and business names is not presented. In each table, the total of the percentages is 100 per cent prior to rounding.

7.1.2. In total, 16,281 responses were received to the consultation from public and businesses. TfL offered a number of ways for respondents to comment on the consultation:

- Online – through the consultation portal
- Email – comments emailed directly to TfL
- Post – by letter or return of hard copy questionnaire

Table 16: Consultation responses by response method

Response method	Number of responses	Percentage
Online (consultation portal)	16,074	98.75%
Hard copy questionnaire	0	0%
Email	181	1%
Letter	26	0.25%
Total	***16,281***	***100%***

7.2. Respondent types

7.2.1. Public, business, taxi and PHV respondents were asked to indicate what capacity they were responding to the consultation, that is whether they were representing themselves or another business or organisation. Respondents were free to identify themselves as any of these categories and it should be noted that where 'government organisation', 'community or voluntary organisation' or 'campaign group' was selected, TfL undertook a check to see if any of these were stakeholders (see paragraph 6.4.6) and these respondents were transferred to the stakeholder analysis in this report.

Table 17: Proportion of responses by respondent type (Question 3)

Respondent Type	Number of responses	Percentage
As an individual	14,208	87%
As a taxi (black cab) owner/driver	568	3%
As a PHV (minicab) owner/driver/operator	138	1%
As a representative of a business	983	6%
As a representative of a community of voluntary organisation	82	1%
As a representative of a Government Organisation	10	0%
As a representative of a campaign group	32	0%
Not Answered	260	2%
Total	***16,281***	***100%***

7.2.2. Those who responded that they were a taxi or PHV owner/driver/operator (categories 2 and 3 in the table above) were directed to supplementary questions. This was to enable a better understanding of the views of these respondents in relation to the taxi and PHV elements of the proposal. This group of respondents were asked to describe themselves in more detail in order to facilitate a better understanding of their responses.

Table 18: Taxi and PHV respondents by type (Question 5)

	Number of responses	Percentage of responses (as total of all responses)
Taxi driver – All London driver	450	3%
Taxi driver – Suburban driver	23	0%
Taxi vehicle owner	45	0%
Private hire operator	47	0%
Private hire driver	52	0%
Private hire vehicle owner	93	1%

Total	***730***	***4%***

7.3. Information channels

7.3.1. To understand how news about the consultation was received, respondents were asked how they heard about the consultation.

Table 19: Information channels through which respondents heard about the consultation (Question 10)

Respondent Type	Number of responses	Percentage
Received an email from TfL	11,251	69%
Read about it in the press	1,005	6%
Through social media	1,575	10%
Read about it on the TfL website	512	3%
Other	1,342	8%
Not Answered	596	4%
Total	***16,281***	***100%***

7.3.2. 'Other' information channels included from a Parliamentary candidate, on the radio and through specialist interest groups.

7.4. Transport usage

7.4.1. Respondents were asked to indicate which forms of transport they used in central London, and were asked to tick as many of the options as applied.

Table 20: Modes of transport used by respondents (Question 11)

Respondent Type	Number of responses	Percentage
Vehicles for private use	9,955	61%
Vehicles for commercial use	1,887	12%
Taxi (black cab)	5,631	35%
PHV (mini cab)	2,844	17%
Tube	11,547	71%
Bus	9,393	58%
Walk	10,795	66%
Bike	6,112	38%
Not answered	79	0%

7.5. Driving behaviour

7.5.1. Respondents were asked to provide information about their driving behaviour. The questionnaire sought information on whether respondents drove within the Congestion Charging zone and if so, how often. The CCZ is the area proposed for the ULEZ.

Table 21: Public and business respondent frequency of driving in the Congestion Charging zone (Question 12)

Frequency	Number of responses	Percentage
Every day	1,016	6%
1-2 days a week	1,697	10%
3-6 days a week	1,455	9%
1-2 days a month	2,489	15%
Less than once a month	5,499	34%
Never	3,783	23%
Not Answered	342	2%
Total	***16,281***	***100%***

8. Analysis of public, community and business responses

8.1. Introduction

8.1.1. This chapter provides an analysis of the feedback provided by the public, community and businesses about the proposals being consulted on. A quantitative and qualitative analysis of the data received under each proposal is provided. A copy of the Questionnaire is at Appendix E.

8.1.2. The response to the proposals is considered in the following order:

- The importance of tackling air quality in Central London
- Introducing ULEZ proposals in central London to encourage the use of low emission vehicles to improve air quality
- Charging private and commercial vehicles that do not meet the ULEZ standards to drive within the ULEZ from 2020
- Introducing the ULEZ charging area so that it mirrors the Congestion Charge zone (CCZ)
- Enforcing ULEZ 24 hours a day, 365 days a year
- Providing a sunset period for residents within the zone so that they would not be required to meet the ULEZ standards until 2023
- Operating only hybrid double deck and zero emission single deck buses on bus routes operating through the ULEZ
- Introducing a ZEC requirement for all newly licenced taxi and PVH vehicles from 2018
- Reducing the London wide age limit for non ZEC taxis to 10 years and exempting all licensed taxis from the ULEZ standards
- Requiring PHVs to meet the ULEZ standards for private cars in order to drive in the ULEZ without paying a daily charge
- Strengthening and extending the ULEZ in the future

Quantitative analysis of closed questions

8.1.3. For each proposed change, an analysis of the closed questions contained within the questionnaire is provided. Results are provided for the number of respondents and the proportion of support and opposition or preferences. These are cross-referenced with key respondent characteristics, such as their main reason for driving in the zone, for those that state they do this. The question

numbers as contained within the questionnaire are also referenced within the title of each sub-section.

8.1.4. In the explanatory text, the percentage for the proportions supporting the proposal includes those who stated that they 'strongly support' and 'support' each proposal. The percentage for those opposing the schemes likewise includes those who 'strongly oppose' and 'oppose' the proposal. A full breakdown of these categories is provided in the tables and charts.

8.1.5. Because of the rounding, please note that some of the percentage totals may be approximately one per cent out (ie 99 or 101 per cent). In all cases, the totals equal 100 per cent prior to rounding, ie 16,281 respondents.

Qualitative analysis of free text responses (open question)

8.1.6. The questionnaire contained a free text box to provide any comments or suggestions regarding any or all of the proposals. All of the comments and suggestions received were reviewed and coded in order to identify common themes of comments raised by respondents.

8.1.7. For clarity, these comments are organised underneath each identified theme. The qualitative analysis of this text also identifies the percentage of overall public and business comments related to each theme, calculated using the total number of respondents.

8.1.8. TfL's response to the main comments and suggestions raised in the open text section of the questionnaire are provided in Chapter 10 and Chapter 11 of this report.

Quantitative analysis

8.2. Question 13: Tacking poor air quality in central London

8.2.1. Table 22 sets out the views of the general public on the importance of tackling air quality in central London, with 79 per cent of respondents classifying this as 'important' or 'very important', while only 6 per cent considered this to be unimportant. Thirteen per cent of respondents did not have a strong view or did not answer the question.

Table 22: How important is it to tackle poor air quality in central London

Response	Count	%
Very Important	8,344	51%
Important	4,479	28%
Neither Important or Unimportant	2,068	13%

Unimportant	625	4%
Very Unimportant	385	2%
Don't know	64	0%
Not Answered	316	2%
Total	**16,281**	**100%**

8.3. Question 14: The introduction of ULEZ proposals in central London to encourage the use of low emission vehicles to improve air quality

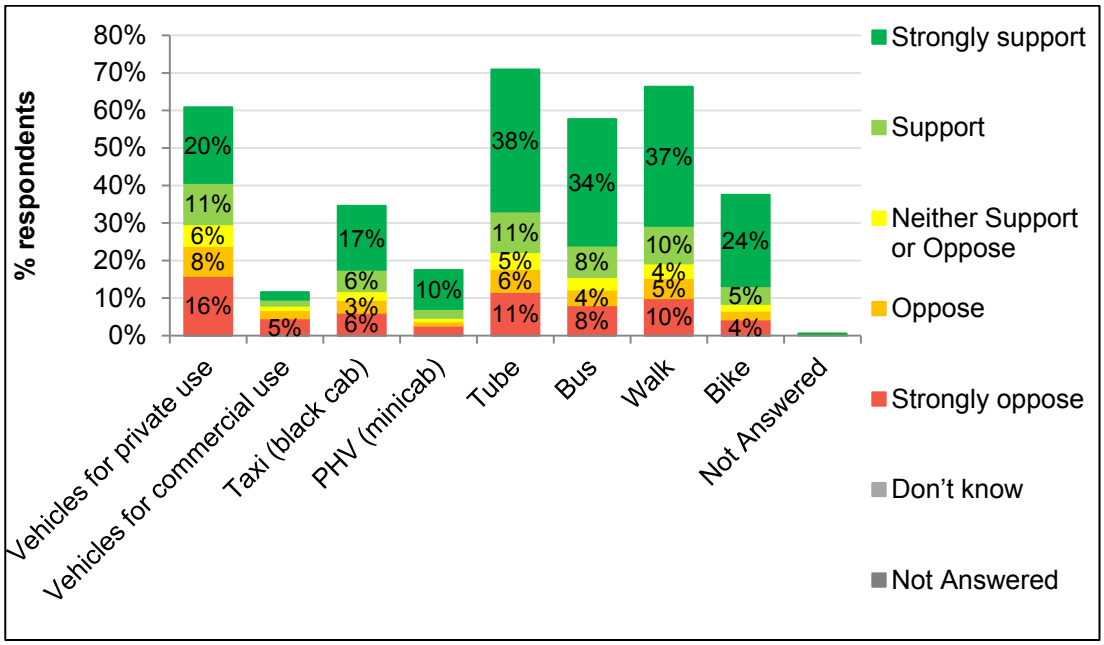
8.3.1. Table 23 sets out the level of support from general public on the proposal to introduce the ULEZ and to encourage the use of low emission vehicles. 58 per cent of respondents support this proposal with 31 per cent of respondents in opposition. Eight per cent of respondents didn't have a view either way and 3 per cent either didn't know or didn't respond.

Table 23: The introduction of ULEZ in Central London

Response	Count	%
Strongly support	7,054	43%
Support	2,490	15%
Neither Support or Oppose	1,309	8%
Oppose	1,733	11%
Strongly oppose	3,307	20%
Don't know	89	1%
Not Answered	299	2%
Total	**16,281**	**100%**

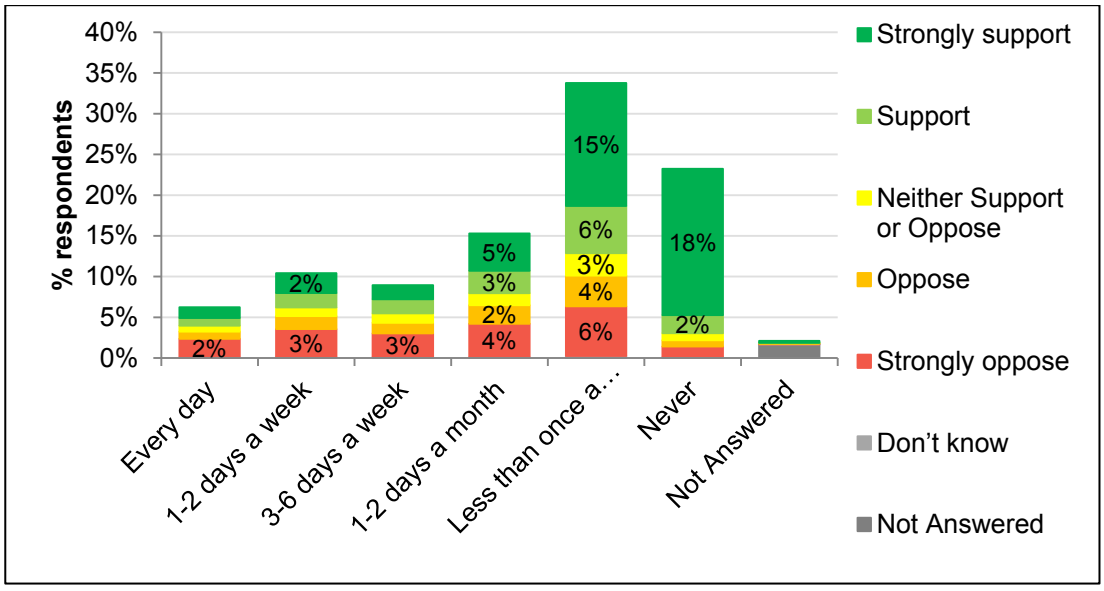
8.3.2. Figure 7 illustrates the level of support for the ULEZ scheme among respondents who reported that they use different transport modes (Question 11). Support is strongest for the scheme in respondents that use more sustainable transport modes (Tube, bus, walk, bike).

Figure 7: Support for the ULEZ scheme in the context of transport modal use



8.3.3. Figure 8 below illustrates the level of support amongst respondents who support the proposal to introduce a ULEZ with how often they drive within the Congestion Charging zone. Support to introduce ULEZ is higher with respondents who never drive in the zone or very infrequently.

Figure 8: Support for the ULEZ scheme in the context of whether respondents drive in the Congestion Charging zone.



8.4. Question 15: The introduction of a daily ULEZ charge

8.4.1. Respondents were asked if they support the plans to introduce a daily ULEZ charge from 2020 for all vehicle types. Table 24 sets out the level of support from general public on the proposal to introduce a daily ULEZ charge for different vehicle types. Support is high for HGVs, coaches and buses, vans and minibuses, with 77 per cent, 76 per cent and 69 per cent supporting the charge for these vehicle types respectively. Fifty eight per cent of respondents support the charge for diesel cars compared with 51 per cent support for petrol cars.

Table 24: The introduction of a daily charge

Response	HGV	Coaches buses	Vans minibuses	Diesel cars	Petrol cars	Motor-cycles	All vehicles
Strongly support	**9,904**	**9,509**	**8,436**	**7,277**	**6,074**	**5,163**	**46,363**
	61%	58%	52%	45%	37%	32%	47%
Support	**2,609**	**2,856**	**2,761**	**2,150**	**2,328**	**1,997**	**14,701**
	16%	18%	17%	13%	14%	12%	15%
Neither Support or Oppose	**795**	**886**	**1,187**	**1,235**	**1,441**	**1,459**	**7,003**
	5%	5%	7%	8%	9%	9%	**7%**
Oppose	**738**	**782**	**1,122**	**1,599**	**1,821**	**1,614**	**7,676**
	5%	5%	7%	10%	11%	10%	8%
Strongly oppose	**1,561**	**1,485**	**1,991**	**3,358**	**3,877**	**5,137**	**17,409**
	10%	9%	12%	21%	24%	32%	18%
No opinion	**114**	**98**	**88**	**75**	**94**	**192**	**661**
	1%	1%	1%	0%	1%	1%	1%
Not Answered	**560**	**665**	**696**	**587**	**646**	**719**	**3,873**
	3%	4%	4%	4%	4%	4%	4%
Total	**16,281**	**16,281**	**16,281**	**16,281**	**16,281**	**16,281**	

8.5. Question 16: ULEZ area boundary

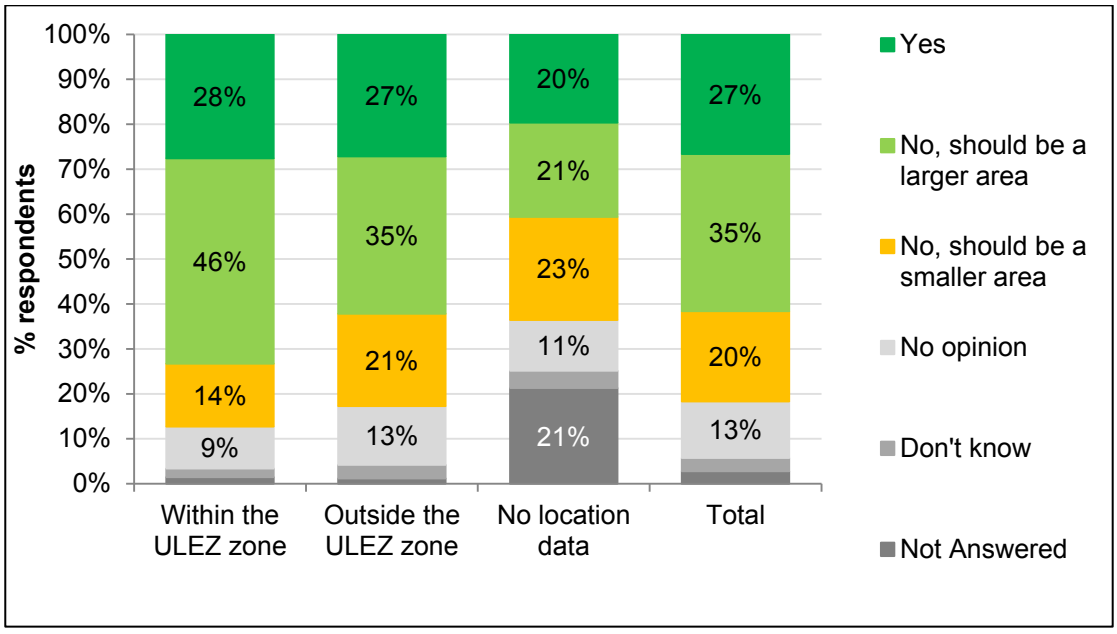
8.5.1. The consultation proposed that the ULEZ boundary should mirror that of the existing CCZ boundary. Respondents were asked if they thought the proposed boundary for ULEZ was appropriate for charging vehicles which do not meet the ULEZ standards. 27 per cent of respondents agreed that the proposals' boundary area is appropriate, 35 per cent thought that the area should be larger and 20 per cent thought that the area should be smaller. Nineteen per cent of respondents either didn't have a strong opinion or didn't answer the question.

Table 25: Is proposed ULEZ area appropriate?

Response	Count	%
Yes	4,334	27%
No, should be a larger area	5,697	35%
No, should be a smaller area	3,268	20%
No opinion	2,047	13%
Don't know	484	3%
Not Answered	451	3%
Total	**16,281**	**100%**

8.5.2. Looking at the breakdown of these results in the context of whether the respondents live within or outside the proposed ULEZ zone, residents within the zone think that it is more important for the area to be larger (46 per cent) compared to 35 per cent of residents that live outside of the zone. A larger percentage of residents living outside the zone think that that the zone should be smaller (21 per cent) compared to residents living inside the zone (14 per cent). Please refer to Figure 9 below.

Figure 9: Opinion on ULEZ area boundary in the context of whether respondents live within or outside the ULEZ zone



8.6. Question 17: Enforcing ULEZ standards

8.6.1. TfL proposed to introduce ULEZ standards that would be enforceable 24 hours a day, 365 days a year. Respondents were asked to indicate their level of support for this proposal. Fifty per cent of respondents supported this proposal with 42

per cent of respondents in opposition. Eight per cent of respondents either didn't have a strong opinion or didn't answer this question.

Table 26: Enforcing the ULEZ standards

Response	Count	%
Strongly support	6,054	37%
Support	2,103	13%
Neither Support or Oppose	750	5%
Oppose	1,898	12%
Strongly oppose	4,942	30%
No opinion	92	1%
Don't know	80	0%
Not Answered	362	2%
Total	**16,281**	**100%**

8.7. Question 18: ULEZ charge level

8.7.1. TfL proposed to introduce a set ULEZ daily charge which would be £12.50 for light vehicles (motorcycles, cars, vans, large vans and minibuses) and £100 for heavy vehicles (HGVs, buses and coaches). On average, considering all vehicle types, 35 per cent of respondents thought that the charge level was at the correct level, 15 per cent thought that it was too low, and 38 per cent thought it was too high.

Table 27: ULEZ charge level

Response	HGV	Coaches / Non TfL buses	Vans	Diesel cars	Petrol cars	Motor-cycles	All vehicle types
Yes (correct level)	**6,748**	**6,738**	**6,011**	**5,367**	**5,281**	**4,119**	**34,264**
	41%	41%	37%	33%	32%	25%	35%
No, too low	**2,485**	**2,422**	**3,035**	**2,777**	**2,063**	**1,573**	**14,355**
	15%	15%	19%	17%	13%	10%	15%
No, too high	**5,159**	**4,984**	**5,242**	**6,391**	**7,116**	**8,522**	**37,414**
	32%	31%	32%	39%	44%	52%	38%
No opinion	**785**	**875**	**832**	**704**	**759**	**874**	**4,829**
	5%	5%	5%	4%	5%	5%	5%
Don't know	**546**	**559**	**463**	**396**	**395**	**474**	**2,833**
	3%	3%	3%	2%	2%	3%	3%
Not Answered	**558**	**703**	**698**	**646**	**667**	**719**	**3,991**
	3%	4%	4%	4%	4%	4%	4%
Total	**16,281 100%**	**16,281 100%**	**16,281 100%**	**16,281 100%**	**16,281 100%**	**16,281 100%**	

8.8. Question 19: Sunset period for residents

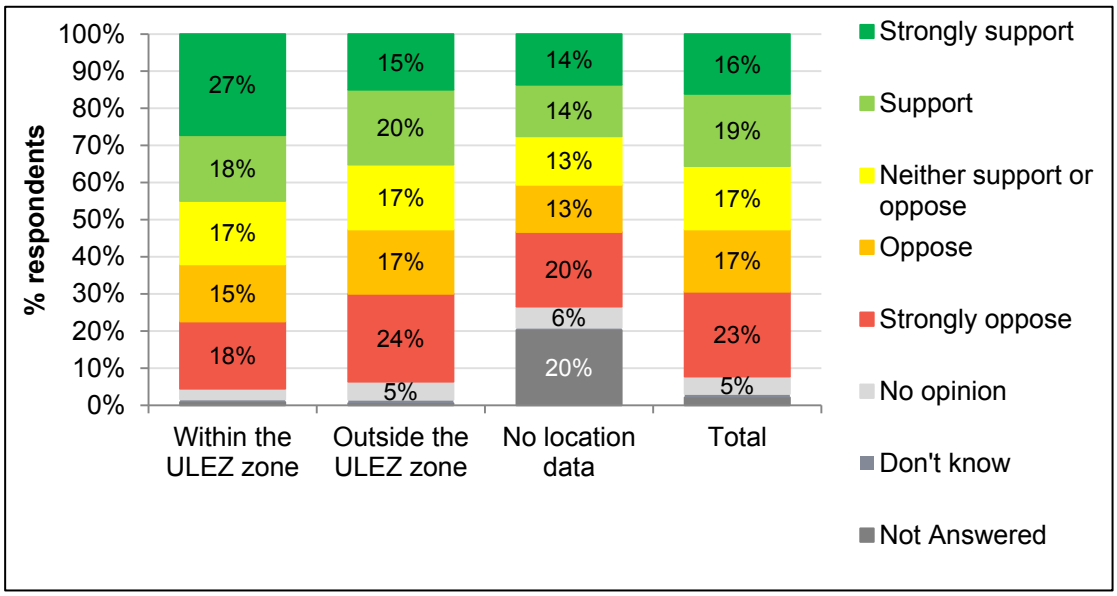
8.8.1. In recognition that residents in the zone would be unable to avoid the new standards, TfL proposed to provide residents with a three year sunset period to 6 September 2023 before any charges would be applied. Thirty five per cent of respondents supported this proposal compared to 40 per cent of respondents who opposed it. 25 per cent either didn't have a strong opinion or didn't answer the question.

Table 28: Sunset period for residents

Response	Count	%
Strongly support	2,620	16%
Support	3,165	19%
Neither support or oppose	2,784	17%
Oppose	2,730	17%
Strongly oppose	3,721	23%
No opinion	767	5%
Don't know	151	1%
Not Answered	343	2%
Total	**16,281**	**100%**

8.8.2. Figure 10 below illustrates that support was greater for the proposal from respondents that live within the zone compared to those that live in areas outside the zone.

Figure 10: Support for the proposed sunset period by respondents that live within or outside the proposed ULEZ boundary



8.9. Question 20: Hybrid double deck and zero emission single deck buses on bus routes operating within the ULEZ

8.9.1. TfL proposed to only allow hybrid double deck and zero emission single deck buses on routes operating within the ULEZ. There was significant amount of support for this proposal with 82 per cent of respondents stating their support compared to only 6 per cent who opposed it. Thirteen per cent either didn't have a strong opinion or didn't answer the question. Refer to Table 29 below.

Table 29: Hybrid double deck and zero emission single deck buses on bus routes operating within the ULEZ

Response	Count	%
Strongly support	9,534	59%
Support	3,726	23%
Neither Support or Oppose	1,344	8%
Oppose	365	2%
Strongly oppose	586	4%
No opinion	312	2%
Don't know	91	1%
Not Answered	323	2%
Total	**16,281**	**100%**

8.10. Question 21: Introduction of a Zero Emission Capable (ZEC) requirement for all newly licenced taxi and PVH vehicles from 2018

8.10.1. Respondents were asked to give their views on TfL's proposal to introduce a ZEC requirement for all newly licenced taxi and PHV vehicles from 2018. Table 30 illustrates that approximately 72 per cent of respondents supported the proposal to introduce this new requirement for both taxis and PHVs and approximately 15per cent opposed. Approximately 13 per cent either didn't have a strong opinion or didn't answer the question.

Table 30: Introduction of a ZEC requirement for taxis and PHVs

	Taxi		PHV	
Response	**Count**	**%**	**Count**	**%**
Strongly support	8,407	52%	8,324	51%
Support	3,443	21%	3,363	21%
Neither Support or Oppose	1,233	8%	1,337	8%
Oppose	1,017	6%	952	6%
Strongly oppose	1,493	9%	1,250	8%
No opinion	233	1%	289	2%
Don't know	97	1%	108	1%
Not Answered	358	2%	658	4%
Total	**16,281**	**100%**	**16,281**	**100%**

8.11. Question 22: Reducing the London wide age limit for non zero emission capable taxis to 10 years and exempting licenced taxis from the ULEZ standards

8.11.1. Respondents were largely supportive of TfL's proposal to reduce the London wide age limit for non ZEC taxis to 10 years and exempting licenced taxis from the ULEZ standards. Refer to Table 31 below. Forty eight per cent of respondents supported this proposal, 28 per cent opposed it and 24 per cent either didn't have a strong opinion or didn't answer the question.

Table 31: Reducing the London wide age limit for non ZEC taxis to 10 years

Response	Count	%
Strongly support	4,409	27%
Support	3,394	21%
Neither Support or Oppose	2,172	13%
Oppose	1,953	12%
Strongly oppose	2,529	16%
No opinion	480	3%
Don't know	938	6%
Not Answered	406	2%
Total	**16,281**	**100%**

8.12. Question 23: Requiring PHVs to meet the ULEZ standards for private cars in order to drive in the ULEZ without a charge.

8.12.1. TfL proposed that PHVs should be required to meet the ULEZ standards set for private vehicles in order to drive in the ULEZ. 63 per cent of respondents supported this proposal and 17 per cent opposed. Twenty two per cent either didn't have a strong opinion or didn't answer the question. Refer to Table 32 below.

Table 32: Requiring PHVs to meet the standards for private cars

Response	Count	%
Strongly support	6,112	38%
Support	4,019	25%
Neither Support or Oppose	1,980	12%
Oppose	1,124	7%
Strongly oppose	1,562	10%
No opinion	485	3%
Don't know	571	4%
Not Answered	428	3%
Total	**16,281**	**100%**

8.13. Question 24: Introducing ZEC capable requirement in 2018

8.13.1. TfL proposed to introduce a ZEC requirement for both Taxis and PHVs from 2018 and sought views about the timing of this proposal. Recipients largely thought that the proposed introduction time was about right (32 per cent for taxis and 31

per cent for PHVs). Some recipients thought it could be achieved earlier (23 per cent for taxis and 25 per cent for PHVs) and some thought that it couldn't be achieved until after 2018 (28 per cent for taxis and 23 per cent for PHVs). Please refer to Table 33 below.

Table 33: Introducing a ZEC capable requirement in 2018

	Taxis		PHVs	
Response	**Count**	**%**	**Count**	**%**
About right	5,273	32%	5,076	31%
Could be achieved earlier than 2018	3,729	23%	4,090	25%
Can't be achieved until later than 2018	4,570	28%	3,814	23%
No opinion	1,335	8%	1,389	9%
Don't know	981	6%	964	6%
Not Answered	393	2%	948	6%
Total	**16,281**	**100%**	**16,281**	**100%**

8.14. Question 26: Strengthening the ULEZ in the future

8.14.1. TfL asked respondents their views about potentially strengthening the ULEZ in the future to set a ZEC requirement for all vehicles. Fifty two per cent of respondents supported this proposal and 34 per cent opposed. Fifteen per cent either didn't have a strong opinion or didn't answer the question. Please refer to Table 34 below.

Table 34: Strengthening ULEZ in the future

Response	**Count**	**%**
Strongly support	5,565	34%
Support	2,894	18%
Neither Support or Oppose	1,586	10%
Oppose	1,875	12%
Strongly oppose	3,581	22%
No opinion	173	1%
Don't know	311	2%
Not Answered	296	2%
Total	**16,281**	**100%**

8.15. Question 27: Extending the ULEZ in the future

8.15.1. In the future, there is a potential to extend the area of the ULEZ (subject to further consultation) beyond the boundary that is currently proposed. TfL sought views on this proposition. Table 35 below illustrates the respondents' views. Fifty two per cent of respondents supported this proposal and 37 per cent opposed. 11 per cent either didn't have a strong opinion or didn't answer the question.

Table 35: Extending ULEZ in the future

Response	Count	%
Strongly support	5,946	37%
Support	2,457	15%
Neither Support or Oppose	1,192	7%
Oppose	1,753	11%
Strongly oppose	4,268	26%
No opinion	150	1%
Don't know	240	1%
Not Answered	275	2%
Total	**16,281**	**100%**

Qualitative analysis of free text responses

8.16. Qualitative analysis of free text responses - general

8.16.1. Question 25 of the questionnaire provided an opportunity for respondents to provide their written comments on all of the proposals. Please see below a summary of the analysis of free text responses, reported in themes. This was a wide-ranging consultation and therefore the comments made could be organised into a large number of sub-themes within each theme. For the sake of clarity, this chapter includes only the two or three most popular sub-themes (made by more than one per cent of respondents) under each theme. Appendix L has the full free text analysis.

8.17. Air Quality in London

8.17.1. 1,840 comments were made by public and business respondents regarding air quality issues in London.

8.17.2. The results are shown in Table 36 below. The most common comment referred to the importance of tackling air quality in London (4 per cent of respondents).

One per cent of respondents believed that the ULEZ will not achieve legal limits and another 1 per cent of respondents raised concerns about pollutants from other zones blowing into Central London.

Table 36: Air quality in London

Comment	Number of comments	Percentage of all respondents
Agreed it is important to do something about AQ in London	692	4%
Believed that ULEZ will be costly and won't achieve legal limits	208	1%
Comments on London's air quality/concern that pollutants from other zones are blowing into central London	96	1%

8.18. Principle of a ULEZ

8.18.1. A total of 3,403 comments were made by respondents concerning the principle of a ULEZ.

8.18.2. The most common comment (10 per cent of respondents) suggested that the ULEZ is a revenue raising method and a tax on motorists. Five per cent of respondents supported the ULEZ and made a general comment. The results are shown in Table 37 below.

Table 37: Principle of a ULEZ

Comment	Number of comments	Percentage of all respondents
Suggested ULEZ is a method to raise revenues/another tax on motorists	1,589	10%
Supported a ULEZ – unspecific comments	807	5%
Supported the theory of lowering emissions but do not support another charge	192	1%
Oppose EU directives	174	1%
Suggested that the ULEZ is not necessary and that EU policies on new vehicles will ensure gradual emission reduction	131	1%
Opposed a ULEZ - unspecific comment	119	1%

Believed the standards should be introduced nationally and not just London	103	1%
Supported but suggests that ULEZ should go further, ie standards, size etc	90	1%

8.19. Vehicle Emission Standards

8.19.1. Respondents made a total of 1,039 comments about vehicle emission standards.

8.19.2. The results are shown in Table 38 below. The most common comment suggested that the ULEZ should be for commercial and public vehicles only (4 per cent of respondents). One per cent of respondents suggested that TfL should not allow non-compliant vehicles into the ULEZ and another 1 per cent of respondents suggested that the proposals do not reflect the lifecycle of vehicles.

Table 38: Vehicle Emission Standards

Comment	Number of comments	Percentage of all respondents
Suggested that ULEZ should be for commercial and public vehicles only	284	2%
Suggested that TfL should not allow non-compliant vehicles into the ULEZ	271	2%
Suggested that proposals do not reflect the lifecycle of vehicles	169	1%

8.20. ULEZ Boundary

8.20.1. A total of 1,140 comments were made about the ULEZ boundary by respondents.

8.20.2. The results are shown in Table 39 below. Six per cent of respondents suggested that the boundary area should be increased to cover a greater proportion of London and 1 per cent of respondents highlighted their concern that the ULEZ could worsen conditions outside of the proposed ULEZ zone.

Table 39: ULEZ boundary

Comment	Number of comments	Percentage of all respondents
Expand the boundary to cover a greater proportion of London	931	6%
Concerned that the ULEZ will worsen conditions in areas outside the boundary	171	1%

8.21. ULEZ Timetable

8.21.1. Respondents made a total of 737 comments about the ULEZ timetable

8.21.2. The most common comment (3 per cent of respondents) suggested that TfL should implement sooner than planned. One per cent suggested that TfL should implement the ULEZ later than planned and 1 per cent suggested that the standards should only apply to vehicles bought after ULEZ is confirmed, or after 2018. The results are shown in Table 40 below.

Table 40: ULEZ timetable

Comment	Number of comments	Percentage of all respondents
Suggested that TfL should implement the ULEZ sooner	442	3%
Suggested that TfL should implement the ULEZ later	117	1%
Suggested that the standards should only apply to vehicles bought after ULEZ is confirmed, or after 2018. Retrospective policy is unfair	117	1%

8.22. Operations

8.22.1. A total of 819 comments were made about operations by respondents.

8.22.2. The results are shown in Table 41 below. Two per cent of respondents thought that the charging hours should operate during the day time or on week days only.

Table 41: Operations

Comment	Number of comments	Percentage of all respondents
Charging hours should operate during the day time only	345	2%
Suggested that the charge should only operate on week days only	274	2%

8.23. Charge Level

8.23.1. Respondents made a total of 678 comments about the ULEZ charge level

8.23.2. The results are shown in Table 42 below. One per cent of respondents suggested that TfL should set a differential pricing structure to reflect level of emissions and that TfL should consider a pricing strategy based on miles travelled within the zone.

Table 42: Charge level

Comment	Number of comments	Percentage of all respondents
Set differential pricing structure to reflect level of emissions	180	1%
Consider differential pricing according to frequency of travel/mileage travelled within the zone	87	1%

8.24. Discounts and Exemptions

8.24.1. A total of 2,816 comments were made about discounts and exemptions by respondents.

8.24.2. The most common comment (8 per cent of respondents) opposed the criteria set out for motorcycles. Three per cent suggested that historic motorcycles should be exempt and 2 per cent stated that proposals will impact on people with disabilities. The results are shown in Table 43 below.

Table 43: Discounts and exemptions

Comment	Number of comments	Percentage of all respondents
Oppose criteria for motorcycles	1,277	8%
Suggests that historic motorcycles should be exempt	535	3%
Stated that proposals will impact on people with disabilities/attending hospital visits. Suggested exemptions for wheelchair accessible vehicles/blue badge holders	392	2%
Suggested other discount and exemptions, including NHS and emergency service workers, elderly people, taxis (as small businesses)	156	1%
Suggested exemption or 90% discount for residents	122	1%
Suggested exempting petrol cars	119	1%
Believes that there should be no exemptions to the ULEZ standards/charge	106	1%

8.25. TfL Buses

8.25.1. Respondents made a total of 457 comments about TfL Buses.

8.25.2. The results are shown in Table 44 below. One per cent of respondents suggested that buses must be included as part of the ULEZ and that all buses entering the zone should be ZEC.

Table 44: TfL Buses

Comment	Number of comments	Percentage of all respondents
Buses must be included/only buses should be included	232	1%
Suggested that all buses entering the ULEZ should be ZEC	114	1%

8.26. Taxis

8.26.1. A total of 376 comments were made in relation to taxis. Of which, 1 per cent of respondents made a comment regarding the impact on the taxi trade.

8.27. Taxis and PHVs

8.27.1. Respondents made a total of 572 comments about taxis and PHV. Of which, 2 per cent of respondents suggested that taxis and PHVs should be included in the ULEZ plans.

8.28. Costs and Revenue

8.28.1. A total of 1,035 comments were made about costs and revenue. The most common comments (2 per cent of respondents) included those about the perceived high cost of buying new vehicles and adding to the cost of living and working in London. One per cent of respondents suggested that they would not be prepared to buy a new compliant vehicle and queried how funds from the scheme would be spent. The results are shown in Table 45 below.

Table 45: Costs and revenue

Comment	Number of comments	Percentage of all respondents
High cost of buying new vehicles	349	2%
Further increase to the cost of living and working in London	305	2%
Can't afford or doesn't want to buy a compliant vehicle for the policy requirements to change again in future	180	1%
How will funds generating from the scheme be spent	144	1%

8.29. Alternative Policy Suggestions

8.29.1. Respondents made a total of 1,875 comments about alternative policy suggestions.

The results are shown in

8.29.2. Table 46 below. Two per cent of respondents suggested that there should be financial incentives to help meet ULEZ standards as well as other suggestions to improve road conditions for road users. Around 1 per cent of respondents made a range of other suggests including introducing other central government/GLA incentives and banning private vehicles from central London.

Table 46: Alternative Policy Suggestions

Comment	Number of comments	Percentage of all respondents
Provide financial incentives to help meet ULEZ standards	280	2%
Suggestions to improve road infrastructure to improve conditions for road users	266	2%
Work closer with manufacturers and don't penalise road users,	202	1%
Other suggestions for central government and GLA initiatives	139	1%
Ban lorries from central London during the day	111	1%
More policies to incentivise biggest contributors (eg taxis, buses, HGV) to buy cleaner vehicles (ie ZEC)	104	1%
Ban private vehicles from central London	100	1%

8.30. Technology Policy Requirements

8.30.1. Respondents made a total of 316 comments about technology policy requirement. Of which, 2 per cent of respondents suggested that there are no taxis or vans that meet proposed ULEZ standards.

8.31. Infrastructure

8.31.1. A total of 223 comments were made in relation to infrastructure. Of which, 1 per cent of respondents made comments about the availability of infrastructure to support electric technologies.

8.32. Suggested Supporting Policy

Respondents made a total of 1,875 suggestive supporting policy comments. The results are shown in

8.32.1. Table 47 below. Two per cent of respondents suggested various improvements to public transport. Around 1 per cent of respondents suggested that TfL improve conditions for cyclists and pedestrians and invest money in improving technology and infrastructure for green vehicles.

Table 47: Suggested Supporting Policy

Comment	Number of comments	Percentage of all respondents
Suggested various improvements to public transport	402	2%
Improving conditions for cyclists and pedestrians	356	1%
Invest money in improving technology and infrastructure for green vehicles	124	1%

8.33. Impacts of a ULEZ

8.33.1. A total of 3,042 comments were made regarding the impacts resulting from the introduction of a ULEZ. The most common comments (4 per cent of respondents) suggested that ULEZ would disproportionally affect the poor. Three per cent of respondents were concerned about the cost impact on customers and businesses. The results are shown in Table 48 below.

Table 48: Impacts of a ULEZ

Comment	Number of comments	Percentage of all respondents
Suggests that ULEZ disproportionally affects the poor	671	4%
Cost impacts on customers/businesses	510	3%
High impact on small businesses	495	3%
Positive health implications generated by ULEZ	389	2%
Consider the environmental impact of scrapping old vehicles & manufacturing new vehicles	267	2%
Suggests that it is not always practical or possible to use public transport as an alternative to driving	191	1%
Impact on tourism/leisure	172	1%

visits		
Shouldn't introduce whist economy is in a downturn	104	1%
Impact on London's economy	148	1%

8.34. Consultation

8.34.1. Respondents made a total of 513 comments about the ULEZ consultation. The results are shown in Table 49 below. One per cent of respondents made various criticisms of the consultation and suggested that TfL provided insufficient or unclear information.

Table 49: Consultation

Comment	Number of comments	Percentage of all respondents
Various criticisms of the consultation	191	1%
Insufficient/unclear information provided	135	1%

8.35. Other

8.35.1. A total of 840 comments were made about a range of other topics relating to the proposed ULEZ. The most common comment (2 per cent of respondents) suggested that the pollution problem was created by previous government policy and that the ULEZ is too similar to the CC and targets the same users. The results are shown in Table 50 below.

Table 50: Other

Comment	Number of comments	Percentage of all respondents
Suggested that the pollution problem was created by previous government policy, ie encouraging people to buy diesel vehicles	321	2%
Too similar to the CC - targets same users	248	2%
Consider other modes of transport - trains/aircraft/boats - or other sources of pollution	144	1%

9. Analysis of stakeholder responses

9.1. Introduction and responses received

9.1.1. This chapter of the report looks at the feedback provided by stakeholder organisations about the proposals being consulted on. It includes an analysis of both quantitative and qualitative data.

9.1.2. Responses were received from 123 stakeholder organisations, thirteen of which were taxi and PHV trade representative organisations. A full list of the stakeholders who responded is provided at Appendix B and a summary of each stakeholder response is provided at Appendix D.

9.2. Quantitative analysis

9.2.1. Stakeholders submitted their comments using a variety of channels. Of the 123 stakeholders that responded to the consultation, 47 used the consultation portal, which is part of TfL's website, 66 responded by email and one by letter. Nine stakeholders responded by email and through the consultation portal.

9.2.2. More than half of stakeholders submitted their feedback by email rather than the online questionnaire and therefore we do not have a complete data set for all the closed questions contained within the questionnaire, making a complete quantitative analysis difficult. For this reason we have focused the majority of stakeholder feedback reporting within Chapter 10 of this report which evaluates the written feedback provided (qualitative analysis). This is organised by theme so it can be better understood in relation to the proposals and the closed questions.

9.2.3. However, it is useful to present a quantified analysis of the degree of support and opposition to the proposal. After reviewing both the qualitative and quantitative data we have identified which stakeholders either support or oppose the overall ULEZ proposals (see Table 51 below). As the table shows, support and opposition was nuanced, and the categories used reflect this. This analysis includes all stakeholder organisations apart from taxi and PHV trade representatives, which are presented later on in this chapter.

Table 51: Stakeholder support and opposition to the ULEZ

Response	Stakeholders
Support the overall ULEZ proposals (39)	680&MO Club, Baker St Quarter, Better Bankside, Belgravia Residents Association, British Heart Foundation, British Motorcyclists Federation, City of London Corporation, Disabled Motoring UK, Environmental Industries Commission, Federation of British Historic Vehicle Clubs, First Group, Ford Motor Company, Freight Transport Association (FTA), General Motors UK, Guide Dogs, Heart of London Business Alliance, inmidtown BID, Jaguar Land Rover, Joint Committee on Mobility for Disabled People, Lambeth South Public Health, London Borough of Redbridge, London Borough of Waltham Forest, London Borough of Wandsworth, London Chamber of Commerce and Industry (LCCI), London Fire Brigade, London Pedicab Operators Club, London Transport Museum, London TravelWatch, Metropolitan Police, Motorcycle Action Group, National Franchised Dealers Association , New West End Company, RAC Foundation, RAC Motoring Services, Royal Borough of Greenwich, The Energy Saving Trust, Toyota, UK Hydrogen and Fuel Cell Association, UPS
Supports ULEZ but believes scheme should go further to improve air quality (56)	Age UK, Asthma UK, Jenny Jones (AM, Green Party), BVRLA, Camden Cyclists, Camden Green Party, Campaign for Better Transport, Clean Air in London (CAL), Client Earth, Friends of the Earth, I Like Clean Air, Islington Green Party, Jon Cruddas MP, Lambeth Green Party, Living Streets, London Assembly, London Assembly Labour Group, London Assembly Liberal Democrat Group, London Borough of Barking & Dagenham, London Borough of Brent, London Borough of Camden, London Borough of Enfield, London Borough of Hackney, London Borough of Hammersmith & Fulham, London Borough of Haringey, London Borough of Islington, London Borough of Lambeth, London Borough of Lewisham, London Borough of Merton, London Borough of Newham, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Tower Hamlets, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Councils, London Cycling Campaign, London Forum of Amenity and Civic Societies, London Sustainability Exchange, London's Clinical Commissioning Groups, Network for Clean Air, New West End Company, NHS England (London Region), NHS Southwark CCG, Public Health England, Richmond Park Liberal Democrats, Royal Borough of Kensington & Chelsea (RBKC), Sainsbury's, SMMT, Southwark Living Streets, Sustrans, The Crown Estate, The Environmental Industries Commission, The Fitzrovia Partnership BID, UK Health Forum, Westminster City Council, Westminster Living Streets
Supports the theory of improving air quality but does not support ULEZ (8)	Autogas Ltd, Confederation of Passenger Transport, Federation of Small Businesses, Golden Tours, London Tourist Coach Operators Association (LTCOA), Motorcycle Industry Association, The Original London Sightseeing Tour, UKLPG
Opposes ULEZ (4)	Air Training Corps, Campaign for Air Pollution Public Inquiry, The Little Bus Company, Transport Watch
No comment (2)	Automobile Association, London Duck Tours

9.2.4. For taxi and PHV organisations responding to the consultation, this analysis is more difficult, because these respondents focused on the proposals related to taxis and PHVs. However, Table 52 below is a summary of their views in this regard. More detailed information on the views of this group of stakeholders is presented in Chapter 11.

Table 52: Taxi and PHV organisations' views on the proposals

Name	Organisation type	Supports ULEZ in principle but not any or all the taxi/PHV elements
Addison Lee	PHV operator	Yes
Cab Drivers Newspaper	Other	No comment on ULEZ principle
GMB Union (Professional Drivers branch)	PHV, taxi and other drivers' union	Agrees is need to improve air quality
Institute of Professional Drivers & Chauffeurs	Trade representative organisation (PHV & taxi)	No comment on ULEZ principle
Licensed Private Hire Car Association (LPHCA)	Trade representative organisation (PHV)	Yes
*London Cab Drivers Club (LCDC)	Trade representative organisation (taxis)	Yes
London Motorcab Proprietors Association (LMCPA)	Trade representative organisation (taxis)	No comment on ULEZ principle
London Taxi Company (LTC)	Taxi manufacturer	Yes
*London Taxi Drivers Association (LTDA)	Trade representative organisation (taxis)	No comment on ULEZ principle
Private Hire Board	Trade representative organisation (PHV)	Yes
Uber	PHV operator	Yes
*Unite the Union (Cab section)	Taxi drivers union	Yes
United Cabbies Group	Trade representative organisation (taxis)	No comment on ULEZ principle

*asterisked names are taxi representatives listed in TPH Taxi Engagement Policy

10. TfL's response to the issues raised

10.1. Introduction

10.1.1. This chapter sets out TfL's analysis of the responses received to the consultation by theme and its response to the comments, issues and recommendations contained in those responses. Comments from stakeholders and free text responses from public/business respondents have been attributed to the most pertinent aspect of the proposal. Within each theme, the 'issues raised' during the consultation that go to make up that theme have been identified and are listed at the start of each section, followed by TfL's response and any recommendation. Where issues are similar, these have been grouped together for a single TfL response. Comments that do not relate to a specific proposal have been addressed in Theme T ('Other').

10.1.2. The chapter brings together comments from stakeholders and the public and businesses, including data from the questionnaire (as set out in full in Chapter 8). The coding of the comments made in Question 25 of the questionnaire was organised into themes and this convention is followed in this chapter and Chapter 11, with some themes combined here for ease of understanding.

10.1.3. The themes addressed are as follows:

A	Air quality
B	Principle of a ULEZ
C	Vehicle Emissions Standards
D	Boundary
E	Timetable
F	Operations
G	Level of Charge
H	Discounts & Exemptions
I	TfL Buses
J, K, L	Taxis and PHVs (see Chapter 11)
M	Costs and revenue
N &Q	Alternative and supporting policies
O	Technology
P	Infrastructure
R	Impacts
S	Consultation
T	Other
U	Future of the scheme

10.2. Theme A: Air quality

10.2.1. Eighty-eight stakeholders commented on this theme: 680&MO Club, Age UK London, Air Quality Assessments Ltd, Air Training Corps, Alliance of British Drivers, Asthma UK, Autogas Ltd, Belgravia Residents Association, Better Bankside, British Heart Foundation, British Motorcyclists Federation, BVRLA, Camden Cyclists, Camden Green Party, Campaign for Air Pollution Public Inquiry, Campaign for Better Transport, Client Earth, Confederation of Passenger Transport, Disabled Motoring UK, Federation of British Historic Vehicle Clubs, Federation of Small Businesses, FirstGroup plc, Ford Motor Company Limited, Freight Transport Association (FTA), Friends of the Earth, General Motors UK, GMB Professional Drivers Branch, Golden Tours, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, Islington Green Party, Jenny Jones (AM, Green Party), Joint Committee on Mobility for Disabled People, Jon Cruddas MP, Lambeth Green Party, Lambeth South Public Health, London Assembly, London Assembly Liberal Democrat Group, London Borough of Brent, London Borough of Camden, London Borough of Enfield, London Borough of Hammersmith and Fulham, London Borough of Haringey, London Borough of Islington, London Borough of Lambeth, London Borough of Merton, London Borough of Newham, London Borough of Redbridge, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Tower Hamlets, London Borough of Waltham Forest, London Borough of Wandsworth, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Chamber of Commerce and Industry (LCCI), London Councils, London Cycling Campaign, London Fire Brigade, London Forum of Amenity and Civic Societies, London Motor Cab Proprietors Association, London Sustainability Exchange, London Tourist Coach Operators Association (LTCOA), London TravelWatch, Metropolitan Police, Motor Cycle Industry Association, Network for Clean Air, NHS England (London Region), Public Health England, RAC Foundation, RAC Motoring Services, Richmond Park Liberal Democrats, Royal Borough of Greenwich, Sainsburys , Southwark Living Streets, The Crown Estate, The Environmental Industries Commission, The Fitzrovia Partnership BID, Toyota, Transport-watch, Uber, UK Health Forum, UK Hydrogen and Fuel Cell Association, UKLPG, Unite the Union, UPS, Westminster City Council, Westminster Living Streets.

10.2.2. From public and business respondents, 1,084 comments were made on this theme, which constitutes seven per cent of all respondents.

Issues raised in relation to this theme:

- ***Agrees it is important to do something about AQ in London***
- ***ULEZ will be costly and won't achieve legal limits ULEZ is needed to curb pollution ahead of current/proposed large transport schemes which cause congestion/increase pollution***

Agrees it is important to do something about AQ in London

10.2.3. The following eighty-three stakeholders stated that it is important to do something about air quality in London: 680&MO Club, Age UK London, Air Quality Assessments Ltd, Air Training Corps, Alliance of British Drivers, Asthma UK, Autogas Ltd, Belgravia Residents Association, Better Bankside, British Heart Foundation, British Motorcyclists Federation, BVRLA, Camden Cyclists, Camden Green Party, Campaign for Air Pollution Public Inquiry, Campaign for Better Transport, Client Earth, Confederation of Passenger Transport, Disabled Motoring UK, Federation of British Historic Vehicle Clubs, Federation of Small Businesses, FirstGroup plc, Ford Motor Company Limited, Freight Transport Association (FTA), Friends of the Earth, General Motors UK, GMB Professional Drivers Branch, Golden Tours, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, Islington Green Party, Joint Committee on Mobility for Disabled People, Jon Cruddas MP, Lambeth Green Party, Lambeth South Public Health, London Assembly Liberal Democrat Group, London Borough of Brent, London Borough of Camden, London Borough of Enfield, London Borough of Hammersmith and Fulham, London Borough of Haringey, London Borough of Islington, London Borough of Lambeth, London Borough of Merton, London Borough of Newham, London Borough of Redbridge, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Tower Hamlets, London Borough of Waltham Forest, London Borough of Wandsworth, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Chamber of Commerce and Industry (LCCI), London Councils, London Fire Brigade, London Motor Cab Proprietors Association, London Sustainability Exchange, London Tourist Coach Operators Association (LTCOA), London TravelWatch, Metropolitan Police, Motor Cycle Industry Association, Network for Clean Air, NHS England (London Region), Public Health England, RAC Foundation, RAC Motoring Services, Richmond Park Liberal Democrats, Royal Borough of Greenwich, Sainsburys, Southwark Living Streets, The Crown Estate, The Environmental Industries Commission, The Fitzrovia Partnership BID, Toyota, Uber, UK Health Forum, UK Hydrogen and Fuel Cell Association, UKLPG, Unite the Union, UPS, Westminster City Council, Westminster Living Streets.

10.2.4. The London Borough of Brent comments that it is supportive of tackling air quality across London, not just in central London, and therefore welcomes the recommendations outlined in the TERM which includes the ULEZ. Westminster City Council are also supportive but note that more should be done to tackle air quality in the years prior to 2020 and the introduction of ULEZ, a view that is echoed by Client Earth and Friends of the Earth.

10.2.5. A number of stakeholders directly reference the health impacts of poor air quality – British Motorcyclists Federation, BVRLA, London Assembly Liberal Democrat Group, London Borough of Tower Hamlets, London Sustainability Exchange, NHS England (London Region), Public Health England and the RAC Foundation.

10.2.6. In response to Question 13, ‘in your opinion, how important is it to tackle poor air quality in central London?’ 79 per cent of the public and business respondents said it was important or very important, 13 per cent said neither important nor unimportant and 6 per cent said it was unimportant or very unimportant.

10.2.7. Within this theme, 692 comments were made by the public and businesses that something should be done about air quality. This is four per cent of all respondents.

TfL response

10.2.8. TfL notes that there is strong support for tackling air pollution in London. The ULEZ is a number of recommendations within the TERM for improving London’s air quality and contributing towards meeting EU Limit Values.

ULEZ will be costly and won't achieve legal limits

10.2.9. The following 20 stakeholders stated that ULEZ alone would not achieve legal limits in London: Asthma UK, Camden Green Party, Client Earth, Confederation of Passenger Transport, Golden Tours, I Like Clean Air, Jenny Jones (AM, Green Party), London Assembly Liberal Democrat Group, London Borough of Camden, London Borough of Camden, London Borough of Islington, London Borough of Waltham Forest, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Councils, London Cycling Campaign, London Forum of Amenity and Civic Societies, Public Health England, UK Health Forum, and Westminster City Council.

10.2.10. The Confederation of Passenger Transport was concerned that EU limit values still won’t be achieved despite the cost to the coach industry. Westminster City Council expressed this concern too adding that basing the standards on unproven Euro 6 vehicles also adds to the uncertainty. Westminster additionally commented on the influence of pollution from outside central London on the air quality in central London and how this won’t be subject to controls under the ULEZ. London Councils said more needs to be done on top of ULEZ and Asthma UK said that meeting legal limits set by the European Union should be seen as the absolute minimum measure.

10.2.11. From the public and businesses, 208 comments were made to the effect that ULEZ will be costly and won’t achieve legal limits (one per cent).

TfL response

10.2.12. The TERM published in September 2014 looks at how to reduce emissions from transport in London. It reports on what we have already done and what we could do in the future. It provides a range of possible new measures that the Mayor, TfL, the London boroughs, the Government, EU and other parties should consider

to help meet the challenge of reducing air pollutants and CO_2 emissions in London.

10.2.13. The proposed ULEZ is one of the key measures proposed in the TERM and therefore, as stated within the objectives of the scheme, it will reduce air pollutant emissions from road transport, to support Mayoral strategies and contribute to achieving compliance with EU limit values. For this reason, it is not for the ULEZ alone to achieve compliance in central London or across London as a whole.

10.2.14. The ULEZ would take London a significant step closer towards complying with the limit values going from 47 per cent of central London complying with NO_2 annual mean limit values in 2020 to 83 per cent

10.2.15. Concerns about Euro 6 performance, like that expressed by Westminster City Council are addressed in Chapter 4 and in Theme C (Vehicle Emissions standards) of this report.

ULEZ is needed to curb pollution ahead of current/proposed large transport schemes which cause congestion/increase pollution

10.2.16. Camden Green Party, Client Earth, Lambeth South Public Health, Toyota and UKLPG commented on the need to address pollution prior to the introduction of any other large transport schemes that may have an impact on traffic however no specific schemes are mentioned.

TfL response

10.2.17. The MTS published in 2010 sets out six goals for London's transport system. One of which is 'Enhance the quality of life for all Londoners' with the associated outcome of 'Reducing air pollutant emissions from ground-based transport, contributing to EU air quality targets'. A further strategic goal is to support economic development and population growth.

10.2.18. London's population continues to grow beyond expectations and it is necessary to provide the right transport infrastructure to accommodate this, including the road network, while also mitigating any adverse environmental effects. TfL's response to the Roads Task Force, and its Roads Modernisation Plan (as described in more detail in Chapter 4) set out this approach to managing the road network effectively. However it is also important to put in place strategic measures to address air quality such as the ULEZ, which builds on the LEZ and other air quality measures as described in Theme Alternative and Supporting Policies.

TfL recommendation
No change to the Scheme Order.

10.3. Theme B: the principle of a ULEZ

10.3.1. All of the stakeholders, with two exceptions, commented on this theme.

10.3.2. Of stakeholder responses, the AA and London Duck Tours did not state if they supported or opposed the ULEZ.

10.3.3. In response to Question 14, 43 per cent of public and business respondents strongly supported an ULEZ in central London and 15 per cent supported it. Eleven per cent opposed it, 20 per cent strongly opposed it and 8 per cent neither supported nor opposed it and 3 per cent stated either 'don't know' or did not answer.

10.3.4. The questionnaire also asked respondents if they drove in the CCZ in charging hours. Support for the ULEZ was strongest among respondents who never drive in the zone (87 per cent support or strongly support) and lowest among those who stated that they drive in the zone every day (36 per cent support or strongly support). The largest group reported that they drive in the zone less than once a month, and within this group, 62 per cent support or strongly support the ULEZ.

10.3.5. From public and business respondents, 3,403 comments were made on this theme, which is 21 per cent of all respondents. Of these comments, the most frequently occurring theme was that the ULEZ was to make money (1,589 comments, 10 per cent of all respondents). The second most frequent theme raised was support (807 comments, 5 per cent of all respondents). All other comments were made by one per cent or less of respondents.

Issues raised in relation to this theme:

- ***Supports a ULEZ***
- ***Supports ULEZ but it should go further***
- ***Opposes ULEZ / Objective of ULEZ is to make money***
- ***Agree with improving air quality but not ULEZ as proposed***

Supports a ULEZ

10.3.6. The following 41 stakeholders stated their support for ULEZ: 680&MO Club, Autogas, Baker St Quarter, Better Bankside, Belgravia Residents Association, British Heart Foundation, British Motorcyclists Federation, City of London Corporation, Disabled Motoring UK, Environmental Industries Commission, Federation of British Historic Vehicle Clubs, First Group, Ford Motor Company, Freight Transport Association (FTA), General Motors UK, Guide Dogs, Heart of London Business Alliance, inmidtown BID, Jaguar Land Rover, Joint Committee on Mobility for Disabled People, Lambeth South Public Health, London Borough of Redbridge, London Borough of Waltham Forest, London Borough of

Wandsworth, London Chamber of Commerce and Industry (LCCI), London Duck Tours, London Fire Brigade, London Pedicab Operators Club, London Transport Museum, London TravelWatch, Metropolitan Police, Motorcycle Action Group, National Franchised Dealers Association, New West End Company, RAC Foundation, RAC Motoring Services, Royal Borough of Greenwich, The Energy Saving Trust, Toyota, UK Hydrogen and Fuel Cell Association and UPS.

10.3.7. There was strong support from stakeholders and the public for the principle of a ULEZ in central London. RAC Motoring Services stated that the proposal balanced the need to reduce NO_2 emissions with the impact on individuals and businesses. Toyota stated that the proposal will drive forward technological advancements and the green economy. Client Earth said that an ULEZ was urgently needed.

TfL response

10.3.8. TfL welcomes the support for the proposal and notes that several stakeholders have referred to the health benefits of a reduction in emissions. The proposal has been developed over almost two years with considerable engagement with London boroughs, trade representative organisations, the taxi and PHV trades and other stakeholders.

10.3.9. In a survey carried out in early 2014[30], 95 per cent of respondents agreed that TfL/the Mayor should be doing more to limit air pollution from road vehicles.

ULEZ should go further

10.3.10. The following 56 stakeholders made comments to the effect that they supported the ULEZ but it should go further: Age UK, Asthma UK, Jenny Jones (AM, Green Party), BVRLA, Camden Cyclists, Camden Green Party, Campaign for Better Transport, Clean Air in London (CAL), Client Earth, Friends of the Earth, I Like Clean Air, Islington Green Party, Jon Cruddas MP, Lambeth Green Party, Living Streets, London Assembly, London Assembly Labour Group, London Assembly Liberal Democrat Group, London Borough of Barking & Dagenham, London Borough of Brent, London Borough of Camden, London Borough of Enfield, London Borough of Hackney, London Borough of Hammersmith & Fulham, London Borough of Haringey, London Borough of Islington, London Borough of Lambeth, London Borough of Lewisham, London Borough of Merton, London Borough of Newham, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Tower Hamlets, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Councils, London Cycling Campaign, London Forum of Amenity and Civic Societies, London Sustainability Exchange, London's Clinical Commissioning Groups, Network for Clean Air, New

[30] Air Quality in London, online survey, 3 March 2014-13 April 2014. 1329 responses

West End Company, NHS England (London Region), NHS Southwark CCG, Public Health England, Richmond Park Liberal Democrats, Royal Borough of Kensington & Chelsea (RBKC), Sainsbury's, SMMT, Southwark Living Streets, Sustrans, The Crown Estate, The Environmental Industries Commission, The Fitzrovia Partnership BID, UK Health Forum, Westminster City Council, Westminster Living Streets.

10.3.11. Many of these respondents stated their support for the proposal while also advocating for a 'bigger' scheme to be put in place. Specific issues are addressed in the other chapters, for example in Boundary, Timetable and Vehicle Emissions. It should be noted that other stakeholders also made comments on these specific changes, and are addressed in those chapters. Please see also Theme on the Future of the Scheme.

TfL response

10.3.12. In developing the proposal, TfL has sought to strike a balance in air quality improvements (achieved through vehicle emissions standards) with the impacts on individuals and businesses in terms of compliance costs. The proposed boundary, dates of introduction and emissions standards are considered to achieve this balance. It should also be restated that there are different emissions standards and means of implementation for different vehicle types and that the scheme has been tailored to have an optimal impact, reflecting the contribution of each vehicle type individually and collectively and the likely compliance costs.

10.3.13. An advantage of the proposed boundary is its familiarity as the CCZ, making the scheme more understandable for drivers and allowing some cost saving in terms of infrastructure. As a flagship UK scheme, the effects of ULEZ in terms of stimulating the development of the low emission vehicle market and new technologies, will be wide-ranging and extend beyond central London. As a result of the ULEZ, trips made beyond the zone will, overall, be made in lower emission vehicles.

10.3.14. The Mayor has stated his ambition for a potential zero emission standard in future, and the questionnaire invited views on this (see Theme U: Future of ULEZ). This would be subject to a statutory public consultation.

Opposes ULEZ

10.3.15. The following 5 stakeholders stated their opposition to ULEZ: Air Training Corps, Alliance of British Drivers, Campaign for Air Pollution Public Inquiry, Transport-watch and The Little Bus Company.

10.3.16. The London Boroughs of Camden, Southwark, Hackney & Lambeth (joint response), while supporting ULEZ did note that it could be seen as a means of

raising revenue. Sainsbury's questioned if the proposal allowed pollution as long as the 'polluter pays'.

10.3.17. The Alliance of British Drivers objected to a scheme being imposed on London drivers when the rest of the UK has no such scheme. The Campaign for Air Pollution Public Inquiry said that the proposals with regard to taxi age limits would increase air pollution. Transport-watch said there was no basis for the contention that PM causes poor health.

10.3.18. Overall, 21 per cent of public and business respondents opposed or strongly opposed ULEZ. The most frequently made comment was that the objective of the scheme was to raise revenue.

TfL response

10.3.19. By law, any and all revenue raised from schemes operated under Section 23 to the GLA Act 1999 (which ULEZ is) must be used to further the objectives of the MTS, which in practice means to fund improvements to roads, public transport and conditions for pedestrians and cyclists.

10.3.20. The ULEZ is expected to generate revenue in its first five year however this would be offset by the operational costs and loss to CC revenue. Over time, it is not expected to generate revenue because vehicles will become compliant with natural fleet turnover. As stated in the consultation materials, even without the ULEZ in place, most vehicles will be compliant with the ULEZ standards in 2020 and so would not be required to pay a charge to drive in the zone (although the CC will still apply, separately).

10.3.21. With regard to the comment from Sainsbury's, TfL has undertaken modelling of the expected response to the ULEZ. While a relatively small number of drivers will choose to pay the charge and continue to use the ULEZ in non-compliant vehicles, most will take action to either upgrade their vehicles or reconfigure the journey. This is especially the case for the operators of the most polluting heavy diesel vehicles, and is a reflection of the higher daily charge that has been proposed for these vehicles.

10.3.22. It is not possible for TfL or the Mayor to propose or implement legislation for areas outside London; however as set out in TERM, a consistent LEZ framework for the UK or Europe, and a national certification scheme, could be a positive measure towards improving air quality. The comment from CAPPI with regard to taxis and air pollutant emissions is addressed in Chapter 11. Finally, long term exposure to particulate matter contributes to the risk of developing cardiovascular and respiratory diseases, as well as of lung cancer (see Chapter 4).

Agree with improving air quality but not ULEZ as proposed

10.3.23. The following stakeholders made comments under this theme: Autogas Ltd, Confederation of Passenger Transport, Federation of Small Businesses, Golden Tours, London Tourist Coach Operators Association (LTCOA), Motorcycle Industry Association, The Original London Sightseeing Tour and UKLPG.

10.3.24. The FSB was concerned about the impact of ULEZ and other schemes such as LEZ and CC on London's economy (although it is supportive of measures to improve air quality). It called for a review of all the schemes and a potentially new approach. Autogas Ltd and UKLPG were concerned that LPG fuels had not been recognised in the proposal.

10.3.25. Several bus and coach operators stated that the proposed scheme did not fit with their vehicle replacement model and were unsuitable for that market. This is addressed in detail in Theme C, 'Vehicle Emissions and Standards'.

TfL response

10.3.26. TfL commissioned an independent Economic and Business Impact Assessment for the proposed ULEZ. It identified a short to medium-term economic impact to businesses of between £120-250m, which amounts to less than <0.1 per cent of London's economy which would diminish over time. Even without the ULEZ, most vehicles (73 per cent of cars and 44 per cent of vans) using the zone would meet its emissions standards in 2020 and would be unaffected. There are also long term moderate benefits to the economy owing to the health benefits brought about by ULEZ.

10.3.27. Although the ULEZ would be an additional cost to some businesses, many businesses, and central London BIDs, have indicated their support for the ULEZ (Fitzrovia BID, inmidtown BID, Heart of London Business Alliance).

10.3.28. For vehicles which are affected, TfL will integrate the ULEZ payment and enforcement systems with the existing CC and LEZ schemes, in order to make administration less burdensome. This means a payment can be made for more than one scheme in a single transaction. Road user charging schemes in London (CC and LEZ, and, if it is approved by the Mayor, the ULEZ) are kept under review by TfL, and from time to time are subject to consultation on proposed changes. This continues to be the case. However there is no proposal here for changes to LEZ or CC.

TfL recommendation
No change to the Scheme Order.

10.4. Theme C: Vehicle Emissions Standards

10.4.1. Seven stakeholders commented on this theme: British Heart Foundation, Clean Air in London, London Assembly Labour Group, London Borough of Camden, London Forum of Amenity and Civic Societies, RAC Foundation, UK Health Forum and Westminster City Council, Toyota Motors Europe.

10.4.2. From public and business respondents, 1,039 comments were made on this theme, which is six per cent of respondents.

Issues raised in relation to this theme:

- ***Failure of EU emission standards for diesel vehicles in reductions of NO_x emissions***
- ***Emissions under real driving conditions compared to Euro standards***
- ***Impact on air quality as a result of failure of Euro standards***
- ***Over-reliance on Euro standards***
- ***Real world emissions vs emissions testing for Euro standards and ULEZ modelling***
- ***Emissions criteria should refer to levels in grammes per kilometre, not the 'Euro standards'***

Failure of EU emission standards for diesel vehicles in reductions of NO_x emissions

10.4.3. The following stakeholders made comments on this sub-theme: British Heart Foundation, London Forum of Amenity and Civic Societies.

10.4.4. The London Forum of Amenity and Civic Societies and the British Heart Foundation noted that recent sets of EU emission standards for diesel vehicles have failed to deliver the reductions in NO_x emissions and no clear evidence that more recent or suggested EU standards for even newer diesel vehicles will perform significantly.

TfL response

10.4.5. It is widely known that the prescriptive legislation that defines Euro 1 to 4 has led to higher than expected emissions of some air quality pollutants, and CO_2 that vary significantly from the laboratory type approval limits when vehicles are operated on the highway. Euro 6/VI legislation is designed to address this issue through the test protocols applied to light duty vehicles and heavy duty engines.

10.4.6. Since the proposed ULEZ is aimed at reducing NO_x emissions and diesel engine vehicles are the primary vehicular emitters of NO_x, Euro 6/VI has been chosen as the relevant standard for ULEZ in preference to other standards.

10.4.7. TfL has studied available evidence on the performance of Euro 6/VI vehicles and conducted its own testing to assess the 'real-world' performance of this standard in typical London driving conditions (see Chapter 4 for details of this). While Euro 6/VI produces higher emissions than specified in the Euro standard, vehicles are nevertheless performing much better than previous Euro standards. TfL continues to lobby government in the UK and Europe to ensure that Euro 6 is implemented in the most effective way to control emissions.

Emissions under real driving conditions compared to Euro standards

10.4.8. The following stakeholders made comments on this sub-theme: the London Borough of Camden.

10.4.9. The London Borough of Camden stated that the ULEZ will only work if the car manufacturing industry is forced to ensure that vehicles meet the limits imposed by the Euro standards under real driving conditions.

TfL response

10.4.10. There are some detailed matters that still need to be resolved by the EU regarding the implementation of Euro 6 for light duty vehicles. These include adoption of the World Light-duty Test Procedure and the definition of Real Driving Emissions (RDE). This latter, on-road verification of emissions performance, is vital to the effectiveness of Euro 6. TfL continues to actively lobby UK Government, the EU and the UK Motor Industry to ensure that these issues are resolved satisfactorily.

Impact on air quality as a result of failure of Euro standards

10.4.11. The following stakeholders made comments on this sub-theme: London Borough of Camden and the UK Health Forum.

10.4.12. The London Borough of Camden and UK Health Forum noted that there is initial evidence to suggest that the Euro standards on which all of the modelled reductions in air quality from the ULEZ are based may not perform as expected in the real world.

TfL response

10.4.13. As stated above, TfL continues to play an active role in helping to ensure that the Euro 6 standard is effective in real-world driving conditions. Additionally, it should be noted that TfL air quality modelling is not based upon Euro standard emissions limits, but on emission factors from the COPERT[31] programme, which is widely

[31] COPERT is a programme financed by the European Environment Agency that provides road vehicle emission factors. These factors are widely used at a European, national and regional level to assess road

accepted across Europe. This form of emissions estimation more closely emulates the usage patterns of all vehicle and road types.

Over-reliance on Euro standards

10.4.14. The following stakeholders made comments on this sub-theme: London Assembly Labour Group and Westminster City Council.

10.4.15. Westminster City Council and London Assembly Labour Group noted that there is a high level of concern that the proposals of the ULEZ rely too heavily on the Euro-standards delivering their predicted emissions savings.

TfL response

10.4.16. The Euro standards set out clear standards for emissions control, which are enshrined in European legislation and recognised across the world. As such, it is a mechanism that is recognised by motor manufacturers, fleet operators and drivers alike. Vehicles have been manufactured to these standards since the early 1990s, the system is well-established and vehicles are very widely-available. This means that it is an appropriate way to identify those vehicles that are built to the most up to date standards.

10.4.17. Whilst Euro VI for heavy duty engines appears to be very effective, some elements of Euro 6 for light duty vehicles are still to be agreed by the EU. Therefore, TfL is taking an active role in engaging with the motor industry, UK Government and the EU to help ensure that the correct decisions are taken with regard to Euro 6.

10.4.18. TfL is monitoring the early performance of Euro 6/VI vehicles to ensure that this lobbying effort can be successful.

Real world emissions vs emissions testing for Euro standards and ULEZ modelling

10.4.19. The following stakeholders made comments on this sub-theme: Clean Air in London; RAC Foundation.

10.4.20. The RAC Foundation noted that real world emissions vs type-approval emissions testing for Euro standards is indicating a better performance from Euro 6 and asked which data was used to model the impacts of ULEZ. Clean Air in London stated that the Mayor's projections for emissions are likely to be below real-world levels.

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transport emissions in accordance with the requirements of international conventions and protocols and EU legislation

TfL response

10.4.21. TfL acknowledges that there is inevitably a difference between real-world emissions and type approval data. This is brought about by differences in duty cycle and the effect on emissions. TfL has developed drive cycles specific to London driving that can be used for emissions verification.

10.4.22. TfL is also lobbying the EU to ensure that the details of the forthcoming Real Driving Emissions verification testing with regard to conformity factors are appropriate.

10.4.23. TfL does not use type-approval emissions test data for air quality modelling purposes. Instead, COPERT speed-emissions factors are used which more closely approximate real world conditions. Please refer to Chapter 4 for more information on Euro 6/VI testing.

Emissions criteria should refer to levels in grammes per kilometre, not the 'Euro standards'

10.4.24. The following stakeholders made comments on this sub-theme: Toyota Motor Europe.

10.4.25. Toyota Motor Europe noted that many vehicles homologated to earlier euro standards than Euro 4 petrol/Euro 6 diesel recorded emissions values for NO_x and particulate that meet or exceed the limits set in Euro 4 petrol/Euro 6 diesel. Toyota therefore suggests that the ULEZ requirements be stated as an actual emissions requirement, in grammes per kilometre, rather than a reference to a Euro standard. This would allow earlier vehicles with suitable emissions performance to comply.

TfL response

10.4.26. Whilst TfL uses the phrase 'Euro 4 petrol/Euro 6 diesel' for communication purposes, the proposed ULEZ scheme order does reference the emissions limits encompassed within the European directives, which for light duty vehicles are expressed in milligrammes per kilometre. Where a vehicle owner can prove, to the satisfaction of TfL, that his vehicle is a compliant vehicle, it will be considered non-chargeable.

TfL recommendation
No change to the Scheme Order.

10.5. Theme D: Boundary of the ULEZ

10.5.1. Eighty stakeholders commented on this theme: 680&MO Club, Age UK London, Air Quality Assessments Ltd, Air Training Corps, Alliance of British Drivers, Asthma UK, Belgravia Residents Association, Better Bankside, British Motorcyclists Federation, BVRLA, Camden Cyclists, Camden Green Party, Campaign for Better Transport, Client Earth, Disabled Motoring UK, FirstGroup plc, Ford Motor Company Limited, Freight Transport Association (FTA), Friends of the Earth, General Motors UK, GMB Professional Drivers Branch, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, Islington Green Party, Jenny Jones (AM, Green Party), Joint Committee on Mobility for Disabled People, Jon Cruddas MP, Lambeth Green Party, Lambeth South Public Health, London Assembly, London Assembly Labour Group, London Assembly Liberal Democrat Group, London Borough of Brent, London Borough of Camden, London Borough of Enfield, London Borough of Hammersmith and Fulham, London Borough of Haringey, London Borough of Lambeth, London Borough of Lewisham, London Borough of Merton, London Borough of Newham, London Borough of Redbridge, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Tower Hamlets, London Borough of Waltham Forest, London Borough of Wandsworth, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Councils, London Cycling Campaign, London Fire Brigade, London Forum of Amenity and Civic Societies, London Sustainability Exchange, Metropolitan Police, Network for Clean Air, NHS Southwark CCG, Public Health England, Richmond Park Liberal Democrats, RAC Motoring Services, Royal Borough of Greenwich, Royal Borough of Kensington & Chelsea (RBKC), Southwark Living Streets, Sustrans, The Crown Estate, The Environmental Industries Commission, The Fitzrovia Partnership BID, The Little Bus Company, The Original London Sightseeing Tour, Toyota, Transport-watch, UK Health Forum, UK Hydrogen and Fuel Cell Association, UKLPG, UPS, Westminster City Council, and Westminster Living Streets. The London Assembly Green/Liberal Democrat Group made comments in the ‘minority views’ section of the Assembly response.

10.5.2. In response to Question 16, 27 per cent of respondents agreed that the proposed boundary is an appropriate area for the ULEZ. Thirty-five per cent said it should be bigger, and 20 per cent said it should be smaller. The remainder had no opinion, did not know or did not answer.

10.5.3. From public and business respondents, 1,140 comments were made on this theme (7 per cent of all respondents). Of these the biggest sub-theme was ‘expand the boundary’, with 931 comments.

Issues raised in relation to this theme:

- ***Boundary should be bigger***
- ***Concern about impacts outside boundary***
- ***Other boundary issues***
- ***Boundary should be bigger***

Boundary should be bigger

10.5.4. The following 51 stakeholders commented that the boundary should be expanded: Age UK London, Air Quality Assessments Ltd, Asthma UK, Belgravia Residents Association, Better Bankside, Camden Cyclists, Camden Green Party, Campaign for Better Transport, Client Earth, Friends of the Earth, I Like Clean Air, Islington Green Party, Jenny Jones (AM, Green Party), Lambeth Green Party, Lambeth South Public Health, London Assembly, The London Assembly Green/Liberal Democrat Group, London Assembly Labour Group, London Assembly Liberal Democrat Group, London Borough of Camden, London Borough of Enfield, London Borough of Hammersmith and Fulham, London Borough of Haringey, London Borough of Lambeth, London Borough of Lewisham, London Borough of Merton, London Borough of Newham, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Tower Hamlets, London Borough of Waltham Forest, London Borough of Wandsworth, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Councils, London Cycling Campaign, London Forum of Amenity and Civic Societies, London Sustainability Exchange, Network for Clean Air, NHS Southwark CCG, Public Health England, Richmond Park Liberal Democrats, Royal Borough of Greenwich, Royal Borough of Kensington & Chelsea (RBKC), Southwark Living Streets, Sustrans, The Environmental Industries Commission, The Fitzrovia Partnership BID, The Little Bus Company, The Original London Sightseeing Tour, UK Health Forum and Westminster Living Streets.

10.5.5. As stated above, 35 per cent of public and business respondents preferred that the boundary be bigger.

10.5.6. Within this group of stakeholders, London Assembly Labour Group and the London Forum of Civic and Amenity Societies commented that boroughs should be able to opt in to the ULEZ. Jenny Jones AM also advocated this and that the surplus from the LEZ should be used to fund this.

10.5.7. London Borough of Hammersmith & Fulham said that it should include the borough, as did London Borough of Richmond upon Thames. London Borough of Sutton said there should be consideration of hotspots outside central London. London Borough of Wandsworth said that the Mayor should work with boroughs who want to see an expansion of the zone locally, and that it would support expansion subject to cost-benefit analysis.

10.5.8. In a joint response, the London Boroughs of Camden, Southwark, Hackney & Lambeth said that the zone should be expanded in order to meet air quality targets. London Forum of Civic and Amenity Societies referred to including Heathrow in the zone. Public Health England noted that expansion would spread the health benefits to a bigger population. Client Earth also said that the current area was too small and had been constrained by cost considerations.

10.5.9. Camden Cyclists, Fitzrovia Partnership BID, I Like Clean Air, London Councils, Network for Clean Air, stated that ULEZ should include all inner London boroughs; London Boroughs of Camden and Lambeth, London Assembly Liberal Democrat Group put forward a North and South circular road boundary

10.5.10. Several stakeholders advocated an expansion to cover the same area as the LEZ: London Boroughs of Haringey, Lewisham, the Environmental Industries Commission, Royal Borough of Greenwich and Sustrans.

10.5.11. The London Assembly states that there could be practical benefits to establishing a bigger ULEZ from the start, noting the interest of several boroughs in being within the zone. It calls for this idea to be developed and for a further consultation on an expanded ULEZ at a later date.

TfL response

10.5.12. TfL notes the support for a larger area to be included in the ULEZ. The current boundary has been proposed because it is where air pollution levels are consistently the highest in London and people experience the greatest exposure to this. Additionally, it has the advantage of using the existing CCZ.

10.5.13. Data available from the latest London Atmospheric Emissions Inventory demonstrates central London is forecast to have the highest NO_2 concentrations in the capital in 2020, combined with the highest human exposure overall. Approximately seven per cent of London's population is living in areas exceeding the legal limit for NO_2 but this dramatically increases to 63 per cent when considering the central area alone.

10.5.14. The CCZ is a natural boundary for central London, shaped by the inner ring road and well understood by road users because of the length of time it has been operational and the amount it has been publicised. TfL also operates a camera enforcement network along its border, which can be utilised to manage compliance of ULEZ, significantly reducing the capital investment required to implement the proposed scheme.

10.5.15. It is therefore acknowledged that there is a cost consideration but this must be understood in the wider context of the overall costs and benefits of the proposal. The current proposal has been thoroughly assessed with regard to likely driver response, cost of compliance, air quality impacts and feasibility. As set out in the

Supplementary Information, TfL undertook a high level preliminary assessment of a number of areas in order to identify potential schemes for more detailed assessment. It was apparent at this preliminary stage that a scheme beyond central London would have adverse impacts far in excess of any positive effects. Such schemes were not taken forward.

10.5.16. Using the CCZ means that the ULEZ can be introduced relatively soon, but with enough time for drivers to prepare. A larger zone would necessitate an additional set of infrastructure, systems, signage and driver information to be developed. Even if this were shown to be effective in terms of costs and benefits, this would be very unlikely to be developed for implementation in 2020.

10.5.17. The air quality and health benefits of the ULEZ would also extend beyond central London to inner and outer London, as drivers switch to cleaner vehicles, and. the proposed investment in the TfL bus fleet will also result in London-wide emissions savings. The borough emissions factsheet at Appendix M sets out the emission reductions in each borough in London (which includes savings from taxis and PHVs, if the proposals for these vehicles were to be implemented).

10.5.18. It is acknowledged that there are air quality hotspots beyond the proposed ULEZ area. TfL has set out in the TERM the measures that could be used to address local hotspots as well as improve air quality London wide, including changes to the LEZ (Theme N on Alternative and Supporting Policies has more information on these). TfL has already begun to work with boroughs who are interested in undertaking measures.

10.5.19. It is not recommended to the Mayor that any change is made to the ULEZ boundary at this time. However, a future extension of the zone – subject to public and stakeholder consultation on a further scheme order revision and Mayoral approval – is not ruled out.

Concern about impacts outside boundary

10.5.20. Seventeen stakeholders made comments about this: Client Earth, GMB Professional Drivers Branch, Lambeth South Public Health, London Borough of Brent, London Borough of Camden, London Borough of Enfield, London Borough of Haringey, London Borough of Lambeth, London Borough of Newham, London Borough of Tower Hamlets, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Councils, London Cycling Campaign, Royal Borough of Greenwich, Royal Borough of Kensington & Chelsea (RBKC), Southwark Living Streets, The Environmental Industries Commission and UKLPG.

10.5.21. The concerns raised included the effect of the ULEZ on the boundary routes and areas bordering the zone in terms of traffic, congestion and parking. Stakeholders stated that vehicles which did not comply with the ULEZ (which would be vehicles

with higher air pollutant emissions) would divert to these areas, worsening conditions locally.

TfL response

10.5.22. Although the proposed ULEZ would set standards only for vehicles entering or travelling within the zone, it would be expected both to have an impact on the wider fleet (since some vehicles will be upgraded in order to comply, even for occasional trips) and also to deter some trips, as some drivers will choose not to make a trip anymore. For this latter group, there will be an impact on areas outside the zone because most of these trips will have a stage which is outside the ULEZ, and so the trip is no longer made there either.

10.5.23. Trips diverting around the ULEZ could use the Inner Ring Road. Experience with the CC suggests that 'new' trips diverting onto the Inner Ring Road will be counterbalanced by capacity 'freed up' by otherwise deterred trips. Additionally, given that the CC is already a deterrent, the number of 'through trips' during the daytime hours are likely to be small in number. Other traffic deterred from the ULEZ could be reflected in less traffic in inner and outer London, as the legs of these trips in these areas are also not being made.

10.5.24. In this way, it is not expected that the ULEZ will lead to increased traffic around its perimeter. Indeed, and as shown in Appendix 10 of the Supplementary Information, it will lead to a very small reduction in vehicle km on the Inner Ring Road and inner London, with no change in outer London.

10.5.25. With regard to parking pressure, due to the costs of parking in the area around ULEZ, it is not expected that there would be an increased demand for parking in this area.

Other boundary issues

10.5.26. The following seven stakeholders made other comments related to the boundary: London Borough of Camden, London Borough of Enfield, London Borough of Lewisham, London Councils, Transport-watch, UPS and Westminster City Council.

10.5.27. The London Borough of Camden stated that its officers needed information on the impacts and future of the ULEZ to align borough air quality policies to it. London Borough of Enfield said there would need to be additional information available if the zone were to be expanded. London Borough of Lewisham said it would have concerns if the North and South circular roads became a boundary. Westminster City Council said it would expect a commitment from the Mayor to include an assessment of the zone boundary as part of the overall review of the ULEZ and effectiveness of Euro VI technology.

10.5.28. Transport-watch commented that the ULEZ should be smaller (and opposed ULEZ generally). UPS stated that it should be confirmed that the zone would not be expanded, as this would be confusing for drivers.

TfL response

10.5.29. As already stated, there are no specific plans to expand (or contract) the boundary of the ULEZ at this time. Any such proposal would be subject to a further public and stakeholder consultation and Mayoral approval. TfL will monitor and report on the impacts of the ULEZ once it begins operation and this data, among other information, would inform any future decision on changes to ULEZ. TfL is happy to share information with boroughs.

10.5.30. With regard to Euro VI technology, information on the research commissioned by TfL is presented in Chapter 4 and in Theme C – Vehicle Emissions and standards.

TfL recommendation
No change to the Scheme Order.

10.6. Theme E: the Timetable for an ULEZ

10.6.1. Twenty-seven stakeholders commented on this theme: Age UK London, Belgravia Residents Association, BVRLA, Camden Green Party, Client Earth, Disabled Motoring UK, Freight Transport Association (FTA),Friends of the Earth, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, Islington Green Party, Jenny Jones (AM, Green Party),Lambeth South Public Health, London Assembly, London Assembly Liberal Democrat Group, London Borough of Camden, London Borough of Enfield, London Borough of Lambeth, London Borough of Merton, London Borough of Redbridge, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Wandsworth, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Cycling Campaign, London Forum of Amenity and Civic Societies, New West End Company, Public Health England, Richmond Park Liberal Democrats, The Fitzrovia Partnership BID, The Original London Sightseeing Tour, Toyota, Uber, UK Health Forum, UK Hydrogen and Fuel Cell Association and Westminster City Council. The London Assembly Conservative Group and the Green Party/Liberal Democrat Group separately made comments on the timetable as part of their 'minority views' on the Assembly's submission.

10.6.2. From public and business respondents, 833 comments were made on this theme, which constitutes five per cent of all respondents. Comments on this theme were made by four per cent of respondents. Several stakeholders commented about the need for a timetable for future phases of ULEZ and this is addressed in Theme U: the Future of ULEZ.

Issues raised in relation to this theme:

- ***Implement ULEZ sooner***
- ***Implement elements of ULEZ later***
- ***Agrees with timetable as proposed***

Implement ULEZ sooner

10.6.3. The following 26 stakeholders stated that ULEZ should be implemented sooner than the proposed date of 2020: Islington Green Party, Jenny Jones (AM, Green Party), Age UK London, Friends of the Earth, I Like Clean Air, London Assembly, London Assembly Green/Liberal Democrat Group, London Borough of Camden, London Borough of Enfield, London Borough of Lambeth, London Borough of Merton, London Borough of Richmond Upon Thames, London Borough of Wandsworth, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Cycling Campaign, London Forum of Amenity and Civic Societies, Public Health England, Richmond Park Liberal Democrats, UK Health Forum, Westminster City Council, London Assembly Liberal Democrat Group, Camden

Green Party, Client Earth, Lambeth South Public Health, Toyota and New West End Company.

10.6.4. Within this theme, 442 comments were made by the public and businesses that ULEZ should be implemented sooner. This is three per cent of all respondents.

10.6.5. Jenny Jones AM commented that the central zone should commence in 2018 and initially prevent pre-Euro 4 vehicles from entering the zone. The London boroughs of Camden, Lambeth and Enfield and Public Health England noted that people are experiencing poor air quality already and so it was imperative to introduce the zone sooner. The London Assembly Liberal Democrat Group stated that a charge should be introduced from 2016.

10.6.6. The London Assembly stated that while reasons for implementation prior to 2018 had been given to it, there was no evident reason not to implement it from late 2017. It noted the high levels of compliance forecast for 2020 and said that these should be considered with the health benefits both to drivers and the wider population from earlier implementation.

TfL response

10.6.7. TfL notes that there is strong support for earlier implementation of the ULEZ. The ULEZ, if it is confirmed by the Mayor, would be implemented from 7 September 2020. It should be noted here that the ZEC requirement for taxis and PHVs was proposed to be implemented in January 2018, ahead of the 2020 implementation date for the other aspects of the proposal. TfL would seek to increase the number of its hybrid and zero emission buses in the ULEZ from 2015 in order to be compliant in 2020.

10.6.8. The proposed date recognises the need for an acceptable balance between the projected reduction in emissions from the ULEZ (and consequent health benefits) and likely cost of compliance for Londoners, businesses and visitors to the capital.

10.6.9. If the scheme is confirmed in its proposed form by the Mayor in spring 2015, it would give five years notice to vehicle owners. This is considered to be a reasonable amount of time so that owners can decide how to respond to the scheme. Most vehicles will be compliant by 2020 even without ULEZ, but for those which will not meet the standard, owners will need to decide how to respond. This may be to change their vehicle, pay the charge, or, in the case of fleet operators, reconfigure operations so that only compliant vehicles use the ULEZ.

10.6.10. It is important to provide sufficient time and certainty to these people and for TfL to provide appropriate information on the operation and standards in the scheme. Of course, some drivers and fleet managers will choose to replace or reconfigure

vehicles earlier than September 2020 in order to better fit with vehicle replacement cycles.

10.6.11. If the scheme were to be implemented earlier, more people would have to pay the ULEZ charge as they might not be able to immediately upgrade their vehicle to meet the standard. This is not what the scheme is intended to do. Likewise, the amount spent on upgrading vehicles for those who need to meet the standard would be much higher in total, and could have adverse impacts socially and on London's economy. To take a specific example, if the ULEZ were introduced in September 2018, a diesel minibus could only comply if it was less than two years old (Euro 6 becomes mandatory from September 2016). This naturally increases the cost to operators and reduces the second hand market options.

10.6.12. However, as stated in the consultation materials, the Mayor is keen to strengthen ULEZ standards in the future, subject to further public and stakeholder consultation.

Implement elements of ULEZ later

10.6.13. The following stakeholders stated that elements of ULEZ should be implemented later than the proposed date of 2020: the BVRLA, the National Franchised Dealers Association (NFDA) and the Original London Sightseeing Tour Ltd. For these stakeholders, the comments related to specific vehicle types. The BVRLA and NFDA wanted a later introduction date for HGVs because the technology available for these vehicles is available later than for car. The Original London Sightseeing Tour Ltd was concerned about buses and coaches, stating that there were no hybrid options, that the vehicle lifecycle was longer and costs prohibitive, calling for implementation for its vehicles from 2025 but with a LEZ boundary.

10.6.14. From the public and businesses, 177 comments were made to the effect that ULEZ should be implemented later (one per cent). A further 117 comments (one per cent) were made stating that a retrospective policy is unfair and should not be applied to vehicles already purchased.

TfL response

10.6.15. With regard to the BVRLA comment it is acknowledged that the availability of low emission technologies for heavier vehicles is limited and tends to follow the introduction of these models for lighter vehicles such as cars and vans. It is hoped that the introduction of ULEZ, along with other incentives such as the CC ULED, will serve to accelerate the development and large-scale introduction of heavy low emission vehicles. However, in setting the ULEZ standards, the proposal takes account of the different vehicle models available as well as the contribution that different vehicle types make to emissions.

10.6.16. For this reason, it is not specified that vehicles must be hybrid or electric; the proposal is technology-neutral. It is recognised that HGVs, coaches and buses will continue to be predominated by diesel in the near future. A Euro VI HGV, bus or coach would be able to drive in the zone without charge if the ULEZ is implemented as proposed. By September 2020, such a vehicle could be up to 6 years old.

10.6.17. However, it is also important to recognise that heavier diesel vehicles make a large contribution on a per-vehicle basis to air pollutant emissions, and to set a ULEZ standard for them. All vehicles contribute to poor air quality and it is important that the ULEZ encompasses all vehicle types.

10.6.18. With regard to the alternative proposal of a 2025 implementation date for buses and coaches, this is not considered to be an appropriate timetable given the pressing need to address air pollutant emissions from transport. All vehicles have a part to play in reducing emissions and while it is acknowledged that heavier vehicles will not have an older, petrol alternative (as is the case for cars, say), it is also true that these vehicles make a significant contribution to NO_x emissions in London. The LEZ would continue to affect these vehicles but, for reasons stated in Theme D, it is not considered appropriate for the ULEZ boundary to be the same as the LEZ boundary.

Agrees with timetable as proposed

10.6.19. Twelve stakeholders made comments in agreement with the timetable: Belgravia Residents Association, Disabled Motoring UK, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, London Assembly Conservative Group, London Borough of Redbridge, London Borough of Sutton, The Fitzrovia Partnership BID, UK Hydrogen and Fuel Cell Association, Freight Transport Association (FTA) and Toyota.

10.6.20. With the exception of the London Assembly Conservative Group, FTA and Toyota, all of these stakeholders commented specifically on the proposed timetable for taxis and PHVs (there was no specific question on the timetable in general). These respondents stated that the proposed implementation date of 2018 for ZEC PHVs and taxis was right. FTA stated that it was important to get cross-party support for the implementation date so that it would remain assured once the Mayor has finished his term; Toyota commented that it agreed with the timetable generally.

10.6.21. The London Assembly Conservative Group stated its disagreement with the London Assembly view that ULEZ should be implemented sooner, stating that the timetable is correct as proposed.

10.6.22. Public and business responses to the questions concerning the timetable for the ZEC requirement for PHVs and taxis (Question 24a and b), were as follows. For taxis, 32 per cent said the 2018 date was ‘about right’, with 23 per cent saying it could be achieved earlier and 28 per cent saying it could not be achieved until later than 2018. Sixteen per cent of respondents stated either ‘don’t know’, ‘no opinion’ or did not answer the question.

10.6.23. For PHVs, 31 per cent said the 2018 date was ‘about right’, with 25 per cent saying it could be achieved earlier and 23 per cent saying it could not be achieved until later than 2018. Twenty-one per cent of respondents stated either ‘don’t know’, ‘no opinion’ or did not answer the question.

TfL response

10.6.24. The support for the timetable is welcomed. Should the Mayor confirm the Scheme Order in spring 2015, this will give sufficient time for vehicle owners to plan their response to the scheme. Regardless of any future change of Mayor, the scheme would remain in place as confirmed unless and until any further public consultation was undertaken and changes accepted by a future Mayor.

10.6.25. With regard to the implementation date for ZEC taxis and PHVs, please see chapter on Taxi and PHV proposals.

TfL recommendation
No change to the Scheme Order.

10.7. Theme F: Operations

10.7.1. Fifty-seven stakeholders commented on this theme: 680&MO Club, Age UK London, Air Quality Assessments Ltd, Air Training Corps, Alliance of British Drivers, Asthma UK, Belgravia Residents Association, Better Bankside, British Heart Foundation, British Motorcyclists Federation, BVRLA, Camden Cyclists, Camden Green Party, Campaign for Air Pollution Public Inquiry, Campaign for Better Transport, Confederation of Passenger Transport, Disabled Motoring UK, FirstGroup plc, Friends of the Earth, General Motors UK, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, Islington Green Party, Joint Committee on Mobility for Disabled People, Jon Cruddas MP, Lambeth Green Party, Lambeth South Public Health, London Borough of Brent, London Borough of Camden, London Borough of Haringey, London Borough of Lambeth, London Borough of Merton, London Borough of Newham, London Borough of Redbridge, London Borough of Richmond Upon Thames, London Borough of Tower Hamlets, London Borough of Waltham Forest, London Borough of Wandsworth, London Councils, London Cycling Campaign, London Fire Brigade, London TravelWatch, National Franchised Dealers Association (NFDA), Network for Clean Air, Public Health England, RAC Motoring Services, Richmond Park Liberal Democrats, Royal Borough of Greenwich, Southwark Living Streets, The Crown Estate, The Fitzrovia Partnership BID, The Little Bus Company, Transport-watch, UK Health Forum, UK Hydrogen and Fuel Cell Association, and Westminster Living Streets.

10.7.2. From public and business respondents, 819 comments were made on this theme (5 per cent of respondents). Of these comments, the most frequently-made were that charge hours should be during the day only or during weekdays only (345 and 274 comments respectively).

Issues raised in relation to this theme:

- ***Support and opposition for the proposed charging hours***
- ***Paying the charge***
- ***Monitoring the ULEZ***
- ***Support and opposition to the proposed charging hours***

Support and opposition for the proposed charging hours

10.7.3. The following 47 stakeholders agreed with the hours as proposed: Age UK London, Air Quality Assessments Ltd, Asthma UK, Belgravia Residents Association, Better Bankside, British Heart Foundation, British Motorcyclists Federation, BVRLA, Camden Cyclists, Camden Green Party, Campaign for Better Transport, Disabled Motoring UK, FirstGroup plc, Friends of the Earth, General Motors UK, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, Islington Green Party, Jon Cruddas MP, Joint Committee on Mobility for Disabled People, Lambeth Green Party, Lambeth South Public Health, London Borough of

Camden, London Borough of Haringey, London Borough of Lambeth, London Borough of Merton, London Borough of Newham, London Borough of Redbridge, London Borough of Richmond Upon Thames, London Borough of Tower Hamlets, London Borough of Waltham Forest, London Borough of Wandsworth, London Councils, London Cycling Campaign, London Fire Brigade, London TravelWatch, Network for Clean Air, RAC Motoring Services, Richmond Park Liberal Democrats, Southwark Living Streets, The Crown Estate, The Fitzrovia Partnership BID, The Little Bus Company, UK Health Forum, UK Hydrogen and Fuel Cell Association, and Westminster Living Streets.

10.7.4. The following 5 stakeholders opposed the proposed hours: 680&MO Club, Air Training Corps, Alliance of British Drivers, Campaign for Air Pollution Public Inquiry, and Transport-watch. With the exception of the 680&MO Club, all of these stakeholders also stated their opposition to ULEZ.

10.7.5. As stated above, comments from the public included the view that the charge should apply weekdays or during the day only.

TfL response

10.7.6. TfL welcomes the support for the proposed charging hours, which are 24 hours per day, 365 days per year. These operating hours are proposed to reflect the ULEZ objective of reducing vehicle emissions and improving air quality for Londoners. Air pollution from vehicles is a problem at all times and so, in order to optimise the effects of the ULEZ, it must apply at all times. In this respect the ULEZ differs from the CC, which, although it covers the same area of central London as the ULEZ, operates only on weekdays from 7am to 7pm. The primary objective of the CC is to reduce traffic and congestion in central London and it is therefore appropriate that it applies in peak hours, when congestion is at its highest. However it would not be appropriate to use this approach for the ULEZ, for the reasons stated above.

10.7.7. In addition, this approach aligns ULEZ with the existing London-wide LEZ and the majority of other emission control zones operating in Europe. A 24/7 scheme also lessens the complexity of the scheme and deters users from making the same journey in a non-compliant vehicle at a different time of the day, which would not improve air quality as much and lead to diminished health benefits.

10.7.8. However, TfL did consider other potential charging hours in its appraisal of options in developing the scheme. This is set out in Chapter 15 of the Supplementary Information. This work showed that a 24/7 scheme could save more than double the NO_x emissions of a CC hours-only scheme, leading to a greater reduction in annual mean concentrations of NO_2. This clearly demonstrates the advantages of the proposed charging hours.

Paying the charge

10.7.9. The following seven stakeholders commented on how the charge would be paid: BVRLA, Federation of Small Businesses (FSB), London Borough of Brent, London Borough of Newham, London Borough of Wandsworth, RAC Motoring Services and Royal Borough of Greenwich. Westminster Living Streets stated that the charge should be levied per entry to the zone, not per day.

10.7.10. All of the other stakeholders who made a comment were concerned that drivers be made aware of the ULEZ and how to pay the charge (if it applied) well in advance of the start of the scheme. The BVRLA stated that it should be possible to pay other charges such as CC at the same time; it and the NFDA proposed an introductory 12-month period where warning notices were issued in place of penalty charge notices. The FSB also wanted a similar introductory period.

TfL response

10.7.11. The administration of the CC and LEZ schemes is carried out on a contract basis by a service provider appointed by TfL following competitive tender. Usually contracts are let on a five-year cycle. The service provider for these schemes would take on the administration of the ULEZ and be required by contract to integrate the payment mechanisms for these schemes. In this way, the payment channels for ULEZ would be expected to be the same as is offered for the CC.

10.7.12. If ULEZ is confirmed by the Mayor, TfL would undertake extensive advertising and publicising of the scheme well in advance of its go-live date. Assuming the Mayor makes his decision in spring 2015, there would be more than five years' notice of the scheme commencement in September 2020 and TfL could use channels such as its website, its customer email database and press and radio advertising to ensure that drivers were aware of the scheme (exact details would be confirmed following the Mayor's decision).

10.7.13. With regard to signage, it is expected that the ULEZ would have signs at its boundary and repeater signs within the zone, similar to those for the CCZ. If ULEZ is approved by the Mayor, TfL would work with DfT on developing an appropriate sign, and would also engage with the London boroughs affected. TfL would seek to minimise adverse visual impacts of signage.

10.7.14. It is not planned to have a transitional period for the ULEZ where penalty notices are replaced by warning letters. This approach was used for the introduction of LEZ in 2008 and was considered appropriate at the time given the novelty of the scheme and the magnitude of the charge. However there are a number of differences between the LEZ and ULEZ which mean this approach is not being put forward, most importantly the long notice period for the implementation of ULEZ and the precedent set by both the CCZ and LEZ means that none of the affected drivers will be unfamiliar with a charging scheme in London.

10.7.15. However, TfL will investigate the possibility of writing to potentially affected drivers, using DVLA data and information from its CC cameras, in advance of scheme implementation, should this be feasible.

10.7.16. With regard to Westminster Living Streets' comment about a per-entry charge, this is not considered the best approach. The daily charge proposed aligns with the operation of both LEZ and CC so can be more easily understood by drivers; in addition it is feasible using the existing infrastructure.

Monitoring the ULEZ

10.7.17. The following five stakeholders made comments about monitoring the scheme: British Heart Foundation, Confederation of Passenger Transport, London Borough of Camden, London Councils and Public Health England.

10.7.18. The most frequent comment was that TfL must monitor the operation and impact of the ULEZ to check how well it was performing. Public Health England called for a detailed monitoring report to be produced on key indicators including the effect on different communities. The London Borough of Camden made similar comments and also stated there should be information on modal shift, for example. London Councils asked for an evaluation phase following three years of operation.

10.7.19. Both the British Heart Foundation and the Confederation of Passenger Transport were concerned that the ANPR cameras used for enforcement would not pick up on vehicles which had inadequate or no emissions filtering equipment fitted.

TfL response

10.7.20. TfL will monitor the impacts of the scheme using existing mechanisms including data from its enforcement camera network (for levels of compliant vehicles) and also air quality monitoring reports.

10.7.21. The GLA publishes an Annual MAQS Progress Report and TfL publishes a comprehensive review of its services on an annual basis in the Travel in London report (which includes, for example, data on mode share). Results of the monitoring of the ULEZ could be included in one of these reports or in a stand-alone report following implementation.

10.7.22. Like the CC and the LEZ, the ULEZ would be kept under review by TfL and potential changes to it could be made by a variation to the Scheme Order. This would be subject to approval by the Mayor and necessitate a public and stakeholder consultation.

10.7.23. With regard to the concern about missing or inadequate emissions filtering equipment (such as a Diesel Particulate Filter), it is the case that this could not be

detected by TfL's cameras. However this equipment is checked as part of the annual MOT undertaken on vehicles and is relatively difficult to remove or tamper with; the other alternative would be random, widespread roadside testing, which would be prohibitively expensive to organise, even if it were possible for TfL to do it.

TfL recommendation
No change to the Scheme Order.

10.8. Theme G: Charge Level

10.8.1. Fifty-six stakeholders commented on this theme: 680&MO Club, Age UK London, Air Quality Assessments Ltd, Air Training Corps, Alliance of British Drivers, Belgravia Residents Association, Better Bankside, British Motorcyclists Federation, BVRLA, Camden Cyclists, Camden Green Party, Campaign for Better Transport, Client Earth, Disabled Motoring UK, Federation of Small Businesses, FirstGroup plc, Ford Motor Company Limited, Friends of the Earth, General Motors UK, GMB Professional Drivers Branch, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, Islington Green Party, Jenny Jones (AM, Green Party), Joint Committee on Mobility for Disabled People, Lambeth Green Party, Lambeth South Public Health, London Assembly, London Borough of Camden, London Borough of Haringey, London Borough of Lambeth, London Borough of Redbridge, London Borough of Sutton, London Borough of Waltham Forest, London Borough of Wandsworth, London Councils, London Tourist Coach Operators Association (LTCOA), Motor Cycle Industry Association, Motorcycle Action Group, Network for Clean Air, National Franchised Dealers Association (NFDA), RAC Motoring Services, Richmond Park Liberal Democrats, Sainsburys, Southwark Living Streets, The Crown Estate, The Energy Saving Trust, The Fitzrovia Partnership BID, The Little Bus Company, The Original London Sightseeing Tour, Toyota, Transport-watch, UK Health Forum, UK Hydrogen and Fuel Cell Association, and UKLPG

10.8.2. In response to Question 18, 36 per cent of public and business respondents agreed that the proposed charges were appropriate for all vehicle types; 15 per cent thought the charges were too low; 38 per cent thought the charges were too high, 5 per cent stated they had no opinion and 7 per cent stated either ‘don’t know’ or did not answer.

10.8.3. In response to the charge level for specific vehicle types, a higher proportion of public and business respondents agreed with the proposed charge for HGVs and non-TfL coaches and buses (both 42 per cent) than the proportion that agreed with the charges for all vehicle types. 52 per cent of public and business respondents thought the charges for motorcycles were too high, a greater proportion than the 38 per cent who said this for all vehicle types.

10.8.4. From public and business respondents, 678 comments were made on this theme. The most common theme was expressing support for differential charges based on vehicles emissions. 120 of 172 individual respondents who made comments about differential charges showed support for this. A further 82 respondents made comments relating to charges being based on frequency of access or mileage within the zone. The next most common themes of comments were about reducing the charge level for light vehicles (80 respondents) and specifically reducing the charge for motorcycles (64 respondents). Full details of all responses are given in chapter 8.

Issues raised in relation to this theme:

- ***There should be differentiation in the level of charge based on emissions***
- ***The charge should be higher for all vehicle types***
- ***The charge should be higher for heavy vehicles***
- ***The charge should be lower for light vehicles***
- ***The charge should be lower for motorcycles***
- ***There should be differentiation in the level of charge based on emissions***

There should be differentiation in the level of charge based on emissions

10.8.5. The following stakeholders agreed with the proposal to implement different charge levels for different vehicles according to the level of emissions produced: Age UK London, Belgravia Residents Association, BVRLA, Federation of Small Businesses, General Motors UK, Heart of London Business Alliance, Lambeth Green Party, Lambeth South Public Health, London Borough of Lambeth, London Borough of Redbridge, London Borough of Sutton, London Borough of Waltham Forest, London Tourist Coach Operators Association (LTCOA), RAC Motoring Services, Sainsburys, UK Hydrogen and Fuel Cell Association, and UKLPG.

10.8.6. 179 public and business respondents made comments on this sub-theme.

10.8.7. The Federation of Small Businesses, London Borough of Sutton and UKLPG suggested further differentiation in charge levels could be implemented according to levels of emissions of vehicles within a single vehicle category.

10.8.8. The following stakeholders proposed differential pricing between petrol and diesel cars based on the level of emissions produced by the two engine types: London Borough of Camden, London Borough of Southwark, London Borough of Hackney, London Borough of Lambeth, London Forum of Amenity and Civic Societies and UKLPG.

10.8.9. Westminster Living Streets proposed that all non-compliant vehicles be charged £12.50 per entry to the zone rather than per day.

TfL response

10.8.10. TfL welcomes the support for the principle of differential charges.

10.8.11. Further differentiation in charge level within vehicle categories or by frequency of access would deliver only small further reductions in emissions at the cost of greater complexity of communicating and administrating the scheme. Emissions standards are a well-understood framework that can be used to administer the scheme.

10.8.12. The standards proposed for petrol and diesel engines mean that each will have to meet the same standard for emissions of NO_x in absolute terms. The scheme allows for light duty diesel vehicles of Euro 6 and light duty petrol vehicles of Euro 4 standard to drive without paying a charge. This has been proposed because the NO_x emission limits for each at type approval are the same (0.08g/km).

The charge should be higher for all vehicle types

10.8.13. The following stakeholders called for an increase in the charge levels for all vehicles: Air Quality Assessments Ltd, Camden Green Party, Islington Green Party, Jenny Jones (AM, Green Party), London Assembly, Network for Clean Air, The Energy Saving Trust, UK Health Forum.

10.8.14. These responses called for a range of charge increases, from an inflation-based increase proposed by the Energy Saving Trust to a £250 charge set at the same level as LEZ proposed by Jenny Jones (AM, Green Party) with the aim of generating behaviour change with greater urgency. The London Assembly proposed an increase in the level of the charge in the zone's first years.

TfL response

10.8.15. TfL has considered the balance between the requirement for a significant charge to be implemented in order to generate behaviour change and the need to avoid causing economic damage to an extent that would not be justified by the emissions savings resulting from further behaviour change. Modelling of the appropriate level for the charge took into account evidence gathered about behavioural responses. This evidence was used in conjunction with transport appraisal guidance to test a range of charge levels and weigh up the impacts on factors including journey times, reductions in economic activity and emissions reductions. The proposed level achieves a balance of these factors that generates substantial emissions savings without causing a net economic disbenefit.

The charge for heavy vehicles should be different

10.8.16. The following stakeholders called for a higher charge for heavy vehicles (ie HGVs, coaches and non-TfL buses): Camden Cyclists, Camden Green Party, Client Earth, Disabled Motoring UK, GMB Professional Drivers Branch, I Like Clean Air, inmidtown BID, London Councils, Richmond Park Liberal Democrats, and The Little Bus Company.

10.8.17. Some of these stakeholders wished to see an increased charge for some heavy vehicle types and not others. I Like Clean Air called for a higher charge for coaches and non-TfL buses, while GMB Professional Drivers Branch called for a higher charge for HGVs during peak periods.

10.8.18. First Group plc called for a lower charge for heavy vehicles, and The Original London Sightseeing Tour stated that they believed the proposals are disproportionate to the emissions produced.

TfL response

10.8.19. TfL has considered the balance between the requirement for a significant charge to be implemented in order to generate change in practice amongst heavy vehicle operators and the need to avoid causing economic damage to an extent that would not be justified by the emissions savings resulting from further change in activity and practice. Heavy vehicles generate much greater quantities of NO_x than light vehicles, and the scale in the difference of the proposed charges reflects the scale in the difference of emissions produced by the different vehicle types. In addition to this, evidence on responses to charging shows that heavier vehicles require a higher charge in order to generate a change in practice due to the already high base cost of operating heavy vehicles. Like other charges, the ULEZ charges for compliance would be kept under review and could potentially be changed, subject to formal consultation, at a later date.

The charge for light vehicles should be different

10.8.20. The following stakeholders called for a lower charge for light vehicles (ie cars, minibuses, vans and motorcycles): 680&MO Club, Air Training Corps, Camden Cyclists, Campaign for Better Transport, Ford Motor Company Limited, Joint Committee on Mobility for Disabled People, Lambeth South Public Health, and Transport-watch.

10.8.21. The following stakeholders called for a higher charge for light vehicles: Camden Green Party, Disabled Motoring UK, First Groups plc, Friends of the Earth, inmidtown BID, Islington Green Party, London Borough of Haringey, Richmond Park Liberal Democrats, Southwark Living Streets, The Crown Estate, The Fitzrovia Partnership BID, and The Little Bus Company.

10.8.22. Amongst these stakeholders some considered the charge level too high or too low for particular categories of vehicle amongst light vehicles.

TfL response

10.8.23. TfL has considered the balance between the requirement for a significant charge to be implemented in order to generate behaviour change and the need to avoid causing economic damage to an extent that would not be justified by the emissions savings resulting from further behaviour change. As is evidenced by the balance of stakeholders calling for higher charges and for lower charges, there are factors costs and benefits of different kinds that would be caused by either a higher or lower charge. The proposed charge level is based on a cost-benefit analysis taking into account emissions reductions, loss of economic

activity and other factors, and would generate substantial emissions savings without a net disbenefit to the economy. This analysis is set out in Chapter 15 of the Supplementary Information.

The charge for motorcycles should be lower

10.8.24. The following stakeholders called for a lower charge for motorcycles: British Motorcyclists Federation, Campaign for Better Transport, Lambeth South Public Health, London Borough of Sutton, Motor Cycle Industry Association, Motorcycle Action Group, NFDA, and The Fitzrovia Partnership BID.

10.8.25. The Motor Cycle Industry Association proposed that the charge for non-compliant motorcycles should be no more than £5 per day, and the Motorcycle Action Group called the proposal that motorcycles would be charged the same as other light vehicles unjustifiably iniquitous, while recognising that the desire to keep charging rates as simple as possible is understandable.

10.8.26. The NFDA stated that the charge for motorcycles should be lower than cars because despite relatively high emissions, this is offset by shorter journey time and noted that there is no charge for motorcycles under the CC.

TfL response

10.8.27. TfL has considered the need to balance simplicity of communication and administration of the scheme with the range of differentiation of charge levels by vehicle type. The proposed emissions standard in terms of g/km of NO_x that motorcycles will be required to meet is different to the proposed standard for other light vehicles. It is also the case that only a small proportion of motorcycles will not meet the scheme standard.

10.8.28. With regard to NFDA's comment about emissions, it is not the case that a faster journey would always lead to lower emissions: motorcycles typically have much less sophisticated emissions control systems than other vehicles and, additionally, tend to accelerate and decelerate quickly for a large part of the journey, which also increases air pollutant emissions (although CO_2 emissions are often better from a light diesel vehicle such as a motorcycle). The exemption for these vehicles from the CC is in recognition that they do not contribute to congestion in the same way as other vehicles; however they do contribute to emissions and the reduction of these is the objective of the ULEZ, so it is appropriate to include them.

TfL recommendation
No change to the Scheme Order.

10.9. Theme H: Discounts & exemptions

10.9.1. Sixty-seven stakeholders commented on this theme: 680&MO Club, Age UK London, Air Quality Assessments Ltd, Air Training Corps, Autogas Ltd, Belgravia Residents Association, British Heart Foundation, British Motorcyclists Federation, BVRLA, Camden Cyclists, Camden Green Party, Campaign for Air Pollution Public Inquiry, Client Earth, Confederation of Passenger Transport, Disabled Motoring UK, Federation of British Historic Vehicle Clubs, Federation of Small Businesses, FirstGroup plc, Ford Motor Company Limited, Freight Transport Association (FTA), Friends of the Earth, General Motors UK, GMB Professional Drivers Branch, Golden Tours, I Like Clean Air, Islington Green Party, Joint Committee on Mobility for Disabled People, Jon Cruddas MP, Lambeth Green Party, Lambeth South Public Health, London Assembly, London Borough of Camden, London Borough of Haringey, London Borough of Lambeth, London Borough of Merton, London Borough of Newham, London Borough of Redbridge, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Tower Hamlets, London Borough of Waltham Forest, London Borough of Wandsworth, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Chamber of Commerce and Industry (LCCI), London Councils, London Duck Tours, London Forum of Amenity and Civic Societies, London Transport Museum, Metropolitan Police, Motor Cycle Industry Association, National Franchised Dealers Association (NFDA), Network for Clean Air, RAC Motoring Services, Richmond Park Liberal Democrats, Royal Borough of Greenwich, Southwark Living Streets, The Crown Estate, The Fitzrovia Partnership BID, The Little Bus Company, The Metropolitan Police, Transport-watch, UK Health Forum, UK Hydrogen and Fuel Cell Association, UKLPG, Westminster City Council and Westminster Living Streets.

10.9.2. From public and business respondents, 2,816 comments were made on this theme. By far the greatest proportion of comments (1,277 comments, 8 per cent of respondents) were on the theme that motorcycles should be exempt from the ULEZ.

10.9.3. Issues related to the NRM bus are addressed in Theme I: TfL Buses.

Issues raised in relation to this theme:

- ***Support and opposition to the sunset period for residents***
- ***Exemption/discount for classic/historic vehicles***
- ***Exemption/discount for disabled people's vehicles***
- ***Exemption/discount for motorcycles***
- ***Exemption/discount for LPG vehicles***
- ***Discount for businesses/SMEs***
- ***Support and opposition for exemption for taxis***
- ***Opposition to any exemptions***

- ***Other discount and exemption issues***

Support and opposition to the residents' discount

10.9.4. The following 18 stakeholders stated their support for the proposed residents' sunset period: Belgravia Residents Association, BVRLA, Client Earth, Friends of the Earth, General Motors UK, I Like Clean Air, Joint Committee on Mobility for Disabled People, Jon Cruddas MP, Lambeth South Public Health, London Borough of Haringey, London Borough of Newham, London Borough of Tower Hamlets, London Borough of Waltham Forest, London Borough of Wandsworth, LCCI, NFDA, Transport-watch and Westminster City Council.

10.9.5. The following 19 stakeholders stated their opposition to the proposed residents' sunset period: Air Quality Assessments Ltd, British Heart Foundation, Camden Cyclists, Camden Green Party, FirstGroup plc, Ford Motor Company Limited, Islington Green Party, Lambeth Green Party, London Borough of Lambeth, London Borough of Sutton, London Borough of Waltham Forest, Network for Clean Air, Richmond Park Liberal Democrats, Southwark Living Streets, The Crown Estate, The Fitzrovia Partnership BID, The Little Bus Company, UK Health Forum and Westminster Living Streets.

10.9.6. In response to Question 19, 16 per cent of public and business respondents strongly supported the proposed residents sunset period and 19 per cent supported it. Seventeen per cent opposed it and 23 per cent strongly opposed it. The remainder either neither supported nor opposed (17 per cent) or had no opinion, did not know or did not answer the question. This means that opposition to the proposal (40 per cent in total) was greater than support for it (36 per cent in total).

10.9.7. The questionnaire also asked for home postcode data from respondents (like all the questions, this was optional). Where this was provided, an analysis was carried out for some questions to gain a better understanding of the response. For Question 19, 78 per cent of respondents gave postcodes. Support for the resident discount was stronger overall (45 per cent supported or strongly supported) from residents of the ULEZ than those outside the zone (35 per cent). However, a third of ULEZ residents (33 per cent) stated that they were opposed or strongly opposed to it.

10.9.8. From public and business respondents, 122 comments were made in support of the residents' sunset period, and 61 against it; both are less than one per cent of respondents.

10.9.9. Westminster City Council supported the proposal and stated that the proposed closure of the discount in 2023 should be reconsidered in the light of the performance of the scheme at that time.

10.9.10. Westminster Living Streets opposed the proposal and was concerned that drivers seeking to avoid the non-compliance charge might falsely register as residents.

TfL response

10.9.11. In developing the proposed discounts and exemptions, TfL has sought to recognise cases where the full range of options – upgrading to a compliant vehicle, changing the journey or not making the journey – are not available. At the same time, there is an imperative to optimise the air quality benefits of the scheme, which means that any discounts and exemptions must be very carefully considered, and ideally are very few. The existing LEZ was taken as a model for the approach here and the same limited number of discounts and exemptions as already available for LEZ would, it was proposed, apply for the ULEZ.

10.9.12. There is no residents' discount for LEZ because it is a scheme for heavier and almost exclusively commercial vehicles. However, ULEZ is much broader in the scope of vehicles it encompasses and it is recognised that residents of the zone do not have the option to avoid the zone if they have a non-compliant vehicle in 2020 (which is available to non-residents). A precedent for a residents' discount has been set by the CC, which is based on the same rationale that residents do not have the choice of avoiding the zone.

10.9.13. However, unlike the CC 90 per cent Residents' Discount, it is proposed that ULEZ residents would have a sunset period for their inclusion in the ULEZ, expiring on 7 September 2023. This gives residents with non-compliant vehicles – and it should be reiterated here that most vehicles will be compliant by 2020 – an additional three years in which to upgrade a non-compliant vehicle, or make arrangements to travel by another mode, or not at all. By 2023, a Euro 4 petrol car (which is compliant) will be 17 years old; while a Euro 6 diesel car (also compliant) will be 8 years old. The cost of these vehicles on the second-hand market will of course have fallen considerably over this period.

10.9.14. It is not considered right to offer a discount in perpetuity because, as stated above, there are compliance options for residents, and there is more opportunity for them to take them up. Another consideration is that residents are living in an area of poor air quality and could be expected to benefit most from improvements following the ULEZ. It is interesting in this context that there is a substantial (one third) opposition to the discount among respondents who give a home postcode in the ULEZ.

10.9.15. With regard to concerns about drivers potentially registering falsely as residents, TfL has in place a series of checks to prevent this occurring for the CC scheme, and the ULEZ will utilise the same system. To qualify, the vehicle must be registered with the DVLA at an address in the zone and additionally, the applicant must supply further proof of residence for example a recent utility bill. Residents

already registered for the CC Residents' Discount will automatically be registered for the ULEZ discount; those who are not will need to register (£10 registration fee).

Exemption/discount for classic/historic vehicles

10.9.16. The following five stakeholders supported the proposed exemption for classic/historic vehicles: 680&MO Club, Federation of British Historic Vehicle Clubs, London Duck Tours, London Transport Museum, and Motor Cycle Industry Association.

10.9.17. The Federation of British Historic Vehicle Clubs asked that the proposed exemption for historic vehicles be linked to the VED tax class for these vehicles. The Motorcycle Industry Association called for the cut-off date for historic vehicles to be a rolling date.

10.9.18. Several respondents asked for an extension of the proposed exemption to cover vehicles which did not meet the pre-1973 criteria proposed, for example for specific classic-vehicle events.

TfL response

10.9.19. The LEZ currently exempts all vehicles constructed prior to 1 January 1973 because this is the date from when vehicles were manufactured to standardised emission regulations and therefore suitable for retrofit solutions. At the time of the implementation of the LEZ, it was also the date the Government used to exempt vehicles from vehicle tax for historic reasons. The ULEZ would be introduced as a variation to the LEZ scheme order, and the consultation proposed that the same exemption would apply.

10.9.20. With effect from 1 April 2015, the Government will change the definition of an historic vehicle to include vehicles constructed before 1 January 1975, as announced at Budget 2014, with the intention that this would be rolling year-on-year. It would therefore be logical to include these vehicles in the ULEZ exemption: this would be clearer to vehicle owners and align with the Government's latest position on historic vehicles. This would mean any vehicle with the 'Historic' vehicle tax class would be exempt from the ULEZ standards. This tax class does not include vehicles used for hire or reward (ie commercial vehicles). Historic vehicles account for less than one per cent of traffic in central London, meaning that the impact on air quality of this exemption would be negligible. There is no additional cost to TfL if this proposed change is approved by the Mayor.

10.9.21. This proposed change has been assessed in the IIA Update. It was found to have no change to the impacts of ULEZ.

10.9.22. It is not however considered that an exemption for specific events is introduced. Introducing a bespoke registration system, and deciding which events and vehicles could be eligible, is operationally very complex and not desirable from the perspective of achieving the ULEZ policy objectives. Most of the vehicles involved would in any case be eligible for the historic vehicle exemption.

Exemption/discount for disabled people's vehicles

10.9.23. Two stakeholders made comments on this theme: Disabled Motoring UK and the Joint Committee on Mobility for Disabled People. Both respondents made reference to the fact that disabled owners of specially-constructed or adapted vehicles would not be exempt from the scheme and could face financial hardship as a result. Disabled Motoring UK called for an exemption for minibuses which carry disabled people.

10.9.24. From public and business respondents, 329 comments were made on this theme (2 per cent of respondents).

TfL Response

10.9.25. In developing the proposal, TfL commissioned an Equalities Impact Assessment (EqIA) which considered the potential impact of the scheme on equalities groups including disabled people. The assessment analysed data on Blue Badge holders from the CC scheme (Blue Badge holders receive a 100 per cent discount from the CC). It noted the infrequency with which these users enter the zone but that there could be relatively high non-compliance of diesel vehicles (if the current fleet profile remained in 2020) and the fact that some vehicles will be specially-adapted. However it stated that the majority of wheelchair users will be eligible for the Motability scheme, which leases new vehicles (which would be compliant).

10.9.26. The EqIA identified a minor adverse short to medium-term impact on this group that would not be disproportionate but that it may be more difficult for disabled persons to find alternative means of accessing central London.

10.9.27. Subsequently, during the consultation, TfL has undertaken further analysis on this issue, informed both by consultation responses and changes to legislation around Motability eligibility. Given that the proportion of leased Motability vehicles is likely to fall in the coming years, the impact on owners of specially-adapted vehicles could be greater. There is also likely to be increased cost to local authorities in upgrading community transport vehicles in order to comply with ULEZ.

10.9.28. Unlike LEZ (for which no disabled exemption is available), there is no retrofit option to achieve Euro VI, and the ULEZ affects all vehicles, in particular cars. TfL has analysed data of observed vehicles entering the zone, to ascertain the proportion of vehicles adapted for disabled people and their likely compliance in 2020. There are two tax classes that identify these vehicles: 'vehicle used by a

disabled person' and 'disabled passenger vehicle.' Among the former, compliance is expected to be relatively high, while among the latter (which is a much smaller number of vehicles), it is expected to be relatively low.

10.9.29. In this context it is proposed to put in place a 3-year sunset period for vehicles in the 'disabled' taxation class[32]. Linking the eligibility to an existing tax class provides a clear and consistent definition. This would pertain both to vehicles with a 'disabled' and 'disabled passenger vehicle' taxation class. Owing to the profile of these vehicles (compliance and number of vehicles) set out above, the impact on emissions would be minor.

10.9.30. This time-limited exemption would apply to vehicles adapted for a disabled person which is also exempt for VED on this basis, and would apply for three years; from 7 September 2023 owners of non-compliant vehicles in this class would need to pay the charge. As it is an exemption, there would be no need to register for it and TfL would identify the vehicles using the tax class of the vehicles as recorded by the DVLA. However it is not considered appropriate to provide an indefinite exemption to this group. The EqIA found that there would be a short to medium term impact and, with the addition of the sunset period, this group would have more time to find a compliance option, including through vehicle replacement cycle.

10.9.31. The exemption would include passenger transport vehicles as well as individuals' vehicles. While TfL's own Dial-a-Ride fleet is included in the tax exemption, it is not proposed to provide it with an exemption for ULEZ. It is proposed that the Scheme Order explicitly exclude the DaR fleet, on the basis that it is important for TfL to lead the way on this issue and that money has been made available to ensure compliance.

10.9.32. This proposed change has been assessed in the IIA Update and results in the removal of one identified adverse impact (that disabled people could find it more difficult to find alternative modes of accessible transport in central London) as a result of the ULEZ.

Exemption/discount for motorcycles

10.9.33. The following stakeholders commented on this theme: 680&MO Club, Air Training Corps, British Motorcyclists Federation, The Fitzrovia Partnership BID, the Motorcycle Action Group and the Motorcycle Industry Association. All of them opposed the inclusion of motorcycles.

10.9.34. As stated above, 1,277 comments were made by the public to the effect that motorcycles should not be included in the ULEZ in the way currently proposed.

[32] Exempt for VED purposes on the basis that it falls within paragraph 18, 19 or 20 of Schedule 2 to the Vehicle Excise and Registration Act 1994.

10.9.35. The Motorcycle Industry Association acknowledged the need to address air pollution from vehicles but noted that diesel vehicles are the main source, and that there is no mainstream diesel motorcycle available. It accepted the Euro 3 standard proposed but questioned whether a charge for these vehicles at the same level as for diesel cars was appropriate and stated that it must be no more than £5 per day.

10.9.36. The British Motorcyclists Federation also acknowledged the problem of air pollution, stating that motorcyclists are exposed to this to a greater degree than other drivers and so would benefit from an improvement to it. However it noted that the relatively small number of people using non-compliant motorcycles is likely to be those least able financially to replace vehicles and that London's economy and congestion would worsen if these people are subjected to a charge. It noted that manufacturers offer incentives to buy newer motorcycles and those who have not taken advantage of this are likely to be those unable to access them (eg for credit reasons).

TfL response

10.9.37. Motorcycles, unlike cars, are not currently included in the list of vehicle types liable to pay the CC, nor (in common with cars) are they covered by the LEZ. The ULEZ would constitute the first time that this vehicle type has been included in a road charging scheme in London, and so it is perhaps not surprising that there is some strong opposition to this. Motorcycles are included in emission zones in Europe, however, for example in Germany and Italy.

10.9.38. All vehicles contribute to air pollutant emissions and as such, the proposed ULEZ encompasses all vehicle types, albeit with different standards proposed in reflection of their contribution to emissions. For motorcycles, their contribution to emissions is acknowledged to be small compared to other vehicle types; as shown in the Supplementary Information, it will contribute one per cent of NO_x emissions in 2020. The size of this contribution is reflected in the fact that the standard they would be required to meet in order to comply with ULEZ is different to other vehicles (Euro 3 compared to Euro 4 for petrol and Euro 6/VI for diesel). Euro 3 was introduced as a mandatory standard for motorcycles in July 2007. This means that a motorcycle could be up to 13 years old and still be driven in the ULEZ without the need to pay a daily charge. Additionally, motorcycles manufactured before 1973 would be exempt due to qualifying as historic vehicles.

10.9.39. If motorcycles are included in the ULEZ as proposed, NO_x emissions from this vehicle type will be reduced by 15 per cent in 2020. Compared to other vehicle types, this is a relatively small reduction, but it is nonetheless important to ensure fairness as all other vehicle types are included in the scheme. Most motorcycles will meet the ULEZ standards by the time the scheme is introduced in September 2020 and their owners will therefore not need to take any action. Fleet

composition data from Defra indicates 87 per cent of motorcycles will be compliant (ie Euro III or above) in 2020. With ULEZ in place, TfL forecasts that this will rise to 95 per cent, meaning that only a small number of motorcycles would be liable to pay the charge.

Exemption/discount for LPG and other alternative fuel vehicles

10.9.40. Autogas Ltd and UKLPG stated that LPG-powered vehicles, including taxis, should either receive an exemption or a longer time to comply with the scheme.

10.9.41. Less than one per cent of public and business comments concerned this issue.

10.9.42. Autogas Ltd and UKLPG stated that LPG is widely-used by a number of different vehicle types and that it has environmental benefits. Both stakeholders were particularly concerned about taxis and noted that when the age limit for taxis was first introduced, LPG taxis were given a five-year extension in recognition of their benefits. An LPG taxi scheme in Birmingham is referenced in both submissions.

10.9.43. UKLPG stated that LPG conversions would be a pragmatic and affordable way to reduce NO_x emissions from taxis, indicating that their NO_x emissions are much less than for Euro 2 and Euro 3 conventionally-fuelled taxis.

TfL response

10.9.44. There are no new OEM (original equipment manufacturer) LPG vehicles available in the UK. All LPG conversions that do exist are aftermarket conversions. While the advances made in emissions control for petrol and diesel vehicles through the Euro standard are demonstrable, the air quality benefit of conversions to LPG is less clear-cut.

10.9.45. It is proposed that where an engine has been converted to run on LPG or other alternative fuels, the date of manufacture of the vehicle would remain the means of identifying the Euro standard of the vehicle.

10.9.46. TfL remains committed to promoting alternative fuels where appropriate. While it is possible to run engines on just methane or bio-methane, most HGVs using these fuels use them as ‘dual-fuel’ where diesel fuel is still burned to act as a pilot to ignite the methane or bio-methane. This dual-fuel type offers the greatest potential for fuel cost savings and reduction in greenhouse gas emissions while improving air quality emissions under certain operating conditions.

10.9.47. In either case, the conversion to run on gaseous fuel does not change the type-approval status of the base-vehicle, meaning that for the ULEZ the same emissions standards as for the pre-conversion vehicle apply. In practice this means that where the base-vehicle was diesel (regardless of the conversion), the

ULEZ standards for diesel vehicles apply. Where the base-vehicle was petrol, the ULEZ standards for petrol vehicles apply.

10.9.48. For taxis, TfL does currently allow that LPG converted taxis can operate for an additional five years under the age limit rules. This is in recognition of the reduced emissions from these vehicles and the high cost on conversion (a fundamental re-engineering of the engine to spark ignition is necessary). Please see Chapter 11 on taxis and PHV standards.

Discount for businesses/SMEs

10.9.49. The BVRLA, FTA, NFDA and the London Boroughs of Camden, Southwark, Hackney & Lambeth (joint response) made reference to a discount for certain businesses.

10.9.50. The BVRLA and NFDA stated that businesses in the ULEZ should be eligible for a discount similar to that for residents; the FTA stated that there should be a time-limited discount for small businesses given that there is currently no retrofit solution for compliance. The London Boroughs' response was that there should be a discount or exemption where genuine business hardship was incurred.

TfL response

10.9.51. As already stated, only a small number of exemptions have been proposed for the ULEZ, in order to optimise the efficacy of the scheme. No business discount or exemption has ever existed for the CC or LEZ, nor was one proposed for ULEZ.

10.9.52. There are of course a very high number of businesses located in or using the ULEZ, as would be expected for the Central Activities Zone. Offering a discount or exemption for businesses would therefore seriously impact the effect of the scheme in reducing air pollution and improving Londoners' health.

10.9.53. With regard to a more tightly-defined discount, such as for small businesses or where there is 'genuine hardship', any such discount would, in practical terms, be extremely difficult to define and implement. Again, this approach would undermine the scheme and, furthermore, lead to calls for other discounts for other groups who felt that they had been adversely impacted by the scheme.

10.9.54. TfL commissioned an IIA (including an Economic and Business Assessment) for the ULEZ which concluded that there could be minor short- to medium-term adverse impacts on London businesses. It also indicated the moderate and long-term positive effects from the associated health benefits. However, there will be costs to some businesses in complying with the ULEZ, amounting to around 0.03 – 0.08 per cent of the value of London's economy, a cost which would diminish over time.

10.9.55. In developing the ULEZ, TfL has sought a balance between the need to reduce vehicle emissions to improve the health of Londoners and the need to ensure that the scheme is affordable and feasible for businesses and individuals. By 2020, when it is proposed to implement the ULEZ, the oldest Euro 6 diesel car or small van will be five years old and a Euro 4 petrol car or small van will be 14 years old. Both of these will meet the proposed ULEZ standards and are considered to offer drivers sufficient options for compliance.

Support and opposition for taxi exemption

10.9.56. Six stakeholders made comments to the effect that taxis must not be exempt: Age UK London, Camden Green Party, Campaign for Air Pollution Public Inquiry, Lambeth Green Party, London Borough of Camden and the London Borough of Lambeth.

10.9.57. Twenty-two stakeholders supported the proposal that taxis be exempt from ULEZ: Air Quality Assessments Ltd, Air Training Corps, Belgravia Residents Association, BVRLA, Disabled Motoring UK, Ford Motor Company Limited, General Motors UK, I Like Clean Air, London Borough of Haringey, London Borough of Merton, London Borough of Newham, London Borough of Redbridge, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Waltham Forest, London Borough of Wandsworth, Metropolitan Police, Network for Clean Air, Richmond Park Liberal Democrats, The Crown Estate, The Little Bus Company, and UK Hydrogen and Fuel Cell Association.

10.9.58. In response to Question 22, which asked if the respondents supported reducing the age limit for taxis and exempting them from the ULEZ scheme, 27 per cent strongly supported it, 21 per cent supported it and 12 per cent opposed and 16 per cent strongly opposed. Thirteen per cent neither supported nor opposed and the remainder did not answer, stated no opinion or did not know. Overall then, 48 per cent supported this proposal.

TfL response

10.9.59. The proposed exemption for taxis must be understood in the context of the proposed change to licensing requirements for these vehicles, which was also an element of the ULEZ proposal, and would require all newly-licensed taxis to be ZEC from 2018 and that, from 2020, the age limit will be reduced to ten years. Both of these changes, if implemented, would apply London wide.

10.9.60. It is by no means the case that the proposed exemption from the standards proposed for other vehicles (including PHVs) means that taxis would not be affected by ULEZ. The proposed change to licensing requirements would achieve a greater emissions reduction from taxis than simply including them (as cars) in the ULEZ scheme. Taxis are purpose-built vehicles which have specific

requirements including wheelchair accessibility and the turning circle, and so it is appropriate to tailor the ULEZ standards to this. On the other hand, PHVs are essentially the same as cars, with no special models required, and so it is appropriate to include them in the same scheme as for other vehicles.

10.9.61. TfL notes the support for this proposal and notes that there may be some misunderstanding around the phrase 'exempt from the ULEZ standards' with regard to taxis. As described above, taxis like all vehicles were proposed to be included in the scheme, but the specific requirements were tailored to reflect their contribution to emissions and the fact that taxis are licensed by TfL.

Other discount and exemption issues

10.9.62. Age UK, Air Training Corps, the BVRLA, Client Earth, First Group, the London Boroughs of Camden and Lambeth, London Duck Tours, Metropolitan Police and RAC Motoring Services made comments on diverse issues under this theme.

10.9.63. Age UK, Client Earth and London Boroughs of Camden and Lambeth opposed any exemptions. Client Earth stated that exemptions would undermine the scheme and the London Borough of Lambeth stated that there should not be an exemption for historic vehicles, military vehicles or tractors: despite their small number they still contribute to pollution.

10.9.64. Other stakeholders called for particular exemptions. Air Training Corps stated that there should be an exemption for charity minibuses. First Group stated that where its buses are diverted into ULEZ as a result of a road closure or incident, they not be charged. Lambeth South Public Health said there should be a discount for people living outside the zone and the Metropolitan Police asked for a sunset period to allow them to replace non-compliant vehicles. The BVRLA called for a transitional period (see Theme on Operations) and for work to identify usage patterns for vehicles so that an overarching discount approach could be taken for CC, LEZ and ULEZ. The RAC stated that there should be an exemption for smaller diesel cars registered after 2009, in recognition that owners had been incentivised by the Government to buy these vehicles. London Duck Tours referred to its CC exemption.

10.9.65. The London Assembly called for an exemption for heavier Euro VI diesel vehicles because the difference between Euro VI and Euro V is not so great in real-world testing, and alternative fuel types are not available for these vehicles.

TfL response

10.9.66. TfL agrees that it is important to optimise the effects of the ULEZ and for this reason has proposed only a very few exemptions, akin to those for the LEZ. Three categories of vehicle are exempt from the LEZ: historic vehicles (defined as

manufactured pre-1973), off-road vehicles such as mobile machinery and military vehicles. The same categories for exemption were proposed for the ULEZ.

10.9.67. The rationale for the exemption for historic vehicles is that they do not have the option of vehicle replacement or modification. Military vehicles (meaning the 'green fleet' not the 'white fleet' of, for example, MoD cars) cannot by law be included in the scheme. Emissions from NRMMs will be addressed in a 'LEZ for NRMMs' which will come into force in London in 2016[33].

10.9.68. It is not considered appropriate to have an exemption for charity minibuses; such an exemption does not apply in the LEZ (which is a much greater area than ULEZ) and defining what qualified for such an exemption would in practice be difficult. It would also give rise to calls for other exemptions. However as outlined above, it is proposed to put a sunset period in place for certain disability-adapted vehicles, which in principle includes some minibuses. Minibuses which do not comply with the ULEZ standards (ie are older than 13 years if petrol and 4 years if diesel) would be subject to the lower charge of £12.50 per day, meaning that occasional trips are still affordable.

10.9.69. It is recognised that there has been incentivisation of diesel vehicles in recent years, including a reduction to VED and a now-closed scrappage scheme, but it is not considered appropriate to exempt these vehicles on this basis. The main objective of the ULEZ is to improve air quality and health in London by reducing emissions of NO_x. Diesel vehicles are a significant contributor to this pollutant and owing to their high numbers, cars comprise a large proportion of emissions. Therefore it would be counter-productive to exempt diesel cars, even small ones.

10.9.70. With regard to unexpected diversions, there is already a mechanism in place for the CCZ whereby if vehicles follow the specified diversionary route they are not required to pay the charge (and are not issued with a PCN), and a similar approach will be taken for ULEZ.

10.9.71. With regard to the Metropolitan Police, TfL is continuing to engage with them to understand the requirements. No change to the proposal is being put forward at this time. London Duck Tours referred to its nine seat plus vehicle exemption for CC; no such exemption is proposed for ULEZ and information on applying for discounts and exemptions to CC is on TfL's website.

10.9.72. Regarding the comment about the integration of different schemes in London: as stated in the consultation materials, the ULEZ infrastructure including payment systems would, if confirmed by the Mayor, be integrated with the existing systems for CC and LEZ. This will make them easier to understand and be more cost-

[33] www.london.gov.uk/media/mayor-press-releases/2014/08/mayor-s-new-scheme-to-tackle-old-polluting-construction

effective. The ULEZ has similar objectives to the LEZ and would operate in the same area as the CC and it is proposed to implement ULEZ as a variation to the current LEZ scheme. However it is important to understand that each of the three schemes has its own objectives and requirements. There is no proposal to replace these schemes with a single scheme.

10.9.73. As the London Assembly noted, there are fewer alternatives to diesel for heavy vehicles, although these are expected to come to market over time. It is also acknowledged that there is a discrepancy between the stated emissions level of Euro VI vehicles and real-world testing, as set out in Theme C. As stated in that section and in Chapter 3, however, there are still worthwhile and demonstrable reductions to NO_x, meaning that Euro VI remains the right standard to propose for these vehicles. Additionally, it is heavier diesel vehicles such as HGVs and buses, which contribute significantly to air pollutant emissions, and it is therefore right to include them in a scheme which encompasses all vehicle types. The London LEZ targets only heavier diesel vehicles in recognition of this contribution and in January 2012, the emissions requirement was tightened to Euro IV for PM for all HGVs, buses and coaches.

TfL recommendation

TfL recommends a change to the definition of historic vehicle so that it reflects the VED class of 'historic vehicle' (the exemption for ULEZ would be known as 'classic vehicle exemption').

TfL recommends a 3 year 'sunset period' for vehicles with a 'disabled' taxation class to be considered non-chargeable. TfL's Dial-a-Ride fleet would not be eligible for this exemption.

10.10. Theme I: TfL buses

10.10.1. The following stakeholders commented on this theme: Age UK London, Air Quality Assessments Ltd, Air Training Corps, Alliance of British Drivers, Belgravia Residents Association, Better Bankside, British Heart Foundation, British Motorcyclists Federation, BVRLA, Camden Cyclists, Camden Green Party, Campaign for Air Pollution Public Inquiry, Campaign for Better Transport, Disabled Motoring UK, FirstGroup plc, Ford Motor Company Limited, Friends of the Earth, General Motors UK, GMB Professional Drivers Branch, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, Islington Green Party, Jenny Jones (AM, Green Party), Joint Committee on Mobility for Disabled People, Jon Cruddas MP, Lambeth Green Party, Lambeth South Public Health, London Assembly Labour Group, London Assembly Liberal Democrat Group, London Borough of Brent, London Borough of Camden, London Borough of Haringey, London Borough of Islington, London Borough of Lambeth, London Borough of Merton, London Borough of Newham, London Borough of Redbridge, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Tower Hamlets, London Borough of Waltham Forest, London Borough of Wandsworth, London Chamber of Commerce and Industry (LCCI), London Councils, London Cycling Campaign, London Fire Brigade, London Tourist Coach Operators Association (LTCOA), London TravelWatch, Metropolitan Police, Network for Clean Air, RAC Motoring Services, Richmond Park Liberal Democrats, Royal Borough of Greenwich, Southwark Living Streets, The Crown Estate, The Environmental Industries Commission, The Fitzrovia Partnership BID, The Little Bus Company, Transport-watch, Uber, UK Health Forum, UK Hydrogen and Fuel Cell Association, and Westminster City Council.

10.10.2. In response to Question 20 in the questionnaire, 59 per cent of respondents strongly supported the inclusion of TfL buses in the scheme, and 23 per cent supported this. The proposal was strongly-opposed by 4 per cent of respondents, and opposed by 2 per cent. The remainder had no opinion, did not know or did not answer the question. This element of the ULEZ proposal was the most well-supported of all the questions by the public and businesses.

10.10.3. The following sub-themes were raised:

- ***Support and oppose inclusion of TfL buses in the ULEZ***
- ***Extend proposal for low emission buses in the ULEZ to outer London***
- ***Entire TfL bus fleet should be hybrid/zero emissions at tailpipe (electric)***
- ***Zero emission buses***
- ***Alternatively fuelled buses***
- ***New Routemaster buses***
- ***Funding the proposal for TfL buses***

Support and oppose inclusion of TfL buses in ULEZ

10.10.4. Sixty stakeholders indicated support for the inclusion of TfL buses in ULEZ: Age UK London, Air Quality Assessments Ltd, Air Training Corps, Alliance of British Drivers, Belgravia Residents Association, Better Bankside, British Heart Foundation, British Motorcyclists Federation, BVRLA, Camden Cyclists, Camden Green Party, Campaign for Better Transport, Disabled Motoring UK, FirstGroup plc, Ford Motor Company Limited. Friends of the Earth, General Motors UK, GMB Professional Drivers Branch, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, Islington Green Party, Jenny Jones AM, Joint Committee on Mobility for Disabled People, Jon Cruddas MP, Lambeth Green Party, Lambeth South Public Health, London Assembly Labour Group, London Assembly Liberal Democrat Group, London Borough of Brent, London Borough of Haringey, London Borough of Lambeth, London Borough of Merton, London Borough of Newham, London Borough of Redbridge, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Tower Hamlets, London Borough of Waltham Forest, London Borough of Wandsworth, LCCI, London Councils, London Cycling Campaign, London Fire Brigade, LTCOA, London TravelWatch, Metropolitan Police, Lambeth South Public Health, Network for Clean Air, RAC Motoring Services, Richmond Park Liberal Democrats, Royal Borough of Greenwich, Southwark Living Streets, The Crown Estate, The Environmental Industries Commission, The Fitzrovia Partnership BID, The Little Bus Company, UBER, UK Health Forum, UK Hydrogen and Fuel Cell Association and Westminster City Council.

10.10.5. Around 232 comments were made by public and business respondents in support for inclusion of TfL buses in ULEZ. This equates to approximately one per cent of public and business respondents commenting on this theme.

10.10.6. The following stakeholders did not support the proposal for TfL buses and in their comments did not support the ULEZ; these were: Campaign for Air Pollution Public Inquiry and Transport-watch.

TfL response

10.10.7. TfL welcomes support to operate hybrid double deck and zero emission single deck buses on bus routes operating through the ULEZ. TfL believes that this will dramatically improve air quality for all Londoners in the most cost-effective way.

10.10.8. With regard to opposition to the proposal, while TfL welcomes comments from all stakeholders, doing nothing to improve poor air quality across London was not considered an option. TfL buses make a significant contribution to NO_x emissions and it is therefore only fair that this is acknowledged by including them in the ULEZ scheme with a Euro VI standard, as per non-TfL buses, HGVs and coaches.

10.10.9. TfL extensively researched the most cost-effective approaches of providing a cleaner bus fleet for London. Although operating only hybrid double deck and zero emission single deck buses on bus routes operating through the ULEZ is ambitious, TfL believes it is achievable and will address challenges concerning air quality and public health, particularly in central London.

Extend proposal for low emission buses in the ULEZ to outer London

10.10.10. The following stakeholders made comments on this sub-theme: London Assembly Labour Group, London Borough of Brent, London Borough of Haringey, London Borough of Lambeth, London Borough of Newham, London Cycling Campaign, London Councils and Westminster City Council.

TfL response

10.10.11. It is proposed the ULEZ will be the same geographical area and within the same boundaries as the central London CC. This covers the area where air pollution levels are consistently the highest in London and where people experience the greatest exposure to them. It is also the area where improvements to buses can make the greatest difference.

10.10.12. Although the ULEZ charging scheme and bus standards will only apply in the central London zone, the benefits will be spread beyond this zone as cleaner vehicles ie hybrid and electric buses, will be used for journeys that start or end outside this zone; relatively few routes operate exclusively within central London.

10.10.13. By 2016, 20 per cent of the TfL fleet will be hybrid. By 2020, almost 40 per cent of the TfL bus fleet will be hybrid. Both inner and outer London boroughs will therefore benefit from cleaner buses with one of the cleanest bus fleets in the world.

Entire TfL bus fleet should be hybrid/zero emissions at tailpipe (electric)

10.10.14. The following stakeholders made comments on this sub-theme: London Borough of Brent, London Borough of Haringey, London Borough of Lambeth, London Borough of Newham, London Councils and Westminster City Council.

TfL response

10.10.15. On average, TfL buses have a 10-14 year fleet life and between 600 and 700 new buses are replaced every year using the latest engine technology available at the time. This almost continuous process allows TfL to adopt the latest technology leading to continuous improvements in emissions.

10.10.16. A significant acceleration of new Euro VI buses over a short period would disrupt the normal replacement cycle of buses, impacting bus manufacturers and

associated supply chains and in turn adversely affect future lease and contract prices. This approach would also not be cost effective in the long term as it would commit TfL to current technology for most of the bus fleet for over a decade, making it more expensive to potentially introduce even cleaner buses through the 2020s.

10.10.17. The current approach is for a steady turnover of vehicles over time (as new contracts begin), making use of new technology as it becomes available, which is more affordable and more sustainable for the predominantly UK bus manufacturing industry in the long term.

10.10.18. Additionally**,** in 2014, TfL published TERM, a framework of proposed measures to be undertaken by all, including TfL, the boroughs and the Government, to reduce harmful emissions of pollutants and meet CO_2 targets. It documents future improvements to the TfL bus fleet from now to 2020 and beyond as TfL will continue to roll out the cleanest proven technology it can afford across London.

All buses entering the ULEZ should be zero emission

10.10.19. The following stakeholders made comments on this sub-theme; Islington Green Party, London Assembly Labour Group, London Borough of Brent, London Borough of Lambeth and LTCOA.

10.10.20. Around 114 comments were made by public, business and taxi and PHV respondents. This equates to approximately one per cent of public, business and taxi and PHV respondents commenting on this theme.

TfL response

10.10.21. When determining the ULEZ standards for vehicles, consideration was given to the cost of compliance and the reduction in emissions alongside other influential variables such as the availability of suitable vehicles on the market by 2020.

10.10.22. TfL is currently trialling zero emission and ZEC technology, allowing TfL to assess how these could be rolled out cost effectively in the challenging London operating environment.

10.10.23. Zero emissions trials are being carried out on single deck bus routes using pure electric and hydrogen fuel cell technology. Eight hydrogen fuel cell buses are in service on single deck route RV1. However, currently the cost of the fuel cell and infrastructure remains high and once the amount of CO_2 emitted during the current approach to hydrogen generation is taken into consideration, it is currently a less cost-effective technology than battery electric vehicles. This seems unlikely to change significantly before 2020.

10.10.24. The majority of buses operating in the ULEZ are double deck in order to meet passenger demand. Zero emission double deck buses (ie pure electric and hydrogen) are much more challenging as the additional volume and weight of the technology do not fit within the existing vehicle envelope without significantly reducing passenger capacity. This is not expected to change within the next few years, but will continue to be monitored by TfL.

10.10.25. TfL is working in partnership with European partners to trial three ZEC (range extended diesel-electric) double-deck hybrid buses employing high-power wireless induction charging infrastructure from late 2015. However this technology is not sufficiently far advanced to form a firm part of the ULEZ plans.

10.10.26. Zero emission technology is still in its early stages, but TfL continues to monitor trials before committing to specific technology to ensure a proven reduction in emissions into the London environment and cost-effectiveness. The commitment for the single deck fleet within the ULEZ to be zero emission at tail pipe is considered to an ambitious, but an achievable and affordable target for 2020.

All buses entering the ULEZ should use alternative fuels, including liquefied petroleum gas and compressed natural gas

10.10.27. The following stakeholders made comments on this sub-theme; London Assembly Labour Group, London Borough of Islington, and LTCOA.

10.10.28. Alternative fuels such as Liquefied Petroleum Gas (LPG), natural gas (CNG) and biomethane were also considered as part of assessing the availability of suitable vehicles by 2020. These fuels have existed for a number of years, both in terms of new vehicles and as after-market conversions. However, they are generally adopted only for niche operations, and mainly in the heavy commercial vehicle sector and currently not considered to be suitable for London's bus operating environment.

10.10.29. The majority of buses operating in central London are double deck and gas buses are not readily available. TfL believes that hybrid vehicles will give London bigger benefits in air quality and CO_2 emissions than a dual-fuel (CNG or LPG) set-up, in urban bus operations. The requirement for double deck buses also makes packaging of the additional fuel tanks difficult. Furthermore, the Euro VI standard has aligned emissions limits for both compression ignition and spark ignition engines. This means the air quality benefit for gas engines has all but disappeared.

New Routemaster buses in the ULEZ

10.10.30. Ten stakeholders commented that Euro V NRMs should not be exempt: GMB Professional Drivers Branch, Islington Green Party, London Assembly, London Assembly Labour Group, London Assembly Liberal Democrat Group, London

Borough of Brent, London Borough of Camden, London Borough of Wandsworth, London Councils and The Environmental Industries Commission.

10.10.31. Around 13 comments were made by public, business and taxi and PHV respondents. This equates to approximately zero per cent of public, business and taxi and PHV respondents commenting on this theme.

TfL response

10.10.32. Around 300 of TfL's NRM buses have type approved Euro V engines. These buses are the cleanest diesel-electric hybrids of their generation with NO_x emissions close to meeting the Euro VI standard (a reduction of 80 per cent compared to Euro V, whilst Euro VI gives a reduction of 95 per cent). It is not proposed to exempt these vehicles, but it is proposed to set a different emissions standard than for other buses. The VO sets out that these must emit less than 2.05g/kwh of NO_x on the London bus test cycle. The Euro VI standard is 0.46g/kwh; a standard (non NRM) Euro V diesel-electric hybrid is 9g/kwh NO_x.

10.10.33. Replacing the Euro V NRMs with Euro VI NRMs would cost around £100m and would deliver only a marginal improvement in the reduction of total NO_x emissions - from 51 per cent to 52 per cent. Similarly, modifying the Euro V NRMs to bring them to Euro VI standards is now estimated to cost around £15m. TfL believes that this money would be better spent on reducing emissions from a greater number of buses with Euro IV and V engines that operate outside the ULEZ.

10.10.34. As outlined earlier in this chapter, many stakeholders were keen to see the ULEZ standards implemented for buses beyond the ULEZ zone. Although this was not a question in the consultation, there was strong endorsement from the public for the bus standards, so it might be reasonable to assume that improving the fleet more generally would also be supported. While extending the Euro VI standard to the entire London fleet is not currently proposed, there have been and will continue to be significant improvements to the entire bus fleet in terms of emissions.

10.10.35. There is a choice between spending money on an expensive retrofit for a relatively small number of vehicles and investing in the overall fleet, albeit to a less stringent emission standard. TfL must consider carefully how it spends public money and for this reason it is proposing to set a separate emission standard within the scheme order to cater for the Euro V NRMs. It is acknowledged that commercial operators of buses and coaches that are Euro V will, in some cases, incur costs in complying with the ULEZ standard. An exemption is not considered appropriate for these vehicles because they would not be as low emission as TfL Euro V NRM's which are very close to the Euro VI standard in terms of emissions.

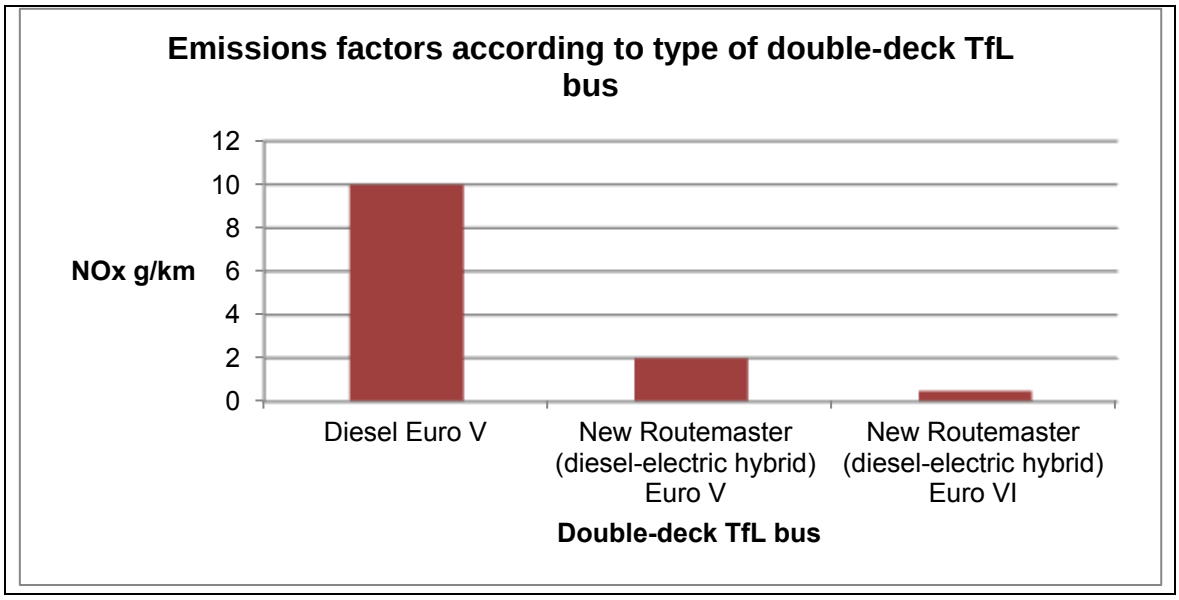
10.10.36. The Scheme Order does specify a demanding emissions standard for NO_x from these vehicles. In effect, this is a specific ULEZ standard which is very close to

Euro VI. This standard accounts for the fact that no other types of diesel-electric Euro V hybrid buses come close to the NRM for NO_x emissions and they emit half the level of CO_2 compared to a conventional diesel bus. It is a pragmatic decision that also accounts for the substantial investment TfL has made to design, produce and pilot these vehicles.

10.10.37. TfL has tested the Euro V NRM on a specific London bus drive cycle and is confident that this level of NO_x emissions is being achieved and these buses have already made significant improvements to air quality. Therefore, they will continue to operate in central London and deliver a marked air quality contribution. All NRM buses entering service from 2015 have Euro VI engines as standard.

10.10.38. Figure 11 below shows significant reduction in NO_x from Euro V diesel double deck TfL buses compared with the Euro V and Euro VI NRM. The Euro V NRM comes close in performance to the Euro VI (2g/km compared with 0.6g/km NO_x emissions).

Figure 11: Emissions factors according to type of double-deck TfL bus



Funding the proposal for TfL buses

10.10.39. The following stakeholders made comments on this sub-theme; London Assembly Labour Group and LCCI.

TfL response

10.10.40. The cost to TfL associated with upgrading buses on routes operating in central London to achieve a Euro VI (or near equivalent) NO_x emissions standard and to procure additional hybrid double-deck and zero emission single-deck buses is constantly under review to ensure a cost-effective approach.

10.10.41. The most cost effective way to upgrade vehicles is at contract renewal and it is anticipated that bus improvements for the ULEZ will be implemented though the planned tendering of each route from 2015 to 2020.

10.10.42. This approach means that the benefits of the scheme will start to be realised from 2016 and it is forecast that more than half of the routes will have been upgraded by the end of 2018.

10.10.43. Funding for TfL buses which are part of the ULEZ was approved in TfL's Business Plan in 2014.

TfL recommendation
No change to the Scheme Order.

10.11. Theme M: Costs/revenue

10.11.1. Twenty stakeholders commented on this theme: BVRLA; Confederation of Passenger Transport; Disabled Motoring UK; GMB Professional Drivers Branch; Lambeth South Public Health; London Assembly Labour Group; London Borough of Brent; London Borough of Camden; London Borough of Enfield; London Borough of Lambeth; London Borough of Sutton; London Boroughs of Camden, Southwark, Hackney & Lambeth (joint); London Cycling Campaign; London Tourist Coach Operators Association (LTCOA); Metropolitan Police; Motor Cycle Industry Association; The Little Bus Company; The Original London Sightseeing Tour; Unite the Union; and Westminster City Council.

10.11.2. From public and business respondents, 1,035 comments were made on this theme which constitutes six per cent of all respondents.

Issues raised in relation to this theme:

- ***High cost of buying new vehicles***
- ***Further increase to the cost of living in London/reduced quality of life***
- ***Question as to how the proposals will be funded?***
- ***Question as to how will money resulting from the scheme be spent***
- ***Need for Government/EU support for the proposal***
- ***High cost of buying new vehicles***

High cost of buying new vehicles

10.11.3. The following stakeholders made comments on the high cost of buying new vehicles: Confederation of Passenger Transport; GMB Professional Drivers Branch; Lambeth South Public Health; LTCOA; Metropolitan Police; Motor Cycle Industry Association; The Original London Sightseeing Tour; and Unite the Union.

10.11.4. Within this theme, 349 comments were made by the public and businesses on the high cost of buying new vehicles. This is two per cent of all respondents.

10.11.5. GMB Professional Drivers Branch noted that the cost of low emission vehicles is £5,000 higher than the standard range of similar vehicle types and noted that the hardest hit will be the poorest drivers. The Motor Cycle Industry Association expressed similar concern regarding motorcycle riders on low incomes. The Original London Sightseeing Tour stated that it is disproportionately expensive to purchase hybrid buses or to upgrade or retrofit and noted there is virtually no after-market for any open top buses. Unite the Union and the LTCOA expressed concern about the cost of the vehicle being a large increase on an already very expensive vehicle and noted that these drivers will need grants to help them. The Confederation of Passenger Transport notes that the proposals have already depressed residual values and notes the high cost of upgrading vehicles.

Metropolitan Police and Lambeth South Public Health expressed concerns about the high cost of upgrading vehicles.

10.11.6. With regard to sightseeing and open top buses, LTCOA and Original London Sightseeing Tour both commented on the costs to their industry, stating that the Euro VI second-hand market did not yet exist and due to operating patterns, ULEZ would be very costly as it was not yet time to replace Euro IV and V vehicles. LTCOA noted that TfL buses and taxis would both receive public money to comply with the ULEZ, while commercial services would not.

TfL response

10.11.7. TfL acknowledges that there will be a cost to those drivers who will need to upgrade their vehicle however it is expected that these costs will reduce over time as a result of increased demand for low and zero emission vehicles and as the availability of vehicles becomes more widespread.

10.11.8. Drivers of certain vehicles who need to replace vehicles to become compliant with ULEZ proposals are able to access the plug-in car and van grants from the OLEV, guaranteed until 2020. This is a grant of 25 per cent towards the cost of the vehicle, up to a maximum of £5,000, when purchasing a qualifying ultra-low emission car and registering it for the first time in the UK.

10.11.9. With regard to open-top buses and tourist coaches, there is no compulsion to buy hybrids as a result of the ULEZ proposals. Although it may be used differently to a 'normal' bus, an open-top bus is no different from other buses, and therefore is included in the ULEZ. TfL is working with manufacturers of exhaust catalysts to develop a system that would reduce the NO_x emissions of a Euro V bus to those of Euro VI. Development of selective catalytic reduction systems of this type is not straightforward because of the need to integrate the system with the on-board diagnostics (OBD) systems on the vehicle. However, there is high confidence that such a system will be successful.

10.11.10. It is hoped that once the system is developed for buses operating in London, then the range can be expanded to include other vehicle applications, such as coaches and HGVs, although this will necessarily be based upon demand.

10.11.11. It is important to ensure that the system remains operational in service. For this reason the conversion is only being developed for Euro V engines, where the OBD system will safeguard against the reductant fluid being allowed to run dry. In addition, it is unlikely to make financial sense to fit these systems to older vehicles, or to light duty vehicles.

10.11.12. £40m has also been reserved in the 2014 TfL Business Plan to compensate taxi drivers for the cost of upgrading to compliant vehicles. This figure was based on preliminary estimates however modelling is now being undertaken by TfL to look at the assumptions made and the sufficiency of this figure. Please see Chapter 11 for a full discussion of the taxi proposals.

10.11.13. The taxi (and PHV) proposals apply Londonwide to all of these vehicles, unlike the proposals for other commercial and private vehicles. For this reason, and because the London taxi is a purpose-built and relatively expensive vehicle, the consultation materials made reference to funding which had been identified to assist with the costs associated with lost residual value and purchase of ZEC vehicles. It is not proposed to offer funding from TfL for commercial operators of other vehicles such as coaches, which will have other compliance options.

Further increase to the cost of living in London/reduced quality of life

10.11.14. GMB Professional Drivers Branch and Lambeth South Public Health were the only stakeholders which made comments on this sub-theme.

10.11.15. Within this theme, 305 comments were made by the public and businesses on the further increase to the cost of living in London. This is two per cent of all respondents.

10.11.16. GMB Professional Drivers Branch noted that should companies, authorities or individuals choose they could charge any price point they desire for electricity resulting in higher costs for consumers. Lambeth South Public Health expressed concern about yet another increase to the cost of living in London.

TfL response

10.11.17. TfL acknowledges that there will be a cost to drivers of non-compliant vehicles who wish to drive within the zone however considers ULEZ to be an essential measure aimed at improving air quality in London and thereby improving the health and well-being of all Londoners.

10.11.18. By 2020, the oldest Euro VI HGV will be six years old, the oldest Euro 6 diesel car will be five years old and the oldest Euro 4 petrol car would be fourteen years old. This means that even without the ULEZ, it is estimated there will be a substantial number of Euro VI/6 (diesel) or Euro 4 (petrol) vehicles driven in central London – approximately 77 per cent of HGVs, 73 per cent of cars which includes 97 per cent of all petrol fuelled cars, 67 per cent of coaches and non-TfL buses and 44 per cent of vans driven on an average day in 2020 will be compliant and therefore would not be charged under the ULEZ proposals.

Question as to how the proposals will be funded

10.11.19. Clean Air in London and the London Borough of Enfield commented on this sub-theme.

10.11.20. Within this theme, 20 comments were made by the public and businesses as to how the proposals will be funded. This is less than one per cent of all respondents.

10.11.21. London Borough of Enfield expressed concern about the cost of the scheme, how it will be implemented, how much it will cost to run after it is implemented and how much revenue it is expected to generate is not clear and suggested further information on these aspects needs to be provided if the scheme progresses. Clean Air in London said that TfL should seek EU structural funding for ULEZ.

TfL response

10.11.22. Funding of £327m has been allocated in the 2014 TfL Business Plan. £40m of this is reserved for taxi driver compensation, which means £287m is available to cover the implementation and operational costs associated with the Variation Order. TfL is confident that the funding gap of £56m will be met securing OLEV funding and additional funding as opportunities arise.

10.11.23. An additional £10m was included in the Government's National Infrastructure Plan, announced in the Autumn Statement, to support the implementation of ULEZ. This is additional to information about funding provided in consultation materials and is new in winter 2014. This could be put toward the funding gap, highlighted above, or be used to help fund the implementation of rapid charging infrastructure, although this is not yet decided. Other sources of funding may also come forward.

10.11.24. There is expected to be a reduction in CC revenue as a result of vehicles not compliant with the ULEZ standards not entering the CCZ, estimated at £4m in the first year and diminishing over time as compliance rates increase.

10.11.25. The ULEZ is not designed to raise revenue and has been formulated to ensure a very high rate of compliance. However, revenue in the region of £12m is expected in the first year of operation from charges for non-compliant vehicles although this will be offset by the reduction in CC revenue noted above. Again, any revenue generated will diminish over time and is expected to fall to zero after 2025. Any income generated will be used to partly offset the operational costs of the project or used to further the objectives of the Mayor’s Transport Strategy.

Question as how will money resulting from the scheme be spent

10.11.26. The following stakeholders made comments on this sub-theme: BVRLA; London Borough of Brent; London Borough of Camden; London Borough of Lambeth; London Borough of Sutton; London Boroughs of Camden, Southwark, Hackney & Lambeth (joint); London Cycling Campaign; and Westminster City Council.

10.11.27. Within this theme, 144 comments were made by the public and businesses as to how money resulting from the scheme will be spent. This is one per cent of all respondents.

10.11.28. The BVRLA proposed that all funds raised as a result of the ULEZ should be used for transport improvement projects, with a particular focus on those with the additional aim of reducing emissions in the capital. The London Borough of Brent suggested that funds raised should be earmarked for use on air quality improvement projects while the London Borough of Camden suggested using revenue to improve the take up of EV and alternatively fuelled technologies for freight vehicles. The London Boroughs of Lambeth and Sutton and the London Cycling Campaign suggested funds should be used to support and improve sustainable transport. The London Boroughs of Camden, Southwark, Hackney & Lambeth joint response and Westminster City Council expressed concern that there is no mention in the consultation documentation of the intended use of the funds collected from the ULEZ charge and the London Borough of Brent would like to see clarity before introduction of the ULEZ on how the funds raised by the ULEZ will be used. Westminster City Council also requested that the funds collected from the ULEZ charges be ring-fenced for spending on transport and travel schemes, improved public realm and infrastructure in the ULEZ area; and revenue be returned to affected boroughs to allocate on improvement projects.

TfL response

10.11.29. As indicated above, revenue from the scheme is expected to fall as the proportion of compliant vehicles entering the ULEZ increases. TfL will seek to reduce operating costs over time, through efficiency savings and contract negotiations, to offset any fall in revenue.

10.11.30. By law, any and all revenue raised from schemes operated under Section 23 to the GLA Act 1999 (which ULEZ is) must be used to further the objectives of the MTS, which in practice means to fund improvements to roads, public transport and conditions for pedestrians and cyclists.

Need for Government/EU support for the proposal

10.11.31. The following stakeholders made comments on this sub-theme: Confederation of Passenger Transport; London Assembly Labour Group; LTCOA; and The Little Bus Company.

10.11.32. Within this theme, only 1 comment was made by the public and businesses as to the need for Government/EU support for the proposal. This is less than 0.01 per cent of all respondents.

10.11.33. The Confederation of Passenger Transport noted that if a similar level of funding to that which is suggested could be available for taxis (20 – 25 per cent), were to be made available for new coaches, this would bridge the gap coach operators are currently facing. The London Assembly Labour Group welcomes TfL working with government on financial support. The LTCOA noted that many coach operators have invested heavily in Euro V so there must be financial support to comply with ULEZ and The Little Bus Company queried who was going to fund the proposals.

TfL response

10.11.34. OLEV has invited bids for a new round of funding which will run from 2015-2020. TfL will be bidding for this funding along with other UK regions.

10.11.35. TfL and the Mayor's Office are currently lobbying OLEV for grants from within their £500m 2015-2020 funding package. Applicable categories which TfL is looking to secure funding from include (all figures pertain to the UK-wide pot): Low Emission Buses (£30m) – grants towards the introduction of low emission buses and supporting charging infrastructure; Low Emission Taxis (£20m) – top-up grants towards cost of vehicle purchase and installation of supporting charging infrastructure; Flagship City Schemes (£35m) – grants for 2-4 cities which implement a suite of measures designed to increase ultra-low emission vehicle adoption; Charging Infrastructure (£32m) – grants towards purchase and installation of rapid charge points.

TfL recommendation
No change to the Scheme Order.

10.12. Themes N and Q: Alternative and complementary policies

10.12.1. 45 stakeholders suggested alternative and complementary policies to the ULEZ: Better Bankside; British Heart Foundation; BVRLA; Campaign for Air Pollution Public Inquiry; Federation of Small Businesses; FirstGroup plc; Ford Motor Company Limited; Freight Transport Association (FTA); Friends of the Earth; General Motors UK; GMB Professional Drivers Branch; Heart of London Business Alliance; Islington Green Party; Jenny Jones (AM, Green Party); London Assembly Labour Group; London Assembly Liberal Democrat Group; London Borough of Brent; London Borough of Camden; London Borough of Enfield; London Borough of Hammersmith and Fulham; London Borough of Islington; London Borough of Lambeth; London Borough of Merton; London Borough of Newham; London Borough of Richmond Upon Thames; London Borough of Sutton; London Borough of Waltham Forest; London Borough of Wandsworth; London Boroughs of Camden, Southwark, Hackney & Lambeth (joint response); London Chamber of Commerce and Industry (LCCI); London Councils; London Cycling Campaign; London Forum of Amenity and Civic Societies; London Tourist Coach Operators Association (LTCOA); Motor Cycle Industry Association; Network for Clean Air; Public Health England; Richmond Park Liberal Democrats; Sustrans; The Crown Estate; The Environmental Industries Commission; UK Health Forum; UK Hydrogen and Fuel Cell Association; UPS; and Westminster City Council

10.12.2. From public and business respondents, 1,857 (11 per cent) comments were made on alternative measures and 686 on supporting measures (5 per cent)

Issues raised

- ***Ban on diesel vehicles***
- ***Additional measures to reduce travel demand and encourage more walking cycling and public transport use***
- ***Freight***
- ***Alternative fuels and vehicle technologies***
- ***Incentives and a scrappage scheme***
- ***Local measures & Action outside of ULEZ area***
- ***London wide LEZ changes***
- ***Other***

Ban on diesel vehicles

10.12.3. The following 12 stakeholders suggested a ban on non-compliant vehicles as an alternative to a charge: British Heart Foundation; Clean Air in London; The Environmental Industries Commission; London Assembly; London Assembly Labour Group; London Assembly Liberal Democrat Group; Friends of the Earth; The Crown Estate; Islington Green Party; London Borough of Islington; London

Boroughs of Camden, Southwark, Hackney & Lambeth (joint response)
Westminster City Council

10.12.4. 109 public and business respondents made comments on banning vehicles, 1 per cent of respondents

10.12.5. British Heart Foundation; The Environmental Industries Commission and Friends of the Earth; noted that there should be no option for non-compliant vehicles to pay, while London Assembly Labour Group; London Assembly Liberal Democrat Group; London Borough of Islington; London Boroughs of Camden, Southwark, Hackney & Lambeth (joint response) and Westminster City Council, stated that TfL should work towards phasing out diesel vehicles with an eventual ban. Islington Green Party and the Crown Estate stated that diesel should be banned by 2020 and the Crown Estate suggested that only zero emission vehicles should be allowed by 2023. Clean Air in London said that the Mayor must ban diesel from the most polluted places by 2020 with an intermediate step of an age limit in 2018.

10.12.6. In the minority report to the London Assembly submission, the Green Party and Liberal Democrat Members of the Assembly called for variations to ULEZ on a day-to-day basis so that during high pollution episodes, only certain vehicles would be able to enter the zone.

TfL response

10.12.7. An outright ban on vehicles would require a traffic regulation order (TRO) signed by all affected highway authorities, whilst this is in principle feasible, albeit complicated, a 24 hour per day ban is not legally enforceable. TROs can only ban vehicles for a maximum of 8 hours in every 24 hour period, unless it is for the purposes of ‘avoiding danger to persons or other traffic using the road to which the order relates or any other road’. Legal advice has been that this requirement is unlikely to be met in relation to air quality purposes in a large area.

10.12.8. TfL recognises the need for an acceptable balance between the projected reduction in emissions and likely cost of compliance for Londoners, businesses and visitors to the capital. We believe that introducing the option to pay a charge is fairer than instigating an outright ban. Many commercial vehicles are heavily reliant on diesel fuel and a ban would be very detrimental to vehicle operators and to the industries that rely on the services they offer, and ultimately to Londoners themselves. The aim is to reduce emissions from vehicles at every opportunity, but there are some vehicle applications, such as HGVs and coaches where low or zero emission technologies, that would be practical and effective in all situations, are not available. TfL continues to monitor the development of a variety of alternative fuel options for heavy vehicle applications.

10.12.9. Day to day variation of the ULEZ during high pollution episodes has been considered. However there are several practical difficulties in ensuring drivers have enough notice of these episodes in order to replan their journeys. TfL must make drivers aware in advance of the exact charge they are liable for, meaning a daily variable charging scheme is not feasible.

Additional measures to reduce travel demand and encourage more walking cycling and public transport use

10.12.10. The following 13 stakeholders suggested additional measures to reduce travel demand and encourage more walking cycling and public transport use: BVRLA; Friends of the Earth; Islington Green Party; London Borough of Enfield; London Borough of Islington; London Borough of Lambeth; London Borough of Merton; London Borough of Richmond Upon Thames; London Cycling Campaign; Public Health England; Sustrans; The Crown Estate; and UK Health Forum

10.12.11. 758 public and business respondents made comments on encouraging more sustainable travel, 4 per cent of respondents

10.12.12. The BVRLA suggested increasing car sharing to tackle emissions.

10.12.13. Friends of the Earth, London Borough of Lambeth, London Borough of Richmond Upon Thames; London Cycling Campaign; Public Health England; Islington Green Party; and UK Health Forum called for policies to reduce motor vehicle traffic.

10.12.14. BVRLA, London Borough of Enfield, Friends of the Earth, London Borough of Islington, London Borough of Lambeth, London Borough of Merton, London Borough of Richmond Upon Thames, London Cycling Campaign, Public Health England, Public Health England, Sustrans, The Crown Estate, and UK Health Forum called for measures and investment to support walking, cycling and public transport usage.

TfL response

10.12.15. TfL recognises the need for complementary measures to reduce traffic demand and promote alternative modes of travel. Currently only 33 per cent of journey stages in London are made by private transport. As part of the programme of works arising from the Roads Task Force report, TfL are developing a suite of measures to further reduce the overall demand for motorised travel, including working with the industry to produce a car club strategy. We are working to increase the capacity of the public transport network through the tube upgrade programme which will significantly increase peak capacity, and delivering Crossrail which will increase London's overall rail capacity by 10 per cent and developing the case for new rail infrastructure on top of this to encourage sustainable growth. We are also investing nearly £1bn to improve conditions for

cycling by delivering the Mayor's cycling vision for London; including new segregated cycle superhighways, Quietways and local 'mini-Holland' schemes in outer London boroughs. Reductions in air pollutants resulting from the ULEZ will also help to create more pleasant conditions for walking and cycling.

Freight policies

10.12.16. The following 6 stakeholders raised alternative policies for freight. Better Bankside; Campaign for Air Pollution Public Inquiry; Ford Motor Company Limited; GMB Professional Drivers Branch; Heart of London Business Alliance; and The Crown Estate

10.12.17. 111 public and business respondents made comments on freight, 1 per cent of respondents

10.12.18. Better Bankside noted existing work to improve air quality through electric vehicles. Ford and Heart of London Business Alliance suggested night-time deliveries for freight as an example of a complementary measure and Campaign for Air Pollution Public Enquiry and GMB suggested a ban on freight between 7am and 7 pm as an alternative to the ULEZ. GMB, Heart of London Business Alliance and The Crown Estate suggested expansion of freight consolidation

TfL response

10.12.19. TfL recognises there could be significant benefits from a reduction in daytime goods vehicle activity, particularly in the morning peak period. Reducing freight in this period could make a significant contribution to congestion, safety risk and a reduction in air pollution. However, this must be balanced against the operational and regulatory constraints, such as the London Lorry Control Scheme, facing freight operators and their customers, which may restrict their ability to undertake servicing and deliveries in London during quieter times of the day.

10.12.20. As part of the current freight programme, TfL are working with a range of partners in industry and a number of London Boroughs through an 'out-of-hours consortium' to better understand how deliveries can be re-timed to quieter periods of the day. This has included a series of research trials to investigate noise-reducing technology and working practices, how local timing restrictions imposed by local authority planning conditions can be overcome and whether changes to delivery practices can be sustained in the longer term.

10.12.21. TfL is currently working with stakeholders to develop a new freight strategy for London. This will consider the evidence currently available around the costs, benefits and activity needed to implement policy around re-timed deliveries. Additional regulatory measures could possibly form part of the recommended policy mix if other measures do not achieve the required benefits.

10.12.22. These measures can help reduce freight emissions and congestion, but do not by themselves provide enough benefits in terms of overall emissions reductions to be seen as a substitute for the ULEZ

Alternative fuels and vehicle technologies

10.12.23. The following 8 stakeholders raised the issue of alternative fuel and vehicle technologies as a complement or alternative to the ULEZ: Campaign for Air Pollution Public Inquiry; FirstGroup plc; GMB Professional Drivers Branch; LTCOA; The Environmental Industries Commission; UK Hydrogen and Fuel Cell Association; UPS and Westminster City Council

10.12.24. Campaign for Air Pollution Public Enquiry and GMB raised the issue of cleaning up diesel engines and Fischer-Tropsch synthetic diesel as an alternative fuel. Firstgroup suggested working with manufacturers to establish cheaper ways of meeting Euro VI standards. GMB and the UK Hydrogen and Fuel Cell Association discussed the potential role of hydrogen as an alternative fuel. The LTCOA raised the issue of improvements to start stop technology as an alternative. The Environmental Industries Commission and Westminster City Council raised a general point around a mixture of alternative fuels. The Environmental Industries Commission called for greater clean vehicle technology funding to be made available across the UK. UPS and Westminster City Council called for more action to support gas fuelled vehicles, including biomethane.

TfL response

10.12.25. Evidence on city diesel is mixed. A Swedish study comparing emissions of 'city' diesel with regular diesel found no difference in NO_x emissions for light duty vehicles and, in some cases for EURO IV onwards city diesel had higher emissions for heavy duty vehicles. Fischer-Tropsch synthetic diesel is still in the early stages of development. Research undertaken for the International Energy Agency indicates that it will make up only two per cent of biodiesel by 2020. Much of it is manufactured from coal. Evidence on NO_x reduction from this fuel is mixed and significantly more NO_x emissions can be saved by cleaner engines than by cleaner fuel.

10.12.26. TfL is working with manufacturers to explore retrofit after treatment solutions to meeting the Euro VI NO_x standard for buses and coaches. The ULEZ scheme order is drafted to allow any retrofitted vehicles that meets the NO_x limits set by the Euro VI standard to operate in the ULEZ without charge

10.12.27. Stop-start technology is an important stepping stone on the route to full hybridisation of vehicles. It is likely that development of this will be market led with an emphasis on reduced CO_2 emissions and fuel savings for the operator. It is already commonplace on new light-duty and heavy-duty vehicles.

10.12.28. TfL recognises the potential role of Hydrogen as a zero tailpipe emission fuel in the future and is working with the London Hydrogen Partnership to exploit future opportunities

10.12.29. TfL are intending to work with fleet operators to produce advice and guidance on alternative low emission fuels, including biomethane. Any decisions on incentives for alternative fuels will need to be taken at a national government level.

Incentives and scrappage

10.12.30. The following 13 stakeholders suggested additional incentives for the uptake of Low emission vehicles: Federation of Small Businesses; FTA; GMB Professional Drivers Branch; Jenny Jones (AM, Green Party); London Borough of Camden; London Borough of Newham; London Borough of Sutton; London Boroughs of Camden, Southwark, Hackney & Lambeth (joint response); London Councils; London Forum of Amenity and Civic Societies; Richmond Park Liberal Democrats; Westminster City Council

10.12.31. 296 public and business respondents made comments on incentives and a scrappage scheme, 2 per cent of respondents

10.12.32. GMB; London Borough of Camden; London Boroughs of Camden, Southwark, Hackney & Lambeth; London Forum of Amenity and Civic Societies; and Westminster City Council all suggested additional financial incentives for diesel vehicle drivers to switch vehicles.

10.12.33. Federation of Small Businesses; FTA; Jenny Jones (AM, Green Party); London Borough of Camden; London Borough of Newham; London Borough of Sutton; London Boroughs of Camden, Southwark, Hackney & Lambeth; London Councils; Richmond Park Liberal Democrats and Westminster City Council suggested scrappage schemes for non-compliant vehicles with the Federation of Small Businesses, the FTA and Jenny Jones linking the scrappage scheme to small business.

TfL response

10.12.34. In the consultation materials, TfL stated that it was intending to introduce a compensation scheme for taxi drivers affected by a reduced age limit for vehicles (see section on Taxis & PHVs). The Mayor has called for the government to introduce a new scrappage scheme for diesel vehicles, recognising that this is not an issue unique to London. TfL supports this call and is willing to assist and engage with the government in implementing such a scheme, but as this is not a unique London issue we are not proposing a London specific scheme.

Local measures and action outside of ULEZ

10.12.35. The following 15 stakeholders mentioned additional action beyond ULEZ: Better Bankside; Friends of the Earth; London Assembly; London Borough of Brent; London Borough of Camden; London Borough of Enfield; London Borough of Hammersmith and Fulham; London Borough of Islington; London Borough of Lambeth; London Borough of Richmond Upon Thames; London Borough of Waltham Forest; London Borough of Wandsworth; London Boroughs of Camden, Southwark, Hackney & Lambeth (joint); Network for Clean Air; and Sustrans.

10.12.36. 23 public and business respondents made comments on action outside ULEZ.

10.12.37. Better Bankside, Friends of the Earth, London Assembly; London Borough of Waltham Forest, Network for Clean Air and Sustrans raised general comments that more was needed to tackle air pollution and reduce exposure.

10.12.38. London Borough of Brent; London Borough of Camden; London Borough of Hammersmith and Fulham; London Borough of Islington; London Borough of Lambeth; London Borough of Richmond Upon Thames; London Borough of Waltham Forest; London Borough of Wandsworth; and a joint response from London Boroughs of Camden, Southwark, Hackney & Lambeth all requested additional action to tackle air pollution hotspots in local areas outside of the ULEZ, including the Air Quality Focus Areas.

10.12.39. London Borough of Enfield and London Borough of Wandsworth welcomed the publication of TERM.

TfL response

10.12.40. TfL recognises that additional action needs to be taken to reduce air pollution. TERM, published in 2014 sets out a range of potential measures that could be undertaken to reduce air pollution in hotspot areas and TfL will be undertaking further engagement with London boroughs and other key stakeholders regarding this.

Changes to the London wide LEZ

10.12.41. The following 10 stakeholders commented on the London wide LEZ: BVRLA; Friends of the Earth; Islington Green Party; London Borough of Brent; London Boroughs of Camden, Southwark, Hackney & Lambeth; London Cycling Campaign; The Environmental Industries Commission; UK Health Forum; and Westminster City Council.

10.12.42. 56 public and business respondents made comments on alterations to the London wide LEZ.

10.12.43. Friends of the Earth, Islington Green Party, London Boroughs of Camden, Southwark, Hackney & Lambeth; London Cycling Campaign; UK Health Forum and Westminster City Council suggested a strengthening of the London wide LEZ standards. Whilst London Borough of Brent stated their opposition to any change in the conditions or coverage of the existing LEZ on the grounds of social equity.

10.12.44. BVRLA and The Environmental Industries Commission supported a national framework for Low Emission Zones.

TfL response

10.12.45. TERM suggests that a future strengthening of the London wide LEZ standards should be considered. Any changes to the London wide LEZ would involve a full assessment and separate statutory consultation.

10.12.46. TfL agrees that a national framework for Low Emission Zones is required and has called upon the Government to implement this in TERM.

Others

10.12.47. The following stakeholders raised alternative and complementary policies not listed above: British Heart Foundation; Campaign for Air Pollution Public Inquiry; FTA; Friends of the Earth; General Motors UK; GMB Professional Drivers Branch; London Assembly Liberal Democrat Group; LCCI; LTCOA; Motor Cycle Industry Association; The Crown Estate; The Environmental Industries Commission; UK Hydrogen and Fuel Cell Association.

10.12.48. 49 public and business respondents made comments suggesting alternatives not listed above.

10.12.49. British Heart Foundation suggested a public awareness campaign to increase public awareness of the dangers of air pollution and the promotion of active travel.

10.12.50. FTA and The Environmental Industries Commission questioned what was being done to tackle non-transport sources of pollution, including NRMM.

10.12.51. Friends of the Earth stated that new roads should not be built as they generate traffic and can delay compliance. General Motors UK suggested greater use of portable emissions monitoring systems (PEMs) to identify problem intersections and enforcement to prevent speeding and harsh acceleration at lights.

10.12.52. GMB called for PHVs carrying passengers to be allowed into bus lanes and Pedicabs to be banned from the ULEZ.

10.12.53. London Assembly Liberal Democrat Group called for a workplace parking levy within London and emissions related parking charges.

10.12.54. LTCOA called for an increase in coach parking.

10.12.55. The Crown Estate called for a redesign of bus routes and ticketing to reduce the high number of empty running buses in the West End.

TfL response

10.12.56. With regard to public awareness of air quality, the Breathe Better Together Campaign was launched in February 2015 highlighting the dangers of air pollution and suggesting ways to mitigate the impact.

10.12.57. Supplementary Planning Guidance setting standards for NRMM will be introduced from September 2015 and strengthened in 2020 to complement the ULEZ. The GLA is also co-ordinating other efforts to tackle non-transport sources of NO_x, including retrofitting of buildings and introducing a requirement for all developments to be air quality neutral.

10.12.58. The case for new roads has been considered in TfL's response to the Roads Task Force report recommendations. These will be subject to separate development and air quality impacts will be taken into account as part of the standard environmental assessment, where applicable.

10.12.59. With regard to PEMS and speed cameras, TfL is currently developing a 'London drive cycle' using portable emissions monitoring systems to investigate the emissions performance of vehicles in London driving conditions. Whilst we are encouraging more efficient driving of vehicles through eco-driving campaigns, this is not something that can be enforced. There are strict guidelines regarding the installation of speed cameras, which can only be utilised at sites with a history of road traffic collisions.

10.12.60. TfL's position on PHVs in bus lanes is that allowing PHVs into bus lanes would cause severe disruption to the bus network. This would outweigh any potential emissions savings benefits from such a measure. This policy has recently been upheld by the Advocate General [34] and a decision from the European Court of Justice is awaited. TfL currently does not have the legal powers to ban or regulate pedicabs.

10.12.61. A workplace parking levy (WPL) is one of the measures suggested in TERM that a borough could implement in order to reduce emissions. Any London wide plans for a WPL would need to be developed separate to the ULEZ and would be subject to detailed assessment and feasibility. Parking charges are the responsibility of individual boroughs. TfL welcomes any measures undertaken by

[34] https://www.tfl.gov.uk/info-for/media/press-releases/2014/september/tfl-welcomes-opinion-of-advocate-general

boroughs using parking charges to discourage the most polluting vehicles, provided they are reasonable and proportionate.

10.12.62. Regarding coach parking: TfL published the Tourist Coach Action Plan in 2013, which set out several actions that TfL are taking forward to better manage coach parking in London, working with the Confederation of Passenger Transport, including investigating the feasibility of providing a central London coach parking site, and using real time information to reduce time spent looking for spaces

10.12.63. Bus operations are planned in line with TfL's service planning guidelines and aim to provide sufficient capacity to meet demand at the busiest points. Substantial data is collected to understand passenger demand. Bus services on Oxford Street have been reduced by 20 per cent since 2009 and it is expected that the opening of Crossrail will see a reduction of demand on some bus services, presenting an opportunity for further efficiencies. Around 220,000 people disembark from buses on Oxford Street every day and it is therefore not true to state that buses are 75 per cent empty. TfL buses are included in the ULEZ as set out elsewhere in the report.

TfL recommendation
No change to the Scheme Order.

10.13. Theme O: Vehicle Technology

10.13.1. Sixteen stakeholders commented on this theme: BVRLA, Campaign for Air Pollution Public Inquiry, GMB Professional Drivers Branch, Guide Dogs, London Borough of Enfield, London Borough of Islington, London Motor Cab Proprietors Association, Low Carbon Vehicle Partnership, SMMT, The Environmental Industries Commission, The Fitzrovia Partnership BID, The London Assembly Environment Committee, The Original London Sightseeing Tour, Unite the Union, UPS, and Westminster City Council.

10.13.2. Question 15 in the questionnaire invited views on the six vehicle types which would be required to pay a daily charge if they did not meet the ULEZ standards: HGVs, coaches/buses, vans/minibuses, diesel cars, petrol cars and motorcycles. The most well-supported of these categories was HGVs (77 per cent of respondents supported or strongly supported) and coaches, buses (76 per cent supported or strongly supported). The least well-supported was motorcycles, where 34 per cent supported or strongly supported. Diesel cars were more strongly supported for inclusion (58 per cent) than petrol cars (52 per cent). A full breakdown is given in Chapter 8.

10.13.3. From public and business respondents, 316 comments were made on this theme, which amounts to 2 per cent of respondents.

Issues raised in relation to this theme:

- ***LPG and CNG offer emissions savings over diesel***
- ***HGV technology is not as advanced as cars***
- ***Clean Diesel, Bio-diesel, diesel engine clean-up systems should be used***
- ***Diesel retrofit technology should be fitted to Euro IV and V vehicles***
- ***Stricter targets for all vehicle types***
- ***Hybrid technology not suitable for tour buses***
- ***Bio-methane use should be expanded to reduce emissions***
- ***Westminster AQAP urges the Mayor to strengthen targets***
- ***Zero emission vehicles may be unnoticed by the blind***
- ***A switch from diesel vehicles to equivalent or perhaps older petrol vehicles might risk raising carbon emissions***
- ***Degradation of emissions from Euro 4 petrol cars and vans***

LPG and CNG offer emissions savings over diesel

10.13.4. The following stakeholders made comments on this sub-theme: London Borough of Islington, The Environmental Industries Commission.

10.13.5. The London Borough of Islington stated; Liquefied Petroleum Gas (LPG) and Compressed Natural Gas (CNG) have been proven to have lower emissions than

diesel. With considerable financial savings to be made from the use of LPG over diesel this fuel is ideal for use in both the bus and taxi fleet. Diesel still remains more polluting than other vehicle fuels and therefore we urge that you prioritise alternative vehicle technologies over its use.

10.13.6. The Environmental Industries Commission stated that they want to emphasise the environmental benefits that the use of LPG autogas can bring immediately as a credible bridging technology which is readily available and deployable now. There is demonstrable demand too for taxis running on LPG autogas

TfL response

10.13.7. TfL seeks to encourage the use of alternative fuels wherever possible. Both LPG and CNG/LNG enjoy a lower rate of road transport fuel duty than petrol and diesel which can offer cost savings to vehicle operators. At present there are no original equipment (OEM) LPG vehicles on the UK market and very few CNG vehicles. Those vehicles that do exist are after-market conversions for which the conversion costs can be significant (circa £20,000 for a CNG goods vehicle).

10.13.8. Emissions reductions from the use of CNG or LPG converted vehicles have been demonstrated in the past. The need to integrate the conversion with increasingly sophisticated on-board diagnostics systems has made the emissions benefit of these systems less clear-cut on newer vehicles.

10.13.9. In the case of a positive ignition (petrol) light duty vehicle, a conversion to LPG may yield reductions in CO_2, narrowing the gap to a compression ignition (diesel) engine. It is possible for a heavy duty diesel engine converted to CNG to achieve savings in CO_2, but since most of these conversions retain a diesel pilot flame (dual-fuel) this is only likely at high gas for diesel substitution rates making them more suited to motorway applications than urban driving. The retention of a diesel pilot also means that PM emissions are not prevented altogether.

10.13.10. Over the past couple of years, the UK Department for Transport has operated a low-carbon truck trial, which has seen the conversion of several hundred vehicles to, for the most part, CNG. That trial is due to report this year.

10.13.11. TfL currently allows for LPG converted taxis to be licensed under the CoF rules. Some incentive is provided to these vehicles in addition to fuel cost savings and a few exist within the licensed fleet.

HGV technology is not as advanced as cars

10.13.12. The following stakeholders made comments on this sub-theme: BVRLA.

10.13.13. The BVRLA stated that it is important to note that technology for commercial vehicles – especially Heavy Goods Vehicles (HGVs) – is not as advanced as that of cars.

TfL response

10.13.14. This is not necessarily true. Modern HGVs feature many advanced systems such as automated transmissions, ABS, ESP and road friendly suspension, in common with light duty vehicles. Regarding air quality emissions, many heavy duty engines utilise a combination of exhaust gas recirculation (EGR) and selective catalytic reduction (SCR) to achieve extremely low emissions, in some cases as low as passenger cars, despite their greater size. Euro VI has become mandatory 18 months sooner for HGVs than for cars and appears to be effective in reducing emissions. A proviso to all this is that production volumes are smaller for HGVs so development costs must be amortised over longer periods than may be the case for passenger cars.

Clean Diesel, Bio-diesel, diesel engine clean-up systems should be used

10.13.15. The following stakeholders made comments on this sub-theme: Campaign for Air Pollution Public Inquiry.

10.13.16. The Campaign for Air Pollution Public Inquiry raised three points: 1. A regulation for Clean Diesel (as used in Sweden) could be implemented overnight. 2. Bio-diesel is another option which has been ignored. 3. Other measures could include a diesel engine clean-up system and improved traffic management.

TfL response

10.13.17. Evidence on city diesel is mixed. A Swedish study comparing emissions of 'city' diesel with regular diesel found no difference in NO_x emissions for light duty vehicles and, in some cases for EURO IV onwards city diesel had higher emissions for heavy duty vehicles. It should be noted that current EN590 diesel (pump fuel) has less than 10ppm sulphur (known as zero sulphur) and up to 7 per cent bio-diesel content.

10.13.18. Biodiesel has been trialled in sections of the TfL fleet. However, it is only suitable in high-concentrations for certain vehicle types because of vehicle manufacturer concerns about fuel quality and storage. TfL continues to monitor this situation. It should be noted that because of the differences in the molecule chains within the respective fuel types (bio-diesel and mineral diesel), bio-diesel can lead to increased NO_x emissions and so would not be helpful towards the targets for the ULEZ.

10.13.19. TfL is working with the manufacturers of exhaust after-treatment systems to develop a NO_x retrofit system for heavy-duty vehicles. If successful, this system will allow Euro V vehicles to meet the Euro VI requirements of ULEZ.

10.13.20. TfL actively works to reduce congestion, and resultant emissions, through improvements in traffic management.

Diesel retrofit technology should be fitted to Euro IV and V vehicles

10.13.21. The following stakeholders made comments on this sub-theme: the Environmental Industries Commission.

10.13.22. Environmental Industries Commission noted that retrofit technologies are emerging that can tackle the poorly performing Euro IV and Euro V vehicles allowing these to meet the Euro VI emissions targets being required. These systems are commercial reality and can/should be deployed immediately to start tackling the problems now. All other diesel engines should also be installed with a NO_x abatement technology if operating within the ULEZ.

TfL response

10.13.23. TfL is working with manufacturers of exhaust catalysts to develop a system that would reduce the NO_x emissions of a Euro V bus to those of Euro VI. Development of selective catalytic reduction systems of this type is not straightforward because of the need to integrate the system with the on-board diagnostics (OBD) systems on the vehicle. However, there is high confidence that such a system will be successful.

10.13.24. It is hoped that once the system is developed for buses operating in London, then the range can be expanded to include other vehicle applications, such as coaches and HGVs, although this will necessarily be based upon demand.

10.13.25. It is important to ensure that the system remains operational, in service, hence the conversion is only being developed for Euro V engines, where the OBD system will safeguard against the reductant fluid being allowed to run dry. It is unlikely to be economical to fit these systems to older vehicles, or to light duty vehicles, in any case.

Stricter targets for all vehicle types

10.13.26. The following stakeholders made comments on this sub-theme: The Fitzrovia Partnership BID.

10.13.27. The Fitzrovia Partnership BID stated that there needs to be stricter targets for TfL and government to meet by 2020, in terms of innovation in technology for white

vans, HGVs, and private vehicles, rather than just the taxi and PHV sector - these key changes will make for a clean and green London.

TfL response

10.13.28. The ULEZ has been designed to take advantage of the most advanced emissions standards available at present (Euro 6/VI for diesel vehicles). The Mayor is considering applying these standards to all vehicle types, not just taxi/PHV. For motorcycles the Euro 3 standard is under consideration.

10.13.29. The selected standards will remain under review and should it be appropriate, the Mayor could tighten the standards in future, subject to consultation.

Hybrid technology not suitable for tour buses

10.13.30. The following stakeholders made comments on this sub-theme: The Original London Sightseeing Tour.

10.13.31. The Original London Sightseeing Tour raised three issues: 1.Hybrid technology is not suited to coach operation or to the open-top tourist bus market. 2. For operators of London Service Permits to be permitted to pay some kind of daily charge is the least bad of the options unless the emission-reduction technology can actually be produced. 3. Requested proposals to be reconsidered and a more pragmatic outcome devised.

TfL response

10.13.32. It is accepted that diesel-electric hybrid technology is not suitable for all types of bus & coach operation. It is most effective in stop-start urban bus operations, such as those which prevail in central London. The ULEZ criteria does not insist on hybrid technology, the standard is for Euro VI diesel.

10.13.33. For operators who are unable to comply with the ULEZ requirements, the option to pay a daily charge will exist.

10.13.34. The Mayor and TfL will continue to engage with stakeholders between Mayoral sign-off of the ULEZ and the implementation date in an effort to assist those affected to comply in a reasonable manner.

Bio-methane use should be expanded to reduce emissions

10.13.35. The following stakeholders made comments on this sub-theme: UPS.

10.13.36. UPS stated that it was pleased to note that the consultation document acknowledges the ability to decarbonise operations through the use of biomethane. However it disputes that this fuel is only for niche operations and states it is integral to its operations, albeit hampered by a shortage in supply.

TfL response

10.13.37. TfL welcomes support for the consultation proposals. Furthermore, TfL remains committed to promoting alternative fuels where appropriate. While it is possible to run engines on just methane or bio-methane, most HGVs using these fuels use them as 'dual-fuel' where diesel fuel is still burned to act as a pilot to ignite the methane or bio-methane. This type offers the greatest potential for fuel cost savings and reduction in greenhouse gas emissions while improving air quality emissions under certain operating conditions. Some vehicle manufacturers offer CNG/LNG products. For others, an after-market conversion can be carried out, but at significant cost. The source of the CNG/LNG used to fuel the vehicle may be bio-fuel when possible. Unfortunately, bio-methane is available in limited volumes at present, preventing widespread use, but the potential emissions benefits are impressive, particularly for CO_2.

10.13.38. In either case, the conversion to run on gaseous fuel does not change the type-approval status of the base-vehicle, meaning that for the ULEZ the same emissions standards as for the pre-conversion vehicle apply. In practice this means that where the base-vehicle was diesel (regardless of the conversion), the ULEZ standards for diesel vehicles apply. Where the base-vehicle was petrol, the ULEZ standards for petrol vehicles apply. The only exception to this is where it has been demonstrated in laboratory testing that the Euro 6/VI emissions limits are met by the converted vehicle.

10.13.39. TfL is intending to work with fleet operators to produce advice and guidance on alternative low emission fuels, including biomethane. Any decisions on incentives for alternative fuels will need to be taken at a national government level.

Westminster AQAP urges the Mayor to strengthen targets

10.13.40. The following stakeholders made comments on this sub-theme: Westminster City Council, The London Assembly Environment Committee.

10.13.41. Westminster City Council stated that Westminster's Air Quality Action Plan (AQAP) commits to supporting the Mayor in his aims to bring about improvements to the taxi and PHV fleet, but urges him to further reduce emissions. The London Assembly Environment Committee stated that the standards for the ULEZ must be kept under review, and should be tightened to drive the uptake of lower-emissions vehicles as they become more widely available.

TfL response

10.13.42. TfL welcomes the support for the proposals to reduce taxi and PHV emissions and those of other vehicles. These measures are part of a wide range of measures being implemented by the Mayor to reduce emissions from road

transport generally. The effectiveness of the ULEZ, and of other measures, will be carefully monitored and standards may be raised as appropriate.

Zero emission vehicles may be unnoticed by the blind.

10.13.43. The following stakeholders made comments on this sub-theme: The Guide Dogs for the Blind Association.

10.13.44. Guide Dogs states that electric and hybrid cars are quieter than conventional petrol and diesel cars and therefore, can be dangerous for blind and partially sighted people. It suggests that electric and hybrid cars are fitted with an Artificial Vehicle Alerting System to ensure that they are audible.

TfL response

10.13.45. TfL accepts that the quiet running of, in particular, battery-electric vehicles may cause difficulty for blind and partially sighted road users, although the evidence on this is mixed. This situation has been acknowledged by the EU and in 2014 a change in legislation was made to address this issue.

10.13.46. Following a five-year transitional period during which time vehicle manufacturers have the option to fit the technology, an Acoustic Vehicle Alerting System (AVAS) will be mandatory on all electric and hybrid vehicles stipulating a minimum noise level while driving at less than 12mph (20kph) without an internal combustion engine. Some current models of electric vehicle are already so equipped.

A switch from diesel vehicles to equivalent or perhaps older petrol vehicles might risk raising carbon emissions

10.13.47. The following stakeholders made comments on this sub-theme; The London Assembly Environment Committee.

10.13.48. Subject to confirmation that the Euro 4 petrol vehicle exemption will not have a significant detrimental impact on the Mayor's transport CO_2 reduction targets, the Committee agrees that Euro 4 is an adequate ULEZ standard for petrol vehicles at this stage.

TfL response

10.13.49. TfL welcomes the support for these proposals. The numbers of Euro 4 petrol cars driven in the ULEZ is likely to be small, but it does provide an option for drivers for whom the cost of a newer vehicle would be prohibitive. The impact on CO_2 emissions from using this standard over a later standard would be negligible.

Degradation of emissions from Euro 4 petrol cars and vans.

10.13.50. The following stakeholders made comments on this sub-theme; The Society of Motor Manufacturers and Traders (SMMT); Low Carbon Vehicle Partnership (LowCVP).

10.13.51. SMMT and LowCVP have raised concerns about the durability of emissions control systems on Euro 4 petrol cars and vans, given that these vehicles will be up to 14 years old in 2020. The principle concern is degradation of the 3-way catalytic convertor.

10.13.52. When the proposed ULEZ scheme would launch, in September 2020, a Euro 6 diesel car would be a maximum of six years old, whereas, a Euro 4 petrol car might be up to fourteen years old. It is recognised that a 14 year old car will have passed beyond the legislated durability period for emissions compliance and that the emissions performance may have degraded somewhat. However, it is also considered that vehicles of this age will be part of a diminishing population. Additionally, these vehicles will still be subject to annual roadworthiness inspections (the MOT test). The emissions test within the MOT test measures the emissions of carbon monoxide and hydrocarbons at idle and fast idle (it is not meaningful to measure NO_x under these conditions), which is sufficient to identify a three-way catalytic convertor that has suffered complete failure (for example, through mis-fuelling of the vehicle). Most Euro 4 petrol cars passed the original type approval test by a substantial margin, allowing some degree of tolerance for partial degradation of the catalyst.

10.13.53. The issue of vehicle owners removing the DPF, or exhaust catalysts from their vehicles has been raised. A number of companies have offered DPF removal services. However the annual roadworthiness inspection (MOT test) was amended in 2013 such that a vehicle originally equipped with a DPF or other exhaust catalyst must have the device fitted when presented for test. If a service replacement should be necessary, then the replacement must be one approved (and stamped) for the vehicle. It is believed that this sufficiently mitigates for this potential problem.

TfL recommendation
No change to the Scheme Order.

10.14. Theme P: Infrastructure

10.14.1. 13 stakeholders commented on this theme: Autogas Ltd, Ford Motor Company Limited, Friends of the Earth, GMB Professional Drivers Branch, Environmental Industries Commission, London Assembly Labour Group, London Borough of Camden, London Borough of Islington, Motor Cycle Industries Association, RAC Foundation, UK Hydrogen and Fuel Cell Association, Unite the Union and Westminster City Council.

10.14.2. From public and business respondents, 223 comments were made on this theme (one per cent of respondents).

10.14.3. The following representatives from the taxi trade and industry commented on this sub-theme: GMB; IoPDC; LTDA; LTC; Unite the Union; and UCG. Refer to Theme J: Taxis for their comments.

Issues raised in relation to this theme:

- ***Availability of charging infrastructure required to support ZEC vehicles***
- ***Locations of on-street charging infrastructure to support ZEC vehicles and potential impact on public realm***
- ***OLEV funding for charging infrastructure***

Availability of charging infrastructure required to support ZEC vehicles

10.14.4. The following stakeholders raised concerns regarding the current and future availability of on-street charging infrastructure which is capable of supporting the uptake of ZEC vehicles: Environmental Industries Commission, Friends of the Earth, Ford Motor Company Limited, GMB Professional Drivers Branch, London Borough of Islington, Motorcycle Industry Association, RAC Foundation, UK Hydrogen and Fuel Cell Association, and Unite the Union.

10.14.5. Additionally, GMB Professional Drivers Association raised a concern about the maintenance of charge points.

TfL response

10.14.6. TfL will publish a Delivery Plan for Ultra Low Emission Vehicles in London in the summer. This document aims to tackle the remaining barriers to the uptake of ULEVs, and will set out the actions that will help to accelerate the normalisation of ULEVs. It will outline a deployment strategy for rapid charging in London, including specifying the type and extent of charging infrastructure that will need to be in place to support the uptake of different types of ULEVs and when this will need to be in place to deliver the ULEZ proposals, particularly the requirements for ZEC taxis and PHVs. As part of the strategic planning for a rapid charge network (related to the further consultation and engagement work described in

Chapter 11) TfL will undertake extensive engagement with taxi drivers, PHV operators and vehicle manufacturers to develop a detailed set of operational and technical requirements which can be applied to the creation of a rapid charge network.

10.14.7. The Source London network was transitioned to IER Bolloré in September 2014 to ensure its long-term future without the need for ongoing public subsidy. TfL and the Mayor are working with IER Bolloré and key partners to improve the service for customers, including the maintenance of charge points.

Locations of on-street charging infrastructure to support ZEC vehicles and potential impact on public realm

10.14.8. The following stakeholders have indicated that charging infrastructure to support ZEC vehicles will need to be conveniently located: RAC Foundation, Unite the Union, Westminster City Council.

10.14.9. Additionally Westminster City Council raised a concern regarding the impact of new charging infrastructure on the public realm.

TfL response

10.14.10. As part of current and planned research and stakeholder engagement, TfL is seeking to identify the most appropriate locations for the deployment of charging infrastructure to support the introduction of ZEC taxis and PHVs. In developing a deployment strategy for rapid charging in London, consideration will be given to existing driver working patterns, driver requirements (including availability of public conveniences and amenities) and how vehicle charging can be incorporated with minimal disruption.

10.14.11. A further consideration with regards to proposed locations for charging infrastructure will be the impact on public realm and street scene. TfL will work closely with local authorities to develop infrastructure deployment proposals and will engage with charging infrastructure manufacturers to determine how to minimise the impact of infrastructure on the urban environment.

OLEV funding for charging infrastructure

10.14.12. The London Assembly Labour Group asked how much OLEV funding would be available for the installation of charging infrastructure.

TfL response

10.14.13. Both TfL and central Government recognise that the initial installation of a rapid charging network will require significant capital investment, particularly where there is a need to also upgrade or provide added resilience in the existing

electricity distribution network infrastructure. As part of their £500m package of measures to support the development and use of ULEVs, the OLEV has allocated £32m for the installation of new charging infrastructure across the UK.

10.14.14. As well as public sector funding sources, consideration will be given to attracting investment in charging infrastructure from the private sector.

TfL recommendation
No change to the Scheme Order.

10.15. Theme R: Impacts

10.15.1. Thirty-five stakeholders commented on this theme: Belgravia Residents Association; Better Bankside; Camden Green Party; Campaign for Air Pollution Public Inquiry; Confederation of Passenger Transport; Disabled Motoring UK; Federation of Small Businesses; Ford Motor Company Limited; Freight Transport Association (FTA); GMB Professional Drivers Branch; Golden Tours; Heart of London Business Alliance; Lambeth South Public Health; London Borough of Brent; London Borough of Camden; London Borough of Enfield; London Borough of Haringey; London Borough of Lambeth; London Borough of Newham; London Borough of Richmond Upon Thames; London Borough of Wandsworth; London Chamber of Commerce and Industry (LCCI); London Cycling Campaign; London Forum of Amenity and Civic Societies; London Tourist Coach Operators Association (LTCOA); Motor Cycle Industry Association; Motorcycle Action Group; Public Health England; RAC Motoring Services; Sainsburys; The Crown Estate; The Little Bus Company; The Original London Sightseeing Tour; Transport-watch; and Westminster City Council.

10.15.2. From public and business respondents, 3,042 comments were made on this theme which constitutes nineteen per cent of all respondents.

Issues raised

- ***The scheme disproportionately impacts low and middle income people***
- ***Cost impacts on customers/businesses***
- ***High impact on small businesses***
- ***Positive health impacts of ULEZ***
- ***Environmental impact of scrapping old vehicles & manufacturing new vehicles***
- ***Not always practical or possible to use public transport/an alternative to driving***
- ***Impact on tourism/leisure visits***
- ***Impact on London's economy***
- ***Environmental impact of manufacturing EVs and disposing of batteries at the end of EV life***
- ***Other impacts of a ULEZ***

The scheme disproportionately impacts low and middle income people

10.15.3. The following stakeholders made comments on the scheme disproportionately impacting low and middle income people: Belgravia Residents Association; GMB Professional Drivers Branch; London Borough of Brent; London Borough of Camden; London Borough of Richmond Upon Thames; Motorcycle Action Group; Motor Cycle Industry Association; and RAC Motoring Services.

10.15.4. Within this theme, 671 comments were made by the public and businesses. This is four per cent of all respondents.

10.15.5. Belgravia Residents Association noted that some private car owners may find it difficult to change their cars within the time period allowed. GMB Professional Drivers Branch noted that the hardest hit will be the poorer drivers who drive older cars especially when we reach 2018 the Euro 6 vehicles will only be three years old and therefore too expensive for many to acquire. The London Boroughs of Brent and Camden made similar comments. The Motor Cycle Industry Association had similar concerns but for the cost of a new motorcycle on low income earners while the London Borough of Richmond Upon Thames noted that people from lower socio-economic backgrounds spend a disproportionate amount of time living, working and travelling on roads with the poorest air quality leading to widening health inequalities.

TfL response

10.15.6. An IIA of the ULEZ proposals was produced by Jacobs and made available during the consultation, and this assesses its impacts on, among other areas, equality groups and London's economy. TfL's response therefore refers to this assessment.

10.15.7. Even without the ULEZ proposals, 73 per cent of cars are expected to be compliant by 2020 which includes 97 per cent of all petrol fuelled cars. Whilst many vehicles will already be compliant owing to natural fleet turnover, the ULEZ proposal would accelerate this process resulting in an estimated 93 per cent of cars being compliant in 2020 with the proposals in place.

10.15.8. In addition to upgrading vehicle, there are other options which people can consider in order to comply with the ULEZ proposals including: switch modes (for example to bus, Tube or walking/cycling); use another mode for the part of the journey which is in ULEZ; no longer travel into the proposed ULEZ; or pay the charge. It should also be noted that petrol cars up to 14 years old would still be compliant under the proposals and not pay a daily charge. Most people will therefore not need to take any action; for those that do the option of switching to an older petrol vehicle may exist.

10.15.9. It is acknowledged in the assessment that the ULEZ may have differential impact on low income workers who work more unsocial hours and travel to work in central London by car. This is because they may be unable to afford a ULEZ compliant vehicle or pay the charge. This impact would however be offset by complementary policies however which work towards improved night time services for London's public transport system, for example the Night Tube services which commence in September 2015.

10.15.10. It is also acknowledged that people from lower socio-economic backgrounds spend a disproportionate amount of time living, working and travelling on roads with the poorest air quality. The ULEZ would result in reductions in the number of people living in areas above the NO_2 annual limit value in 2020 and 2025. Specifically in 2020 ULEZ would result in the following reductions of people living in areas above the NO_2 annual limit value:

- Central Zone – reduction of 74 per cent.
- Inner Zone – reduction of 50 per cent.
- Outer Zone – reduction of 42 per cent.

10.15.11. TfL notes that the requirement for vehicles to meet the Euro standards will not come into effect until 2020 so the older Euro 6 vehicles will be 5 years old at that time, making them more affordable than a 3 year old vehicle as noted by the GMB Professional Drivers Branch.

Cost impacts on customers/businesses

10.15.12. The following stakeholders made comments on the costs impacts on customers/businesses: Confederation of Passenger Transport; Federation of Small Businesses; GMB Professional Drivers Branch; Golden Tours; Lambeth South Public Health; London Borough of Lambeth; LTCOA; and The Original London Sightseeing Tour.

10.15.13. Within this theme, 510 comments were made by the public and businesses. This is three per cent of all respondents.

10.15.14. The Confederation of Passenger Transport expressed concern that ULEZ will create difficulties for their sector and others which could have a seriously detrimental affect on the commercial and tourist economy of the capital. The Federation of Small Businesses was concerned that the new ULEZ will add to the cost burden affecting small firms across the capital and in the South East. GMB Professional Drivers Branch was concerned that should companies, authorities or individuals choose they could charge any price point they desire for electricity resulting in higher costs for consumers. Golden Tours and LTCOA noted that the proposals unfairly impact the coach industry. Lambeth South Public Health and the London Borough of Lambeth noted the cost implications for both residents and businesses in London. The Original London Sightseeing Tour expressed concerns about the inevitable financial stresses.

TfL response

10.15.15. The Economic and Business Impact Assessment (EBIA) for ULEZ was prepared by Jacobs for TfL. It estimated a compliance cost of between £120-250m for businesses. This amounts to between 0.03-0.08 per cent of the London economy,

and would diminish over time. Even without the ULEZ, most vehicles (73 per cent of cars and 44 per cent of vans) using the zone would meet its emissions standards in 2020 and would be unaffected.

10.15.16. The EBIA also assessed the monetised health benefits from the health benefits of ULEZ - £101m in 2020 (£32m in 2025). This includes better health leading to more productivity and a reduction in the costs of ill health to the economy.

10.15.17. The EBIA identified potential mitigations, some of which will be taken forward.

High impact on small businesses

10.15.18. The following stakeholders made comments on the high impact on small businesses: Federation of Small Businesses; FTA; GMB Professional Drivers Branch; Lambeth South Public Health; London Borough of Enfield; London Borough of Newham; London Borough of Wandsworth; Motor Cycle Industry Association; Sainsburys; and The Little Bus Company.

10.15.19. Within this theme, 495 comments were made by the public and businesses. This is three per cent of all respondents.

10.15.20. London Borough of Enfield noted that there could be a negative impact on business in the borough, particularly the many smaller businesses that may rely on older vehicles. The Federation of Small Businesses noted that many small businesses rely on LGV's to carry out their business activity and it is concerning to see the use of language in the Impact Assessment that for small businesses 'it may be more economical to exit the market'. The FTA noted that larger fleets can reconfigure so noncompliant don't come to London, will be harder for small business and specialist vehicles and Euro VI second hand market not fully mature by 2020 as people stocked up on Euro 5. London Boroughs of Newham and Wandsworth suggested that the cost-benefit implications should be considered carefully, together with any likely impact on business.

TfL response

10.15.21. As set out above, the impacts on London's economy as a whole are minor. Nevertheless it is recognised that the scale of impact will vary by individual business and that some businesses, including small businesses, will be more adversely affected. As a result of this, some businesses will decide to change the way that they operate, or cease operating.

10.15.22. The point made about the immaturity of the Euro VI market is noted. A compliant Euro VI vehicle of this type would, however, be 6 years old by the time ULEZ is introduced, so a second-hand market will exist. The cost for cars and vans has been set at a level (£12.50 per day) which would allow occasional use without a high cost, should the driver choose to travel in the zone in a non-compliant

vehicle. Many vehicles will already be compliant by 2020 owing to natural fleet turnover, however, the ULEZ proposal would accelerate this process. It is also worth noting the existence of the Government's plug-in car and van grants for low emission vehicles.

10.15.23. All vehicles contribute to air pollutant emissions and TfL and the Mayor have a duty to take action on London's air quality. Londoners have indicated that emissions from all vehicle types must be reduced. The ULEZ proposal seeks to achieve a balance between the need to reduce vehicle emissions to improve the health of Londoners and the need to ensure that the scheme is affordable and feasible for businesses and individuals

Positive health impacts

10.15.24. The following stakeholders made comments on this sub-theme: Camden Green Party; Disabled Motoring UK; Lambeth South Public Health; London Borough of Haringey; London Borough of Richmond Upon Thames; London Cycling Campaign; London Forum of Amenity and Civic Societies; and Public Health England.

10.15.25. Within this theme, 3,894 comments were made by the public and businesses. This is two per cent of all respondents.

10.15.26. Disabled Motoring UK supported the ULEZ proposal as many of their members suffer with illness made worse by pollution. The London Boroughs of Haringey and Richmond Upon Thames welcomed the health benefits that the ULEZ will bring. London Forum of Amenity and Civic Societies noted the adverse impacts on health of poor air quality while the London Cycling Campaign noted the positive impacts of the proposals on cycling and walking as well as health. Public Health England welcomed the benefits that improvements in air quality will have on health of the most deprived communities.

TfL response

10.15.27. The majority of responses received in the consultation recognised the importance of improving poor air quality in London. In response to Question 13 on the questionnaire, 79 per cent of respondents stated it was important or very important to tackle poor air quality in central London. TfL welcomes the support for the proposals which will ultimately benefit all Londoners through improved health and general well-being.

Environmental impact of scrapping old vehicles & manufacturing new vehicles

10.15.28. The Original London Sightseeing Tour is the only stakeholder that made comments on this sub-theme.

10.15.29. Within this theme, 267 comments were made by the public and businesses. This is two per cent of all respondents.

10.15.30. The Original London Sightseeing Tour expressed concern about the environmental aspects of scrapping large numbers of otherwise sound engines and / or PSVs.

TfL response

10.15.31. TfL acknowledges that disposal of vehicles' components would need to be managed effectively following the end of their life. An assessment of the impacts is included in the IIA and assessed overall as negligible in impact.

10.15.32. Some of the hazardous wastes may be recyclable or recoverable using available technologies at existing facilities. For example, materials such as rare earth elements and precious metals may have economic value that can be realised through resale following recovery. Treatment of hazardous substances can yield significant environmental benefits and avoid expensive disposal methods such as landfill if good practice is followed.

10.15.33. Additionally, it should be remembered that scrappage is usually the least attractive option, especially for vehicles with further service life. Most operators will sell on vehicles in order to realise their value (outside London or the UK); scrappage is an end-of-life option.

Not always practical or possible to use public transport/an alternative to driving

10.15.34. Federation of Small Businesses was the only stakeholder who made comments on this sub-theme.

10.15.35. Within this theme, 191 comments were made by the public and businesses. This is one per cent of all respondents.

10.15.36. Federation of Small Businesses noted that someone driving into central London because they choose not to use public transport is different from the repair man, delivery man or service engineer for whom the use of a vehicle is fundamental to their business.

TfL response

10.15.37. It is acknowledged that certain trades rely on a vehicle and for this reason it has been important to include options for compliance which reflect this. Businesses would still be able to use a small petrol van up to 14 years old and a large petrol van up to 13 years old and drive within the ULEZ without paying a charge. If operators need to switch from non-compliant diesel models, these petrol models

will be available second-hand. For those who choose not to change the vehicles, the charge for non-compliant vans has been set at a level which still allows occasional use.

10.15.38. Some cost impacts cannot be avoided although it is anticipated to only affect a small proportion of people and is outweighed by the significant and crucial benefits the proposals will bring to a large proportion of people in terms of improved air quality and health and well-being.

Impact on tourism/leisure visits

10.15.39. The following stakeholders made comments on this sub-theme: Confederation of Passenger Transport; Golden Tours; and The Original London Sightseeing Tour.

10.15.40. Within this theme, 172 comments were made by the public and businesses. This is one per cent of all respondents.

10.15.41. The Confederation of Passenger Transport and Golden Tours both expressed concern about the impacts on tourism while The Original London Sightseeing Tour noted specifically that the proposals will adversely impact 'day trip to London' coaches, West End theatres, London's attractions and the open-top sightseeing sector.

TfL response

10.15.42. The EBIA commissioned by TfL had a particular focus on impacts on London's tourism and leisure industry. It noted that a proportion of sightseeing and tourist coaches would not be compliant by 2020 but that 10-30 per cent of these may be replaced by bringing forward purchase decisions, and that some operators could reconfigure the fleet (ie move non-compliant vehicles to work outside the ULEZ). Overall this was assessed as a minor, short-medium term impact.

10.15.43. It should also be noted that the IIA set out that major positive long term effects on London's cultural heritage, owing to the adverse effects of acid rain on cultural effects. This is in addition to the major positive health benefits also identified. Together these will also help to keep London an attractive place to visit, which is important for the tourism and leisure trades.

10.15.44. As set out in the section on Vehicle Technology, although no retrofit option currently exists for heavier vehicles, there is potential for these to develop and TfL is actively seeking this with manufacturers for its buses, which should help to stimulate this market.

Impact on London's economy

10.15.45. The following stakeholders made comments on this sub-theme: Better Bankside; Federation of Small Businesses; Ford Motor Company Limited; Lambeth South Public Health; LCCI; The Crown Estate; and The Original London Sightseeing Tour.

10.15.46. Within this theme, 148 comments were made by the public and businesses. This is one per cent of all respondents.

10.15.47. Better Bankside and The Crown Estate were positive about the impact on business that improved air quality will have. The Federation of Small Businesses expressed concern about the need to ensure that any improvements in air quality are not achieved at a disproportionately high cost to business. The Ford Motor Company believed that the proposed ULEZ will play a key role in driving the market for ultra low and ZEC vehicles in London however differentiating between petrol (Euro 4) and diesel (Euro 6) risks undermining the market and the attractiveness of the UK to invest in clean technology, weakening the effect of fleet renewal. Lambeth South Public Health noted the poor timing in the UK considering current economic climate and expressed concern of the impact of the proposals on London's economy. The Original London Sightseeing Tour expressed concern of the economic disbenefit to London if the introduction does take place with such a short lead time.

TfL response

10.15.48. The impacts on businesses have been assessed both in terms of adverse impacts owing to compliance costs to businesses and in terms of positive impacts arising from the stimulus to the low emission economy and the health benefits arising from the ULEZ.

10.15.49. It is a stated objective of the ULEZ that it stimulates the low emission vehicle economy and TfL notes the comments from Ford in this respect.

10.15.50. It is not accepted that there is a short lead-in time for ULEZ – the proposal gives five years' notice. Should the proposal be confirmed by the Mayor, TfL will, closer to implementation, provide information to drivers about compliance options and how the ULEZ operates. It is also expected that a wider range of suitable vehicles, and more affordable vehicles, will be available by that time. In this way the proposal gives both sufficient time and resources to those needing to take action to comply, which is in any case a minority of drivers.

Consider the environmental impact of manufacturing EVs and disposing of batteries at the end of EV life

10.15.51. The following stakeholders made comments on this sub-theme: GMB Professional Drivers Branch and Transport-watch.

10.15.52. Within this theme, 32 comments were made by the public and businesses. This is just under 0.2 per cent of all respondents.

10.15.53. GMB Professional Drivers Branch noted that most lithium supply come from lithium deposits concentrated in South America which in the future may present problems of supply as these are areas of instability and could affect the supply and may impact on the battery price and in turn the overall cost of the vehicle. Transport-watch expressed concerns with the problems with scrapping tens of thousands of lithium-ion batteries.

TfL response

10.15.54. TfL is aware of issues related to the sourcing and manufacture of some components for electric vehicles (including PHEVs). This is not a matter that TfL can address; it is a matter for regulators and manufacturers, influenced by consumers. Research undertaken for the Government Committee on Climate Change[35] indicates that the environmental impact of batteries is likely to decrease over time, with less materials required to produce the same amount of energy, more efficient vehicles requiring smaller batteries for the same range, and improvements in recycling processes, facilitating reuse of battery component materials

10.15.55. In terms of the ULEZ, there is no requirement for people to use vehicles with these batteries, since conventional diesel and petrol engines will be compliant provided they meet the specified Euro Standard, although this is likely to be the most immediate technology for taxis.

Other impacts of a ULEZ

10.15.56. The following stakeholders made comments on this sub-theme: Campaign for Air Pollution Public Inquiry; Heart of London Business Alliance; London Borough of Brent; London Borough of Enfield; Public Health England.

10.15.57. Within this theme, 3 comments were made by the public and businesses. This is just under 0.02 per cent of all respondents.

10.15.58. The Campaign for Air Pollution Public Inquiry stated that the Mayor of London has imposed an unlawful and improper London Taxi Age limit which actually means that harmful pollution is increased and is therefore not for proper purpose. Heart

[35] http://www.element-energy.co.uk/wordpress/wp-content/uploads/2012/06/CCC-battery-cost_-Element-Energy-report_March2012_Finalbis.pdf

of London Business Alliance noted that with the commencement of Crossrail in 2018 and the projected additional footfall, combined with the Ultra Low Emissions Zone expected in 2020, the pressure will mount to reduce the number of goods vehicles on our streets and provide better space for pedestrian flow.

10.15.59. The London Borough of Brent noted that within Brent itself, the Council would be opposed to any implementation of an ULEZ or Low Emission Neighbourhoods without thorough investigation of the impact of the scheme on local residents and businesses and consultation on the extents of areas to be covered and potential charging regime. The London Borough of Enfield noted that there is a worry the ULEZ will indirectly cause an increase in the number of people purchasing or swapping to petrol cars to avoid the ULEZ charge and CO_2 levels potentially increasing as a consequence and that the ULEZ could lead to an unintended increase in CO_2 emissions. Public Health England noted that it is important that any detrimental impacts are clearly identified to ensure that these are adequately mitigated in advance of any implementation.

TfL response

10.15.60. With regard to the taxi age limit policy, an age limit has been in place since 2012 following its inclusion in the MAQS. A reduction in the age limit was proposed as part of the ULEZ which would reduce air pollutant emissions of NO_x, PM_{10} and $PM_{2.5}$ as set out in the consultation materials.

10.15.61. Any further expansion of ULEZ would be subject to a separate statutory public consultation and would be preceded by a full assessment of impacts. An IIA has already been undertaken for the current proposal and was available during the consultation.

TfL recommendation
No change to the Scheme Order.

10.16. Theme S: Consultation

10.16.1. Sixteen stakeholders commented on this theme: Camden Green Party, Client Earth, Confederation of Passenger Transport, Federation of British Historic Vehicle Clubs, Golden Tours, Islington Green Party, London Borough of Camden, London Borough of Haringey, London Borough of Lambeth, Public Health England, Sainsburys, The Original London Sightseeing Tour, Toyota, Transport-watch, UKLPG and UPS.

10.16.2. Several taxi and PHV organisations commented on the consultation. These were: the LPHCA and United Cabbies Group.

10.16.3. From public and business respondents, 513 comments were made on this theme which constitutes three per cent of all respondents.

Issues raised in relation to this theme:

- ***Extension of the consultation period***
- ***Insufficient or unclear information provided, information is misleading***
- ***Consultation questions/format***
- ***Alternatives have not been considered***

Extension of the consultation period

10.16.4. The following stakeholders made comments on this sub-theme: Addison Lee, Client Earth, Confederation of Passenger Transport, Golden Tours, LPHCA.

10.16.5. The majority of stakeholders in this sub-theme queried why an extension to the consultation had not been granted and suggested that the length of time provided to respond to the consultation was constrained.

10.16.6. The LPHCA noted the extensive engagement on draft proposals undertaken prior to the formal consultation but noted that it only knew of the actual proposals in October at the start of the consultation. It said that the consultation period was not long enough, especially since it included the busy Christmas period and that most drivers did not understand the proposals. Addison Lee stated that there should have been a separate consultation on the ZEC proposals for PHVs.

TfL response

10.16.7. The ULEZ consultation ran from 27 October 2014 to 9 January 2015 inclusive for a period of just under 11 weeks.

10.16.8. TfL had engaged with key stakeholders before the consultation was launched and believes that the consultation period provided adequate time to consider and respond to the proposals. A full list of meetings with stakeholders is provided at

Appendix F while Appendix I contains the list of meetings with taxi and PHV organisations.

10.16.9. With regard to the comment made by LPHCA about drivers not knowing about the proposals, TfL sent a letter to all drivers and operators at the start of the consultation, using addresses registered with TPH. This is in addition to other publicity undertaken, as described in Chapter 6. The ULEZ proposals are an integrated package and it was not therefore considered appropriate to consult on separate aspects (such as the ZEC proposal) separately.

10.16.10. The consultation period was initially proposed for 10 weeks, but was extended in response to requests from the taxi and PHV trades (this was agreed at the 16 October 2014 meeting). As set out in Appendix I, there has been extensive engagement with both trades before, during and following the consultation. The general period of consultation about ULEZ was well-known in advance of its formal start.

10.16.11. In response to a request to extend the consultation made by Addison Lee in a letter during the consultation period. TfL responded that there had been advance notice of the consultation and engagement on draft proposals, meaning that those wishing to respond had plenty of advance warning to prepare. In the letter, Addison Lee referred to Government guidelines on consultation periods. TfL was aware of the Cabinet Office Guidance on Consultations (2013) when the ULEZ consultation dates were set. The 2013 Guidance replaced earlier Cabinet Office guidance (July 2008) which set the default position for consultations as 12 weeks (3 months) and the 2013 revision intended to take a less mechanistic approach where appropriate.

10.16.12. The crux of the 2013 Guidance is as set out in the first paragraph: ‘The governing principle is proportionality of the type and scale of consultation to the potential impacts of the proposal or decision being taken, and thought should be given to achieving real engagement rather than merely following bureaucratic process. Consultation forms part of wider engagement and decisions on whether and how to consult should in part depend on the wider scheme of engagement.’

10.16.13. The 2013 Guidance permits bodies to follow a range of timescales rather than defaulting to a 12-week period, particularly where extensive engagement has occurred beforehand. The point should also be made that this is simply guidance and is to be applied on a case by case basis.

10.16.14. Given TfL’s engagement with the PHV trade and other stakeholders over the course of our policy development since 2013, the almost 11 weeks’ consultation period, ending 9 January 2015, is sufficient and reasonable to consider and respond to the ULEZ proposals.

10.16.15. However, in preparing this report to the Mayor on the ULEZ proposals and consultation, TfL has taken into account, not just the responses received as part of the formal consultation but also any relevant information provided as part of on-going engagement.

Insufficient or unclear information provided, information is misleading

10.16.16. The following stakeholders made comments on this sub-theme: Confederation of Passenger Transport, London Borough of Camden, London Borough of Haringey, Public Health England, Sainsbury's, The Original London Sightseeing Tour, Toyota and Transport-watch.

10.16.17. One hundred and thirty five comments on this sub-theme were made by public and business respondents (one per cent of respondents).

10.16.18. The Original London Sightseeing Tour suggested that proposals had not been properly researched, Public Health England and the Confederation of Passenger Transport requested further information including Economic Assessment and mitigation measures and Toyota Sainsbury's gave general comments about unclear information and different criteria.

TfL response

10.16.19. The proposals as set out in the consultation have been properly researched. Detailed information about the proposals was made available online on the TfL consultation portal (www.tfl.gov.uk/ultra-low-emission-zone) and included for download the Supplementary Information document as well as the Integrated Impact Assessment (and separate assessments of health, environment, equalities, economics and business impacts).

10.16.20. TfL also responded to stakeholder requests for further information or clarification by emails, meetings and briefing sessions. This was to help stakeholders to formulate their responses to the consultation.

10.16.21. The methodologies applied throughout the assessment are well established modelling methodologies used within the London Atmospheric Emissions Inventory. In terms of understanding emissions, TfL commissioned the laboratory testing of vehicles driven over a London drive cycle to understand how vehicles perform in London. TfL also worked with numerous experts in the field to understand the emissions performance of vehicles.

Consultation questions/format

10.16.22. The following stakeholders made comments on this sub-theme: Federation of British Historic Vehicle Clubs, the Islington Green Party, United Cabbies Group.

10.16.23. The Federation of British Historic Vehicles suggested that the consultation was tailored to individuals rather than representative organisations and Islington Green Party asked why there was not a question which covered ZEC requirements for PHVs within the questionnaire.

10.16.24. The United Cabbies Group stated that the questionnaire contained leading questions and did not provide sufficient scope for the respondent to respond outside the categories.

TfL response

10.16.25. The consultation was open to all. The ULEZ proposals are complex and TfL made efforts to make the information clear and accessible for everyone. High level information about the proposals was made available on the main body of the TfL consultation portal. Detailed information which may have been of more interest to representative groups was also made available on the TfL consultation portal, ie Supplementary Information and the Integrated Impact Assessment (health, environment, equalities, economics and business assessments).

10.16.26. TfL actively encouraged key stakeholders including representative groups, individuals and taxis and PHV owner/drivers to respond through the consultation. This was done through promoting the consultation via emails and other marketing activity (please refer to Chapter 6 of this report). All taxi and PHV drivers were sent a letter to the address they had registered with TPH about the proposals and encouraged to respond.

10.16.27. Although there were many closed questions on the proposals, the final question in the questionnaire was a comment box in which respondents could write any comments of their own on the proposal. Alternatively, respondents including stakeholders could email or write to TfL and, as set out in Chapter 9, around half of stakeholders emailed TfL rather than use the consultation portal. There was therefore sufficient opportunity to comment outside (or in addition to) the questions suggested by TfL in the questionnaire.

Alternatives had not been considered

10.16.28. The following stakeholders made comments on this sub-theme: London Borough of Lambeth, UKLPG and UPS.

10.16.29. London Borough of Lambeth made a comment about other options not being considered as part of the consultation. UKLPG and UPS made comments about other fuels besides petrol and diesel not being considered.

TfL response

10.16.30. The options that TfL considered have been set out within the Supplementary Information. Should TfL look to extend the zone in the future beyond the current proposed boundary, the plans would be subject to a further consultation.

10.16.31. Information about the consideration of alternative fuels can be found in themes C and O of this chapter.

TfL recommendation
No change to the Scheme order

10.17. Theme T: Other issues raised

10.17.1. Six stakeholders commented on this theme: BVRLA**,** Environmental Industries Commission, Friends of the Earth, GMB Professional Drivers Branch, Transport-Watch, and UK Hydrogen and Fuel Cell Association.

10.17.2. In response to Question 25 where comments from the public and business respondents were invited, 840 responses were received. Of this, 2 per cent stated that the problem had been created by previous government policy encouraging people to buy diesel vehicles. Two per cent of public and business respondents agreed that it was too similar to the CC and it targeted the same users; 1 per cent requested that other modes of transport such as trains/aircraft/ boats be considered within the policy.

Issues raised

- ***Problem has been created by previous government policy- encouraging people to buy diesel vehicles***
- ***Too similar to Congestion Charge- targets same users***
- ***Consider other modes of transport- trains/ aircraft***

Problem has been created by previous government policy- encouraging people to buy diesel vehicles

10.17.3. Friends of the Earth stated that it sympathised with motorists who bought diesel vehicles in good faith according to recommendations at the time.

10.17.4. 321 public and business respondents made comments on this sub-theme.

TfL response

10.17.5. TfL notes that there has been a promotion of diesel by the government in the past, owing to the (now defunct) scrappage scheme for cars and the provision of a VED class which incentivises diesel. Diesel has been incentivised in recognition of its relatively low CO_2 levels. Diesel is also heavier and oilier and therefore has greater 'energy density' which is the amount of power that is liberated when a given volume of a fuel is burned.

10.17.6. In 2013 however, the World health Organisation classified diesel engine exhaust as carcinogenic to humans, based on sufficient evident that exposure is associated with an increased risk of lung cancer.

10.17.7. The ULEZ is primarily intended to reduce NO_x emissions and PM which are high in diesel. It is therefore important to implement these changes sooner rather than later to improve air quality.

10.17.8. The ULEZ will clearly outline the requirements for each vehicle type according to emission factors. Diesel vehicles can be driven in the zone without incurring a charge if they have a Euro 6 standard engine. This has been set at a level to reflect the large contribution each vehicle makes on a per-vehicle basis to air pollution and is intended to deter older, more polluting vehicles.

10.17.9. This will encourage the public and businesses to make conscious environmental choices based on the vehicle they drive.

Too Similar to CC- targets same users

10.17.10. 248 public and business respondents made comments on this theme.

TfL response

10.17.11. Several comments were made on the similarity between the different schemes of the CC and the ULEZ.

10.17.12. The CC was introduced in 2003 to tackle congestion in London. By introducing a charge to all vehicles (apart from exempt vehicles) between 07:00-18:00, Monday – Friday. The charge was designed to alleviate Central London's traffic/ congestion problem.

10.17.13. The ULEZ is different as it seeks to improve air quality in Central London by charging non compliant vehicles that enter the zone 24 hours a day/ 365 days a year to promote a healthier London.

10.17.14. The ULEZ proposes to use the same geographical area and within the same boundaries as the CCZ. As much of the infrastructure is already in place, costs are managed and users would find the zone easier to understand than a different ULEZ boundary.

10.17.15. This covers the area where air pollution levels are consistently high and where people experience the greatest exposure to them. The concentrations in London within the boundary are consistently above the EU limit value of 40µg/m^3 and 63 per cent of this population live in area of NO_2 exceedance.

10.17.16. If the ULEZ is introduced by the Mayor as proposed, vehicles which comply with the ULEZ standards will normally also be required to pay the CC to drive in the zone (unless they are eligible for an exemption or have registered for a discount from that scheme). Where a vehicle does not comply with the ULEZ standards and is driven in the zone, both the CC and the ULEZ charge would need to paid.

Consider other modes of transport- trains/ aircraft

10.17.17. The BVRLA requested that other vehicles be considered.

10.17.18. The BVRLA urged both TfL and the Mayor to consider other modes of transport within the ULEZ.

TfL response

10.17.19. TfL acknowledges that other transport modes besides road vehicles cause pollution. TfL has therefore invested funding into other projects to look at this further. Examples of this are the conversion of the Gospel Oak to Barking Line from Diesel to Electric in 2017/18. River services have introduced ultra low sulphur diesel and fitted particulate filters to reduce particulates emitted. TfL and Cross River Partnership are also exploring the option to combine other modes for last mile logistics to reduce the impact on our roads and pollution in Central London.

10.17.20. TERM includes road and rail based transport, but excludes aviation. This is being addressed separately by the Mayor and will be reported in updates to his CCMES and the MAQS.

10.17.21. The ULEZ however, is specifically about road transportation, which is responsible for a significant proportion of NO_x emissions, and so focuses on that. In 2010 road transport was responsible for 48 per cent of NO_x emissions in London and in 2020 is projected to account for 40 per cent.

TfL recommendation
No change to the Scheme Order.

10.18. Theme U: Future of the scheme

10.18.1. Sixty stakeholders commented on this theme: 680&MO Club, Age UK London, Air Quality Assessments Ltd, Air Training Corps, Alliance of British Drivers, Asthma UK, Belgravia Residents Association, Better Bankside, British Heart Foundation, BVRLA, Camden Cyclists, Camden Green Party, Campaign for Air Pollution Public Inquiry, Campaign for Better Transport, Disabled Motoring UK, FirstGroup plc, Freight Transport Association (FTA), Friends of the Earth, General Motors UK, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, Jaguar Land Rover, Jon Cruddas MP, Lambeth Green Party, London Assembly Labour Group, London Assembly Liberal Democrat Group, London Borough of Brent, London Borough of Camden, London Borough of Enfield, London Borough of Haringey, London Borough of Islington, London Borough of Lambeth, London Borough of Merton, London Borough of Newham, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Tower Hamlets, London Borough of Waltham Forest, London Borough of Wandsworth, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Chamber of Commerce and Industry (LCCI), London Councils, London Fire Brigade, London Tourist Coach Operators Association (LTCOA), London TravelWatch, Metropolitan Police, National Franchised Dealers Association (NFDA), Network for Clean Air, Richmond Park Liberal Democrats, Sainsburys, Southwark Living Streets, The Crown Estate, The Fitzrovia Partnership BID, The Little Bus Company, Transport-watch, UK Health Forum, UK Hydrogen and Fuel Cell Association, Westminster City Council and Westminster Living Streets.

10.18.2. In the questionnaire, there were two questions on the future of the scheme: Question 26 on a potential ZEC requirement and Question 27 on a potential future expansion of the zone. In response to Question 26, 52 per cent supported or strongly supported a strengthening of ULEZ standards in the future and 34 per cent opposed or strongly opposed. Ten per cent neither supported nor opposed, one per cent had no opinion and two per cent stated don't know and two per cent did not answer. In response to Question 27, again 52 per cent supported or strongly supported a future expansion, with 37 per cent opposed or strongly opposed. Seven per cent neither supported nor opposed, one per cent had no opinion, one per cent stated don't know and two per cent did not answer.

10.18.3. From public and business respondents, less than one per cent of comments pertained to the future of ULEZ.

Issues raised

- ***Support and opposition for future strengthening of standards***
- ***Support and opposition for future expansion of zone***
- ***Review of ULEZ***

Support and opposition for future strengthening of standards

10.18.4. The following forty-five stakeholders supported a potential future strengthening of ULEZ standards to a ZEC requirement: Age UK London, Air Quality Assessments Ltd, Asthma UK, Belgravia Residents Association, Better Bankside, British Heart Foundation, BVRLA, Camden Cyclists, Campaign for Better Transport, Disabled Motoring UK, FirstGroup plc, Friends of the Earth, General Motors UK, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, Jaguar Land Rover, Jon Cruddas MP, Lambeth Green Party, London Assembly Liberal Democrat Group, London Borough of Brent, London Borough of Camden, London Borough of Haringey, London Borough of Islington, London Borough of Lambeth, London Borough of Merton, London Borough of Newham, London Borough of Redbridge, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Waltham Forest, London Borough of Wandsworth, LCCI, London Councils, LTCOA, London TravelWatch, NFDA, Network for Clean Air, Richmond Park Liberal Democrats, Southwark Living Streets, The Crown Estate, The Fitzrovia Partnership BID, UK Health Forum, UK Hydrogen and Fuel Cell Association, Westminster City Council and Westminster Living Streets.

10.18.5. The following eight stakeholders were opposed to future strengthening of standards: 680&MO Club, Air Training Corps, Alliance of British Drivers, Campaign for Air Pollution Public Inquiry, London Fire Brigade, Metropolitan Police, The Little Bus Company and Transport-watch.

10.18.6. In support of future strengthening of standards, London Borough of Camden stated that these should be tightened over time. The London Borough of Richmond upon Thames supported stronger standards by 2025, and the UK Health Forum called for a zero emission standard. The NFDA said it supported the development of ULEZ standards provided these were reflective of available technology and took into account the range of vehicles affected.

TfL response

10.18.7. The public and stakeholder consultation that ran from 27 October 2014 to 9 January 2015 inclusive was on a specific set of proposals to be implemented by means of a change to the LEZ Scheme Order in September 2020. These proposals are described in detail in Chapter 2. In developing the ULEZ proposal, TfL considered a range of possible options for standards and concluded that it was not appropriate to introduce a ZEC standard from 2020.

10.18.8. The consultation materials did not present any specific information on a possible future scheme and any such scheme is therefore not under consultation at this time and could not be implemented following the Mayor's decision in spring 2015.

10.18.9. Nevertheless, the consultation materials did state that the Mayor is considering a ZEC standard for the future, potentially from 2025. This could achieve further

emissions reductions, position London as a leader in this field and support the UK in this rapidly developing economic sector. It should be noted that this ZEC requirement is already included for taxis and PHVs in the current proposal (for newly-licensed vehicles from 2018), a requirement which will apply London wide.

10.18.10. It is therefore encouraging to see that there is support in principle from both stakeholders and the public for a future strengthening of standards. While no change to the Scheme Order is recommended as a result of these comments, the Mayor could direct TfL to begin work on the development of a scheme for implementation post-2020. Any such future proposal would be subject to statutory processes including another public and stakeholder consultation and it would be informed by an appraisal of compliance costs, availability of vehicles on the market (for all vehicle types affected) and the air quality impacts.

Support and opposition for future expansion of zone

10.18.11. The following thirty-nine stakeholders supported a future expansion of the zone: Age UK London, Air Quality Assessments Ltd, Asthma UK, Belgravia Residents Association, Better Bankside, British Heart Foundation, Camden Cyclists, Campaign for Air Pollution Public Inquiry, Disabled Motoring UK, Friends of the Earth, Heart of London Business Alliance, I Like Clean Air, inmidtown BID, Jon Cruddas MP, Lambeth Green Party, London Assembly Labour Group, London Borough of Brent, London Borough of Camden, London Borough of Haringey, London Borough of Lambeth, London Borough of Merton, London Borough of Newham, London Borough of Richmond Upon Thames, London Borough of Sutton, London Borough of Tower Hamlets, London Borough of Waltham Forest, London Boroughs of Camden, Southwark, Hackney & Lambeth, London Fire Brigade, LTCOA, London TravelWatch, Network for Clean Air, Richmond Park Liberal Democrats, Southwark Living Streets, The Crown Estate, The Fitzrovia Partnership BID, Transport-watch, UK Health Forum, UK Hydrogen and Fuel Cell Association and Westminster Living Streets.

10.18.12. The following eight stakeholders stated their opposition to future expansion of the ULEZ: 680&MO Club, Air Training Corps, Alliance of British Drivers, Campaign for Air Pollution Public Inquiry, Campaign for Better Transport, London Borough of Enfield, The Little Bus Company and Transport-watch.

10.18.13. Lambeth Green Party welcomed the currently–proposed ULEZ as a good first step but stated there would be need for changes in future. Westminster Living Streets stated that developments between now and 2020, such as the commencement of Crossrail and developments with regard to EU limit values would make an extended zone necessary. London Borough of Brent asked for an investigation into further expansion to other areas of air quality, including parts of the borough. London Borough of Lambeth was concerned that money could be

wasted on Low Emission Neighbourhoods (LENs) which would then be superseded by an expanded ULEZ in future.

TfL response

10.18.14. As noted with regard to potential future strengthening of the zone, any expansion of the zone in future does not form part of the current proposal. Were it to be proposed, it would have to be considered in a separate public consultation. The current consultation does not indicate any possible boundary for a future expansion and the support or opposition to any expansion must be considered in this context.

10.18.15. However, as described here and earlier in this chapter in Theme D 'Boundary', there is considerable support in principle for an expansion of the zone. Some respondents have stated that it should be bigger from 2020, which is discussed in Theme D.

10.18.16. While an extended ULEZ would have advantages in terms of a greater reduction in emissions and improvements to air quality, it would also entail significant social and economic impacts. A much greater number of vehicle owners would be affected than under the current scheme, both in terms of private and commercial ownership, and have much greater impacts on London's economy. There would need to be careful evaluation of these impacts in the development of any future scheme, as well as an appraisal of vehicle availability, individual compliance costs and likely impact on emissions.

10.18.17. In addition, the proposed boundary enables the scheme to 'piggy back' on an existing scheme, the Congestion Charging scheme, which is well-established and has infrastructure. The CCZ is a natural boundary for central London, shaped by the inner ring road and well understood by road users because of the length of time it has been operational and the amount it has been publicised. TfL also operates an extensive camera enforcement network along its border, which can be utilised to manage compliance of ULEZ, significantly reducing the capital investment required to implement the proposed scheme.

10.18.18. The air quality and health benefits of the ULEZ (with its proposed boundary) would also extend beyond central London to inner and outer London, as drivers switch to cleaner vehicles. The proposed investment in the TfL bus fleet will also result in London-wide emissions savings. The consultation put forward changes to the taxi and PHV licensing requirements which would also achieve significant emissions savings.

10.18.19. If it were implemented as proposed, the ULEZ would lead to a significant reduction in the number of people living in areas of poor air quality (where levels of NO_2 exceed legal limits) – by 74 per cent in central London, 51 per cent in

inner London and 43 per cent in outer London. Health benefits would include fewer hospital admissions for people with respiratory illnesses, and mean that the number of care homes, hospitals and schools exposed to high levels of NO_2 would be halved across London.

10.18.20. However, TfL will monitor the impacts of the ULEZ – if it is implemented as proposed, and there is the potential to expand the boundary in future, subject to an assessment of impacts and vehicle availability. TfL notes with interest the support for a future expansion.

10.18.21. With regard to working with London boroughs on areas of poor air quality locally, please see Theme N: Alternative and Supporting Policies.

Review of ULEZ

10.18.22. The following stakeholders made comments pertaining to future review and development of ULEZ: Age UK London, BVRLA, London Borough of Camden, London Borough of Lambeth, FTA, London Assembly Labour Group, Sainsburys, London Borough of Waltham Forest and the London Boroughs of Camden, Southwark, Hackney & Lambeth.

10.18.23. In their joint response, the London Boroughs of Camden, Southwark, Hackney & Lambeth called for a timetable and an outline plan for a progressive charging structure and tightening of vehicle standards in future. The London Assembly Labour Group stated that the Mayor should set out now how the scheme will evolve, and commit to a review in 2023. The BVRLA stated that there must be a five-year period of stability before further changes are implemented, and the FTA stated that any changes must take account of vehicle availability. The London Fire Brigade noted the need for sufficient notice for operators to upgrade, and also noted that vehicle cost and availability would be an important consideration.

TfL response

10.18.24. As stated in the previous section, any further developments to the ULEZ would need to be subject to a public and stakeholder consultation on a draft VO. While TfL currently has no formal plans to change ULEZ post-2020, the Mayor has stated his ambition to move to a zero emission future. Further strategic direction will be set out in the forthcoming Delivery Plan for Ultra Low Emission Vehicles (see Chapter 3).

10.18.25. Should the Mayor approve the implementation of ULEZ, TfL will monitor its impacts and report on them (in, for example the Mayor's Air Quality monitoring report). The monitoring would be part of TfL's overall consideration of any future iteration of the scheme, should the Mayor direct TfL to undertake work on this policy.

TfL recommendation
No change to the Scheme Order.

11. Taxi and PHV proposals - TfL analysis of responses

11.1. Introduction

11.1.1. As outlined in Chapter 1, most of the changes to the licensing requirements for taxis and PHVs proposed for ULEZ would be implemented by TfL by means of a change to the CoF for taxis, and to the Prescribed Regulations for PHVs. The exception to this is the proposal that taxis be exempt from the ULEZ emission standards specified for vehicles and that PHVs be subject to these; both of these provisions are set out in the Variation Order, which is approved by the Mayor.

11.1.2. Issues related to the inclusion of PHVs and exemption of taxis in the ULEZ are addressed in Theme H Discounts & Exemptions in the preceding chapter, Chapter 10.

11.1.3. This chapter therefore focuses only on the proposals related to changes to taxi and PHV licensing. It sets out TfL's analysis of public, business and stakeholder responses to these proposals. This includes analysis of responses received from taxi and PHV trade organisations.

11.1.4. In the following sections, data from the questionnaire responses is presented. As well as setting out the 'all respondents' percentages, the percentages from respondents who identified themselves (in Question 5) as working in the taxi or PHV trades. The six categories available were: PHV driver, PHV operator, PHV owner, taxi driver (all London), taxi driver (Suburban) and taxi vehicle owner. It was not mandatory to answer this question and no verification has been undertaken. The question was included in order to gain a better understanding of the views of these groups compared to all respondents. For clarity, and in recognition of the small numbers involved, these categories were then amalgamated into two groups: ‘taxi respondents’ (500 in total) and ‘PHV respondents’ (120 in total)[36]. These groups are used in this chapter to compare their response with that of all respondents to the questionnaire.

11.1.5. Other information related to these proposals, and the responses made by taxi and PHV organisations, is set out in Chapter 9 (which includes an analysis of the views of this group with regard to ULEZ in principle) and in Appendix D, which contains summaries of all the stakeholder responses.

[36] In answer to Question 3, 568 respondents identified themselves as being in these categories. For Question 5, which puts respondents into the discrete groups noted here, only 500 respondents provided information, and so the analysis is based on this. These respondents were not removed from the base ‘all respondents’ figure owing to the small number.

11.2. Theme J: Taxis

11.2.1. Seventy-two stakeholders commented on this theme: 680&MO Club; Age UK London; Air Quality Assessments Ltd; Air Training Corps; Alliance of British Drivers; Autogas Ltd; Belgravia Residents Association; Better Bankside; British Motorcyclists Federation; BVRLA; Camden Cyclists; Camden Green Party; Campaign for Air Pollution Public Inquiry; Campaign for Better Transport; City of London Corporation; Clean Air in London; Client Earth; Disabled Motoring UK; Federation of Small Businesses (FSB); FirstGroup plc; Ford Motor Company Limited; Friends of the Earth; General Motors UK; Heart of London Business Alliance; I Like Clean Air; inmidtown BID; Islington Green Party; Jenny Jones (AM, Green Party); Lambeth Green Party; Lambeth South Public Health; Living Streets; London Assembly Labour Group; London Assembly Liberal Democrat Group; London Borough of Barking & Dagenham; London Borough of Brent; London Borough of Camden; London Borough of Hackney; London Borough of Haringey; London Borough of Islington; London Borough of Lambeth; London Borough of Merton; London Borough of Newham; London Borough of Redbridge; London Borough of Richmond Upon Thames; London Borough of Sutton; London Borough of Tower Hamlets; London Borough of Waltham Forest; London Borough of Wandsworth; London Councils; London Cycling Campaign; London Taxi Company (LTC); London Tourist Coach Operators Association (LTCOA); London TravelWatch; London's Clinical Commissioning Groups; Metropolitan Police; Network for Clean Air; RAC Foundation; Richmond Park Liberal Democrats; Royal Borough Greenwich; Southwark Living Streets; The Crown Estate; The Energy Saving Trust; The Environmental Industries Commission; The Fitzrovia Partnership BID; The Little Bus Company; The Society of Motor Manufacturers & Traders (SMMT); Transport-watch; Toyota Motor Europe; UK Hydrogen and Fuel Cell Association; UKLPG; Westminster City Council; and Westminster Living Streets.

11.2.2. The following taxi trade organisations commented on this theme: Cab Drivers Newspaper; GMB Professional Drivers Branch (GMB); Institute of Professional Drivers and Chauffeurs (IoPDC); Licensed Taxi Drivers Association (LTDA); London Cab Drivers Club (LCDC); London Motor Cab Proprietors Association (LMCPA); Unite the Union; and the United Cabbies Group (UCG). In addition, the 'eight point transformation package' published online by Clean Air in London in conjunction with the LTDA[37] is considered in this chapter.

11.2.3. From public and business respondents, 948 comments were made on this theme which constitutes six per cent of all respondents.

[37] http://cleanair.london/sources/eight-point-transformation-package-for-the-taxi-and-phv-industry/

Issues raised in relation to the theme

- ***Support / opposition for the proposed 10 year age limit***
- ***Vehicle criteria for zero emission capable (ZEC) taxis***
- ***Date of implementation for ZEC taxis***
- ***Financial assistance to purchase ZEC taxis***
- ***Charging infrastructure for ZEC taxis***
- ***Alternatively fuelled taxis***
- ***Taxi exemption from the ULEZ standards***

Support / opposition for the proposed 10 year age limit

11.2.4. The following 39 stakeholders **supported** the proposed 10 year age limit: Age UK London; Air Quality Assessments Ltd; Air Training Corps; Belgravia Residents Association; Better Bankside; BVRLA; Camden Cyclists; City of London Corporation; Disabled Motoring UK; Ford Motor Company Limited; General Motors UK; I Like Clean Air; Lambeth Green Party; Lambeth South Public Health; London Assembly Labour Group; London Borough of Barking & Dagenham; London Borough of Brent; London Borough of Camden; London Borough of Haringey; London Borough of Merton; London Borough of Newham; London Borough of Redbridge; London Borough of Richmond upon Thames; London Borough of Sutton; London Borough of Waltham Forest; London Borough of Wandsworth; London's Clinical Commissioning Groups; London Councils; Metropolitan Police; Network for Clean Air; Richmond Park Liberal Democrats; Royal Borough of Greenwich; Southwark Living Streets; The Crown Estate; The Fitzrovia Partnership BID; UK Hydrogen and Fuel Cell Association; Westminster City Council; The Little Bus Company; and the SMMT.

11.2.5. The SMMT welcomed the reduced age limit as it would encourage a greater rate of fleet renewal, enable a higher uptake of ultra low emission vehicles and bring air quality benefits sooner. London's Clinical Commissioning Groups called for a greater reduction in the taxi age limit from 15 to 8 years in 2020 owing to the large contribution that taxis make to NO_x, PM_{10} and CO_2 in central London in 2020.

11.2.6. The following 9 stakeholders **opposed** the proposed 10 year age limit: Autogas; Campaign for Air Pollution Public Inquiry; Clean Air in London; FSB; London Borough of Lambeth; LTC; The Environmental Industries Commission; Transport-watch; and the UKLPG.

11.2.7. Autogas noted that the high cost of converting a vehicle to LPG was only feasible with a long operating life, which would be undermined by a reduced age limit. The FSB were concerned that drivers may be forced into an ever–growing rental sector, which could lead to significant cost increases. The Environmental Industries Commission requested that TfL considers retrofit hybrid electric solutions as an alternative to the age limit proposal.

11.2.8. The UKLPG commented that the age-related concession granted to LPG taxis should be retained. The LTC recommended a 15 year age limit for Euro 6 taxis and 12 years for Euro 4 and 5 taxis and that there should be no distinction between petrol or diesel, which otherwise would limit the uptake of cleaner technologies. Autogas, Campaign for Air Pollution Public Inquiry and the Environmental Industries Commission all questioned the emissions output of newer taxis and whether they are actually less polluting than older models. LB Lambeth opposed the age limit reduction because it does not go far enough; its view is that all taxis should be ZEC or zero emission only.

11.2.9. In answer to question 22 of the questionnaire, of the total 16,281 respondents, 48 per cent either supported or strongly supported the proposed 10 year age limit and 28 per cent either opposed or strongly opposed it while of the 500 individuals that identified as 'taxi respondents', 6 per cent either supported or strongly supported it and 87 per cent either opposed or strongly opposed it.

11.2.10. Only 4 comments were made by the public and businesses in relation to issues within this theme, which is less than one per cent of all respondents.

11.2.11. There was very limited support from taxi trade organisations for the proposed 10 year age limit. The following organisations were opposed: Cab Drivers Newspaper; GMB; LTDA; LCDC; LMCPA; Unite the Union; and the UCG.

11.2.12. The LTDA challenged the cost of compliance for taxi drivers and stated that whilst a 10 year limit would have an initial cost of £12m to the trade, there would be a total loss of £100m as vehicles are replaced over time. In conjunction with Clean Air in London, it called on TfL to scrap the 15 year and proposed 10 year age limit requirements on newly licensed taxis with immediate effect.

11.2.13. The LCDC expressed concern that the proposed 10 year age limit would effectively halve the resale value of a 10 year old taxi, as well as reducing the amount of drivers joining the trade. It stated the cost of replacing taxis as a result of a reduced age limit would cost close to £200m. The LMCPA believed the 15 year age limit should remain unchanged. Likewise, Unite the Union stated that a reduced age limit would be unnecessary as drivers will opt for ZEC taxis with the right incentives and because of the fuel cost savings. It also noted vehicle manufacturers have invested heavily in a new Euro 6 taxi and will need to sell these taxis to provide commercial stability in the lead up to the production of ZEC taxis in time for 2018. It said that the ULEZ proposal has already started to increase the number of drivers renting rather than purchasing a brand new vehicle.

11.2.14. The GMB requested a less rigid approach, with Euro 5 Vehicles being phased out only as improved technology is available. The UCG disputed the effectiveness of new diesel vehicles and stated the reduced age limit would lead to vehicles

emitting five times as much pollution in the future. The Cab Drivers Newspaper was concerned that the reduced age limit would result in a financial burden for medium sized fleet owners.

11.2.15. The United Cabbies Group stated that the age limit was improper and therefore opposed any reduction to it. It stated that the existing age limit has increased pollution by causing the scrapping of older vehicles and stated that a new Euro 5 taxi creates five times the pollution of an older vehicle.

11.2.16. The age limit proposal has received both strong support and opposition from stakeholders, with all of the London boroughs who commented on this aspect expressing support for the proposal (LB Lambeth only opposing it insofar as it considers it is not challenging enough). In contrast, almost all of the taxi trade organisations opposed it.

11.2.17. In terms of support, Westminster City Council called for further measures to encourage the uptake of 'greener taxis', noting their significant contribution to NO_x emissions. The London Assembly Labour Group welcomed the fact that the changes to licensing would apply Londonwide and queried why the age limit reduction could not be introduced earlier than 2020.

TfL response

11.2.18. TfL consulted on a proposal to exempt taxis from the ULEZ emission standards in recognition that drivers are compelled to accept journeys within London (and journeys are concentrated in central London) and they have less choice of vehicles than conventional fleet operators. As an alternative, and to secure a sufficient contribution of emission savings from the taxi fleet, TfL proposed to reduce the taxi age limit from 15 years to 10 years from 2020 for all non-zero emission capable taxis (this is similar to PHVs, which already have a 10 year age limit).

11.2.19. The 15 year taxi age limit was introduced in 2012 as a vehicle emissions reduction policy in the Mayor's Air Quality Strategy to accelerate the uptake of cleaner, newer vehicles in the taxi fleet. This has since resulted in 6,000 of the older, most polluting taxis being removed from the fleet and it has been very effective at cutting pollution because the emissions of a vehicle are directly linked to its age. Rolling age limits, such as the 10 year rolling age limit proposed, also bring about other benefits, by ensuring advances in vehicle technology, safety and efficiency, which are associated with newer vehicles, are inherently brought into the fleet over time. This is why TfL considered it necessary to retain an age limit for all taxis (albeit with a lower age limit for non-ZEC taxis, to speed up their removal from the fleet).

11.2.20. The proposed reduction in the age limit to 10 years for non-ZEC taxis would result in Euro 3 taxis no longer being licensed in London from 2020. These vehicles emit 90 per cent more NO_x and 95 per cent more exhaust PM_{10} compared to a taxi manufactured to the Euro 6 vehicle emissions standard effective from 2015. This change in performance is because of the introduction of new technology with each new Euro emissions standard, such as diesel particulate filters. By 2023, taxis manufactured to the Euro 4 standard would also be removed, leading to further emission savings. Whilst some stakeholders were keen to see a reduction in the age limit beyond 10 years, TfL does not believe this is possible as it is essential to ensure taxis have a sufficient lifespan in order to warrant the initial investment.

11.2.21. In 2020, without ULEZ, taxis are forecast to be the second highest contributor to NO_x emissions from road transport in central London and the highest for PM_{10} and CO_2. The combination of a reduced age limit in 2020 and a new licensing requirement for newly licensed vehicles to be ZEC from 2018, would reduce taxi NO_x emissions by 45 per cent and PM_{10} exhaust by 71 per cent in 2020 across London. Without such a reduction in the age limit, these emission savings would be far smaller assuming uptake of ZEC taxis was in line with the current rate of fleet turnover (resulting in emissions reduction of 7 per cent NO_x, <1 per cent PM_{10}). These emission reductions clearly demonstrate how important it is to take the proposed age limit change forward. Having a reduction in the age limit would also provide reassurance to stakeholders, such as the Government and European Commission, that one of the main causes of poor air quality in London is being addressed (ie older, polluting taxis).

11.2.22. There were concerns from trade organisations that the age limit reduction would have a significant financial impact for some vehicle owners. In response to these concerns, and following the start of the consultation, TfL confirmed a £40m fund in its revised Business Plan to assist owners of taxis affected by the ULEZ proposal. This, linked with financial support from the OLEV, would help to alleviate the impact on the trade and smooth the transition towards zero emission capability. More recently, TfL appointed an external economic and financial policy advisory firm to work with the trade and manufacturers to undertake an independent economic and finance review of the taxi vehicle market in London and to consider the best use of this funding. The responses received as part of the ULEZ consultation will inform this process, alongside further detailed discussion with stakeholders.

11.2.23. In response to UCG's comment that the reduced age limit would lead to vehicles emitting five times more pollution in the future, TfL does not agree and believes that Euro 6/VI vehicles will be significantly less polluting than those of previous Euro Standards. There has been a Europe-wide issue with the real-world emissions of NO_x from many types of diesel road vehicles at Euro 5. This has

been caused by failings in the type approval legislation that allowed, so called, off-cycle emissions to be uncontrolled. It is expected that Euro 6 will correct this situation by introducing mandatory on-highway test procedures and early signs are that this is proving to be effective.

11.2.24. It should be remembered however, that the Euro 5 standard set demanding limits for control of particulate matter, which has, in many cases required the fitment of diesel particulate filters. This has resulted in average reductions in particulate matter emissions of 98 per cent when compared with a Euro 3 taxi (measured on the PCO-CENEX Taxi Drive Cycle). The human health benefits of reducing particulate matter emissions, especially PM_{10}, are well known.

11.2.25. The issue of the real-world performance of Euro 6/VI vehicles is further addressed in Theme C: Vehicle Emissions standards. As set out there and in Chapter 4, TfL has commissioned its own vehicle emission testing of Euro 6/VI vehicles. A range of vehicle types and weights were tested and the emissions from Euro 6/VI are much lower than previous Euro standards. Although a Euro 6 taxi could not be tested at this time (it is not available until September 2015), there is no reason to expect it would differ significantly from the general performance of the range of vehicles tested.

11.2.26. Representatives from the trade and industry were also concerned that a reduction in the age limit from 15 years to 10 years for Euro 6 diesel taxis would impact the volume of taxis sold prior to the ZEC requirement taking effect from 2018. Owing to taxis being a volatile and niche vehicle market, a fall in sales of new vehicles prior to 2018 would adversely impact manufacturers and in turn, the production of ZEC taxis.

11.2.27. This is also important because manufacturers have made an initial investment to upgrade taxi models to meet the Euro 6 standard mandated from September 2015. In its response, the LTC stated that it is currently investing around £10m in the development of a new engine to comply with Euro 6 and it would be difficult to see any meaningful return on that investment if drivers and fleet operators wait to buy ZEC taxis instead, which would have a 15 year age limit, as opposed to the proposed reduced 10 year age limit for all non-ZEC taxis.

11.2.28. TfL has worked closely with existing and prospective manufacturers of taxi vehicles to develop zero emission taxis. Those manufacturers continue to develop vehicles such that zero emission and plug-in hybrid vehicles will be available by 2018, when the requirement for newly licensed taxis to be ZEC vehicles is proposed to take effect. Where ZEC vehicles include an internal combustion engine (range extended electric vehicles or plug-in hybrid vehicles), that engine will be gasoline fuelled. Current gasoline engines, equipped with 3-way catalytic convertors, emit levels of NO_x far lower than diesel engines and generally much lower than the Euro 6 type approval limit for gasoline vehicles even under ‘real-

world' driving conditions. This further underlines the case for early adoption of ZEC vehicles within the London taxi fleet, encouraged by the proposed 10 year age limit.

11.2.29. The response to the proposed 10-year age limit from the taxi trade highlights the concerns around the implementation of this policy from September 2020, as was proposed in the consultation. In particular there is concern that the level of funding required for this proposal, and how it will be distributed, remains uncertain. TfL acknowledges that there will be a cost to taxi drivers and owners and that it is important to introduce this proposal in such a way that any adverse effects are mitigated. Among the considerations here is the impact on the market for Euro 6 taxis, which will become available later this year.

11.2.30. The potential emissions savings of a 10 year age limit combined with a ZEC requirement are significant, and were set out in the consultation materials. The existing 15-year age limit has already removed 6,000 of the oldest and most polluting taxis from London's roads. TfL has reserved £40m in its Business Plan for a compensation scheme and has appointed consultants to model a potential scheme. In light of the early findings of this work, the sum required may change and while there is potential to access additional funding from OLEV, this is not yet confirmed.

11.2.31. It is therefore recommended that the Mayor asks TfL to undertake further consultation and engagement with the taxi and PHV trades and other relevant consulted stakeholders on the published taxi and PHV licensing proposals as soon as practicable. The process would comprise further analysis by TfL and its consultants, and continued engagement with vehicle manufacturers, representatives of London's taxi and PHV owners and operators, OLEV and Government. In light of the comments made above it is recommended that a retention of the 15-year age limit is considered for Euro 6 taxis as an option within this review.

Vehicle criteria for ZEC taxis

11.2.32. The following stakeholders made comments on this issue: Age UK London; Air Quality Assessments Ltd; Air Training Corps; Alliance of British Drivers; Autogas Ltd; Belgravia Residents Association; Better Bankside; British Motorcyclists Federation; BVRLA; Camden Cyclists; Camden Green Party; Campaign for Better Transport; City of London Corporation; Client Earth; Disabled Motoring UK; FirstGroup plc; Ford Motor Company Limited; Friends of the Earth; Heart of London Business Alliance; I Like Clean Air; inmidtown BID; Islington Green Party; Lambeth Green Party; Lambeth South Public Health; Living Streets; London Assembly Labour Group; London Assembly Liberal Democrat Group; London Borough of Brent; London Borough of Haringey; London Borough of Lambeth; London Borough of Merton; London Borough of Newham; London Borough of

Redbridge; London Borough of Richmond Upon Thames; London Borough of Sutton; London Borough of Tower Hamlets; London Borough of Waltham Forest; London Borough of Wandsworth; London Councils; London Cycling Campaign; LTCOA; London TravelWatch; Metropolitan Police; Network for Clean Air; RAC Foundation; Richmond Park Liberal Democrats; Royal Borough of Greenwich; Southwark Living Streets; The Crown Estate; The Energy Saving Trust; The Environmental Industries Commission; The Fitzrovia Partnership BID; The Little Bus Company; SMMT; Transport-watch; Toyota Motor Europe; UK Hydrogen and Fuel Cell Association; and Westminster City Council.

11.2.33. In answer to question 21a, 73 per cent of the total 16,281 respondents either supported or strongly supported the proposal for ZEC taxis while of the 500 individuals that identified as 'taxi respondents', only 12 per cent either supported or strongly supported the proposal for ZEC taxis. In terms of opposition, 15 per cent of respondents either opposed or strongly opposed the proposal for ZEC taxis. Of 'taxi respondents', 84 per cent either opposed or strongly opposed the proposal for ZEC taxis.

11.2.34. Less than one per cent of the comments made by the public and businesses concerned the proposal for ZEC taxis.

11.2.35. The majority of stakeholders supported the ZEC proposal for taxis. The Ford Motor Company considered the proposal to be 'ambitious but realistic' and asked for the vehicle criteria to be consistent with Government incentives.

11.2.36. Toyota Motor Europe voiced concerns about the ZEC requirements for both range (30 miles) and CO_2 emissions (50g/km) in 2018 being too early in the market development of these technologies and might preclude some currently available low emission and plug-in vehicles from eligibility. Toyota suggested inclusion of a wider and more encompassing range of low emission technologies for PHVs.

11.2.37. Both Autogas Ltd and the Environmental Industries Commission expressed support for reducing emissions but were concerned that zero emission capability could be incompatible with the demands placed on London taxis. Transport-watch strongly opposed the proposal without specific comment.

11.2.38. Conversely, Client Earth suggested that taxis should be zero emission only and not zero emission capable by 2018 and, similarly, the Islington Green Party strongly supported the requirement in 2018 but also felt taxis should be zero emission by 2020. Jenny Jones AM suggested that non-electric taxis should only be allowed in the ULEZ if they are setting down, or going to a pre-arranged pick up (therefore rendering them not for hire in the ULEZ).

11.2.39. The London Borough of Lambeth was concerned that the proposal for ZEC taxis is not strong enough, particularly as there is no guarantee that a ZEC taxi would

operate in zero emission mode. It asked for a clear timescale for a further progression to entirely zero emission taxis. The RAC Foundation noted similar concerns and the Energy Saving Trust requested that the vehicle criterion specifies a zero emission range of 50 miles instead of the proposed 30 mile range. Similarly, the LTC supported a more ambitious zero emission range of at least 60 miles and a CO_2 limit of 40g/km. However, it suggested that TfL should not mandate the use of zero emission modes without further research.

11.2.40. The following taxi trade organisations commented on this sub-theme: LCDC; LMCPA; LTC; LTDA; Unite the Union; and the UCG.

11.2.41. The LMCPA expressed concern that the vehicle criteria has led to Nissan no longer bringing its petrol taxi to market. However, it noted that should suitable vehicles be developed, drivers would be very attracted to as a result of the likely fuel savings. The LTDA (in conjunction with Clean Air in London) supported the proposal for ZEC taxis and requested a higher zero emission range of 40 miles to be specified. It also called on TfL to scrap the 25-foot turning circle requirement with immediate effect to broaden the eligibility of vehicles and a better understanding of how geo-fencing would be used amidst concerns it could hamper pollution monitoring. The LCDC was concerned that a zero emission range of 30 miles would require large battery packs and high charge times. It disagreed with the 50g/km CO_2 limit because it is half the EU target of 95g/km in 2020 and it also queried whether the drive cycle used to evaluate taxi emissions is representative of real-world driving conditions.

TfL response

11.2.42. In defining the technical criteria for ZEC taxis, TfL sought to balance the operational demands made on the taxi sector against the need to encourage manufacturers to develop vehicles that would have the capability to operate in zero emission mode for relatively long periods of time, to significantly reduce overall emissions. The aim of the proposal was to build up capability in the fleet. To this end, a ZEC requirement of a maximum CO_2 level of 50g/km and a minimum 30 mile range was proposed. Subject to technological advances and successful trials, this may also make way for later consideration of specifying times and locations where taxis would only be allowed to operate in zero emission mode.

11.2.43. By enabling zero emission capability, rather than mandating it entirely (eg pure electric taxis), manufacturers are able to utilise the development of existing plug-in hybrid and range-extended electric technologies, which in turn addresses 'range anxiety'[38] amongst drivers and cater to the intense taxi drive cycle.

[38] Anxiety about running out of battery charge in a pure electric vehicle.

11.2.44. Furthermore, preliminary discussions with manufacturers indicated that a 50g/km CO_2 and a 30 mile zero emission range criteria would be achievable, which has since been reflected in responses to the consultation. These vehicles will be tested on consistent European drive cycles as it would not be appropriate for TfL to specify its own.

11.2.45. TfL will continue to engage with the trade and industry on complementary proposals such as geo-fencing[39] prior to taking these forward. With regard to the concern about large battery pack and charging time: manufacturers will be mindful of the operating requirements for taxis in manufacturing the new model ZECs. Matters related to charging are addressed later on in this section. Some stakeholders asked for the ZEC criteria to have a greater range than the minimum 30 miles proposed. In response, it should be reiterated that this is a minimum distance and it is very likely that some manufacturers would exceed it once their models have been fully developed because additional range capability naturally strengthens the vehicle's attractiveness to buyers. TfL considers 30 miles to be an appropriate minimum range to ensure the development of suitable vehicles but to also enable sufficient competition to ensure they are brought to market at a reasonable cost.

11.2.46. The OLEV defines an ultra low emission taxi as one that qualifies for the Plug-in Car Grant and meets a set of disabled access criteria. In developing the ZEC criteria, it was important to ensure drivers would be eligible for the proposed top-up grant from the Government. The proposed criteria of 50g/km CO_2 and 30 mile zero emission range is within this range.

11.2.47. There are no technical improvements affecting tyre and brake wear on the vehicle market, which is why the ZEC criteria focuses on engine technology. The design and performance of tyres and braking systems are the responsibility of the specific vehicle manufacturers, in line with relevant regulations already in place. Manufacturers will optimise the use of tyre and braking material to maximise vehicles' safety and to deliver other efficiencies.

11.2.48. The manoeuvrability requirement (ie turning circle) that all London taxis must meet is an important feature of the London taxi, which provides a range of benefits to passengers and drivers and reduces traffic congestion on London roads. TfL does not propose to amend the manoeuvrability requirement or accessibility requirements for any taxis, including new models currently in development. Nor is there any proposal to change the 'hailing' operating approach for taxis, as suggested by Jenny Jones AM, which is also a characteristic of taxis in London.

[39] A system which uses GPS to create a virtual zone around a particular location which activates the electric mode of hybrid vehicles.

11.2.49. TfL's response to the specific issues raised in relation to ZEC criteria for taxis stands; however, as noted in the section on the 10 year age limit above, it is recommended that the Mayor asks TfL to undertake further consultation and engagement with the taxi and PHV trades on the published taxi and PHV proposals in light of the uncertainties regarding the funding of these proposals.

11.2.50. While this further consideration could encompass vehicle criteria, it is important to state that manufacturers are already well-advanced in their development of ZEC taxis, and as stated in the following section, LTC has made considerable investment in ZEC production. Because of the specific operational requirements for London taxis, there are only a few diesel models available, and this would also be the case for ZECs. It is important to provide assurance to the taxi manufacturers about the intention to implement a ZEC requirement within a reasonable timescale.

Date of implementation for ZEC taxis

11.2.51. The following stakeholders made comments on this issue: Age UK London; Air Quality Assessments Ltd; Air Training Corps; Alliance of British Drivers; Belgravia Residents Association; BVRLA; Camden Cyclists; Camden Green Party; Campaign for Air Pollution Public Inquiry; Campaign for Better Transport; City of London Corporation; Disabled Motoring UK; Friends of the Earth; General Motors UK; Heart of London Business Alliance; I Like Clean Air; inmidtown BID; Lambeth Green Party; Lambeth South Public Health; London Assembly Labour Group; London Borough of Barking & Dagenham; London Borough of Haringey; London Borough of Merton; London Borough of Redbridge; London Borough of Sutton; London Borough of Waltham Forest; London Borough of Wandsworth; Network for Clean Air; Royal Borough of Greenwich; Southwark Living Streets; The Crown Estate; The Fitzrovia Partnership BID; Transport-watch; and UK Hydrogen and Fuel Cell Association.

11.2.52. Question 24a asked respondents if they considered the proposed 2018 date to be 'about right', 'could be achieved earlier' or 'couldn't be achieved until later'. The following stakeholders considered the proposed date of implementation for ZEC taxis be 'about right': Belgravia Residents Association; Clean Air in London; Disabled Motoring UK; Friends of the Earth; Heart of London Business Alliance; I Like Clean Air; inmidtown BID; London Borough of Redbridge; London Borough of Sutton; London Borough of Waltham Forest; The Fitzrovia Partnership BID; and UK Hydrogen and Fuel Cell Association.

11.2.53. The following stakeholders considered that the proposed date of implementation for ZEC taxis could be achieved earlier than 2018: Age UK London; Air Quality Assessments Ltd; Air Training Corps; Alliance of British Drivers; BVRLA; Camden Cyclists; Camden Green Party; Campaign for Air Pollution Public Inquiry; Campaign for Better Transport; City of London Corporation; Lambeth Green

Party; London Assembly Labour Group; London Borough of Barking & Dagenham; London Borough of Haringey; London Borough of Merton; London Borough of Wandsworth; Network for Clean Air; Royal Borough of Greenwich; Southwark Living Streets; The Crown Estate; and Transport-watch.

11.2.54. The following stakeholders considered that the proposed date of implementation for ZEC taxis can't be achieved until later than 2018: Air Training Corps; Alliance of British Drivers; Campaign for Air Pollution Public Inquiry; General Motors UK; Lambeth South Public Health; and Transport-watch.

11.2.55. From public and businesses, 32 per cent of the total 16,281 respondents considered the proposed date of implementation for ZEC taxis be about right, 23 per cent considered it could be achieved earlier than 2018 and 28 per cent considered it can't be achieved until later than 2018. For the 500 ‘taxi respondents’, 92 per cent considered it can't be achieved until later than 2018, with one per cent saying it could be achieved earlier, one per cent saying it couldn’t be achieved until later and the remainder saying it was about right.

11.2.56. The London Borough of Lambeth stated that all taxis should be required to be zero or low carbon vehicles and considered the proposed date of 2018 for requiring new taxis to be ZEC could be achieved earlier than 2018. The LTC supported the date of implementation on the basis that purchasing grants are made available to drivers from at least 2017 when it aims to have a model on the market and that the OLEV should extend the plug-in car grant until at least 2020.

11.2.57. The following representatives from the trade and industry commented on the date of implantation for ZEC taxis: LTDA; LCDC; LTC; Unite the Union; and the UCG.

11.2.58. The majority of the taxi trade organisations considered the proposal for ZEC taxis could not be achieved until later than 2018.

11.2.59. The LCDC expressed concern that vehicles are not currently on the market and it requested that TfL does not consider implementing the ZEC taxi proposal until there are suitable vehicles in operation. Unite the Union believed the proposal had a very tight timeline and it was concerned that vehicles will not be available until 2017, or after 2018. It stated that manufacturers need to have enough time to adequately test their vehicles before they are sold, which is particularly relevant given the small number of manufacturers in the market and electric charging infrastructure needs further development. The UCG suggested the date of implementation should be postponed because it is not reasonable to mandate the use of vehicles that are currently not available to purchase.

11.2.60. The LTDA (in conjunction with Clean Air in London), was supportive of the date of implementation. It was nevertheless concerned about the lack of available

vehicles, stating that only one current possible manufacturer may be in production.

TfL Response

11.2.61. In the published proposals, TfL put forward 1 January 2018 as an ambitious but achievable date for ZEC implementation. TfL has been working closely with a number of taxi vehicle manufacturers that are in the advanced stages of design and development of the next generation of London taxis, which will be ZEC and ready for this proposed date. Currently, one of those manufacturers, Frazer Nash, is operating several prototype Metrocabs in London for the purposes of a trial and we anticipate other taxi manufacturers will be conducting similar trials in the coming months.

11.2.62. Furthermore the London Taxi Company (LTC), who are also developing a ZEC taxi, have committed to building a new factory to produce this taxi. LTC confirmed in its response to the consultation that it is investing £200m in the development of a ZEC taxi and new high tech facilities to produce in the UK with the support of its parent company, Geely.

11.2.63. Many trade representatives highlighted that ZEC taxis will be attractive to drivers and that the uptake may be even greater and sooner than anticipated when drivers account for fuel efficiency and purchasing grants from the Government and therefore a strict date for the introduction of this requirement for newly licenced taxis would not be required. TfL recognises the importance of setting a firm date for the requirement to provide reassurance to manufacturers seeking to invest in the development of ZEC.

That said, it is recognised that there is considerable concern about the purchase costs of ZEC taxis and uncertainty about the funding required to support this. In light of this, it is recommended that the implementation date for ZEC taxis is included in the further consideration of the taxi and PHV proposals which is being recommended.

Financial assistance to purchase ZEC taxis

11.2.64. There were a small number of representations made from stakeholders on this issue. Westminster Living Streets requested that TfL adjusts taxi fares so that passengers pay for the replacement of the fleet, rather than all Londoners (including those that do not use taxis). The LTC recommended that a purchasing grant of £10,000 is made available for taxi drivers. The London Assembly Liberal Democrat Group suggested that TfL should buy ZEC taxis and lease them to drivers in order to overcome the financial barrier for drivers and progress the policy much quicker.

11.2.65. The following taxi trade organisations commented on this issue: Cab Drivers Newspaper; GMB; LTDA; LCDC; and Unite the Union.

11.2.66. The Cab Drivers Newspaper stated the cost of regular ZEC vehicles is much higher than existing taxis. Similarly, the GMB commented that it will not be cost effective for drivers to purchase ZEC taxis as Government grants are unlikely to make up the shortfall. Furthermore, fuel savings are not achieved when taking into account higher costs of purchasing or leasing and low income drivers will not be able to afford these vehicles. It suggested that taxi fares have not kept pace with consumer costs and some form of minimum fare will be needed to help with the cost of purchasing new vehicles or a cap on numbers of drivers entering the trade.

11.2.67. The LTDA (in conjunction with Clean Air in London) requested a £150m fund for purchasing grants, which would be in addition to the £5,000 OLEV plug-in car grant, which it says could see 50 per cent of the taxi fleet ZEC by 2022 if combined with other incentives such as new Vehicle Excise Duty bands and Benefits-in-kind taxation based on real world emissions. Unite the Union suggested purchasing grants of £10,000 per taxi would be necessary, otherwise it would be impossible to support a reduced age limit because the uptake of new taxis would be low.

TfL Response

11.2.68. The GLA, TfL and representatives from the industry and taxi trade organisations have been in discussions with the OLEV to ensure London's taxi drivers benefit from its recently announced £20m Ultra Low Emission taxi scheme. The arrangement of this funding is critical to ensure ZEC taxis are made affordable to drivers when they are brought to market in the near future. It is expected that drivers will be entitled to a 'top-up' to the current national plug-in car grant for as long as this continues to be available.

11.2.69. In its preliminary guidance, the OLEV defines an ultra low emission taxi as one that qualifies for the plug-in car grant and meets a set of disabled access criteria. TfL has set the proposed vehicle criteria for ZEC taxis to ensure drivers would be eligible for the proposed top-up purchasing grant.

11.2.70. TfL recognises that London's taxi drivers should not bear the full costs of replacing their vehicles and this is why it is developing a compensation scheme to assist taxi vehicle owners directly affected by any change to the current 15 year age limit and £40m for this scheme has been reserved within TfL's business plan. TfL is also in discussion with OLEV about providing further funding to help drivers purchase ZEC taxis.

11.2.71. Given the uncertainties around the level and timeliness of funding required to assist with ZEC taxi purchase, it is therefore recommended that the Mayor asks TfL to undertake further engagement with the taxi and PHV trades on the published taxi and PHV proposals as soon as practicable.

11.2.72. The proposed date from when all newly licensed taxis would need to be ZEC was 1 January 2018 and it is not felt appropriate to bring this date any further forward, as suggested by the London Borough of Lambeth. With regard to the call for changes to VED, the Government is responsible for vehicle taxation and so this is not within TfL's powers, however the GLA and TfL will continue to support the case for the introduction of national financial incentives to encourage the uptake of ULEVs and consider both greenhouse gas and air pollution emissions together.

11.2.73. TfL's role as the Licensing Authority is to regulate taxi and private hire services in London but this does not include purchasing taxi or private hire vehicle fleets or renting vehicles to drivers, nor is there any proposal or plan to do so. There are already a number of well established taxi fleet operators in the Capital from whom taxi drivers can rent taxis.

Charging infrastructure for zero emission capable taxis

11.2.74. London Assembly Labour Group and the SMMT were the only stakeholders that made comments on this sub-theme.

11.2.75. The following representatives from the trade and industry commented on this sub-theme: GMB; IoPDC; LTDA; LTC; Unite the Union; and UCG.

11.2.76. The London Assembly Labour Group noted that the plan for charging infrastructure needs to be known whilst the SMMT noted that the move to ZEC taxis and private hire vehicles in London from 2018 should be underpinned by a strategic network of multi-standard charging solutions.

11.2.77. GMB felt that the proposal should be delayed as the level of required charging infrastructure is not in place and there are maintenance issues with some of the current public standard electric vehicle charge points. GMB also noted that most charge points are not fast and if electricity prices go up then consumers will have to pay more. Furthermore, GMB stated that many professional drivers do not have a garage or driveway, which makes residential charging difficult. The IoPDC estimated that 3,000 charging points for taxis (and PHVs) are required and stated that the number of taxi rest ranks should be increased to provide space for more charge points. In addition, IoPDC stated that TfL and local authorities should install toilet facilities adjacent to these ranks (a similar view was held by the GMB).

11.2.78. The LTDA stated that at least 150 dedicated charge points for taxis will be needed by 2018 to incentivise the uptake of ZEC taxis. Likewise, the LTC stated

TfL must start implementing the introduction of charging infrastructure at ranks and rest areas and it is concerned that the investment, both nationally and within London, is not sufficient and will not meet demand. Unite the Union noted that monies are required to supply an adequate charging infrastructure. The UCG questioned whether there is the capacity for charging the taxis and whether sufficient research has been undertaken.

TfL response

11.2.79. See Theme P: Infrastructure for TfL's overarching plan for infrastructure, including rapid-charging for taxis.

11.2.80. For both ZEC taxis and PHVs, TfL recognises that the charging infrastructure currently in place in London will not be sufficient by itself for meeting the demands of this industry. TfL has secured £10m from the National Infrastructure Plan to deliver rapid charging infrastructure in London. In addition, TfL will be bidding for funding for a rapid charging network through OLEV's £32m fund for the installation of new charging infrastructure across the UK. TfL will publish a Delivery Plan for Ultra Low Emission Vehicles in summer 2015 which will outline a deployment strategy for rapid charging in London.

11.2.81. In light of the concern about this, it is also recommended that the availability of suitable charging infrastructure is included in the further consultation and engagement process proposed in response to other issues discussed above within this theme.

Alternatively fuelled taxis

11.2.82. The following stakeholders made comments on this issue: Autogas Ltd; London Borough of Islington; The Environmental Industries Commission; and UKLPG.

11.2.83. The GMB and UCG were the only trade organisations that commented on this issue.

11.2.84. Autogas Ltd were concerned that electric vehicles are seen as a 'panacea', despite limited uptake and demanding infrastructure requirements. Furthermore, it suggested that LPG taxis retain the 5 year extension to the age limit because these vehicles already meet the ULEZ emission standards and operators using this fuel might be significantly affected. It considered that this time limit does not adequately take account of the environmental and economic benefits of the use of LPG autogas which are explored in this submission. The London Borough of Islington noted that Liquefied Petroleum Gas (LPG) and Compressed Natural Gas (CNG) have lower emissions than diesel. It added that this fuel is ideal for use in both the bus and taxi fleet because of fuel savings. The Environmental Industries Commission was concerned with the implied removal of the age extension for LPG taxis and requested TfL to give proper consideration to the current market,

cost and environmental savings that LPG run taxis can offer. It stated the continuation of the five year extension for LPG taxis is vital to ensuring the success of the industry and the health of the environment and that there is demonstrable demand for these vehicles. The UKLPG stated that LPG taxis should continue to be treated differently to regular taxis and given an extension on the maximum age limit. The GMB and UCG also called for consideration of other fuels, such as synthetic diesel, biodiesel and cotton batteries.

TfL response

11.2.85. The approach to alternative fuels taken in the ULEZ proposal is set out in Theme O: Vehicle Technology and will not be reiterated here. With regard to the existing 'exemption' (which would in fact be a five year extension on the proposed 10 year or 15 year for Euro 6 age limit) for LPG taxis, while this is not part of the current proposal, would be considered in the recommended review prior to implementation.

Taxi exemption from the ULEZ standards

11.2.86. The following stakeholders made comments on this issue: Age UK London; Camden Green Party; Client Earth; Lambeth South Public Health; London Assembly Labour Group; London Borough of Barking & Dagenham; London Borough of Camden; London Borough of Hackney; Southwark Living Streets; and Transport-watch.

11.2.87. Within this theme, 404 comments were made by the public and businesses, which is 2 per cent of all respondents.

11.2.88. Age UK London, Client Earth, London Assembly Labour Group and Lambeth South Public Health stated that all vehicles including taxis should be liable for the ULEZ charge if they do not meet the same emission standard that is proposed for private cars. London Borough of Barking & Dagenham noted that taxis should not be exempt and that as an incentive to taxi drivers to adopt ZEC early, there should be a sliding scale charge introduced for polluting vehicles. London Borough of Hackney, Southwark Living Streets and Transport-watch also noted that taxis should not be exempt.

TfL response

11.2.89. As stated earlier in this section and in the original consultation material, TfL proposed an exemption for taxis from the ULEZ emission standards that apply to private and other commercial vehicles. This exemption is in recognition that drivers are compelled to accept journeys within London (which will often be within central London, the ULEZ area) and that they have less choice of vehicles than other fleet operators. The ULEZ charge is designed to accelerate the uptake of compliant vehicles but given the special circumstances for taxis, a charge would

not be effective in this regard. However, the ULEZ as consulted on would set standards for taxis by means of a change to the licensing requirements.

11.2.90. Changes to the taxi vehicle Conditions of Fitness in respect of stipulating zero emissions capability for newly licensed vehicles and a tightening of the existing Londonwide taxi age limit are considered to be a more direct way of influencing emissions from taxis than applying a charge, particularly as the TfL Board sets maximum fares for all taxis.

11.2.91. Another consideration here is that, unlike PHVs (which are proposed to be included in the ULEZ emissions standards) taxi operators are not free to set their own fares. If they were, one option might be to adjust fares to cover the costs of compliance. This approach could make a charge an effective mechanism.

11.2.92. Instead, taxi fares are determined by tariffs that are reviewed each year to reflect changes in a cost index that reflects the costs of operating a taxi. The cost index has been established for over thirty years as the most appropriate way of ensuring that regulated fares remain in line with the costs of providing the taxi service. In this context, it would not be suitable to include a charge for non-Euro 6 taxis, particularly as some drivers would be using vehicles that meet the Euro 6 standard.

11.2.93. Instead, a change to the age limits and a ZEC requirement were proposed. Although it is now recommended that these proposed changes to licensing are subject to further consultation and engagement prior to implementation, it is still not considered appropriate to make any change to the Variation Order at this time. The rationale for implementing emissions standards to taxis via a change to licensing stands as described above.

TfL Recommendations
It is recommended that the Mayor asks TfL to undertake further consultation and engagement with the taxi and PHV trades and other relevant consulted stakeholders as soon as practicable on the proposed licensing changes for these vehicles before making a final recommendation to him.

11.3. Theme L: Private Hire Vehicles (PHVs)

11.3.1. Fifty-nine stakeholders commented on this theme: 680&MO Club; Age UK London; Air Quality Assessments Ltd; Air Training Corps; Alliance of British Drivers; Belgravia Residents Association; Better Bankside; British Motorcyclists Federation; BVRLA; Camden Cyclists; Camden Green Party; Campaign for Air Pollution Public Inquiry; Campaign for Better Transport; City of London Corporation; Clean Air in London (CAL); Disabled Motoring UK; FirstGroup plc;

Ford Motor Company Limited; Friends of the Earth; General Motors UK; Heart of London Business Alliance; I Like Clean Air; inmidtown BID; Islington Green Party; Jaguar Land Rover; Lambeth Green Party; Lambeth South Public Health; Living Streets; London Assembly Labour Group; London Borough of Brent; London Borough of Haringey; London Borough of Lambeth; London Borough of Merton; London Borough of Newham; London Borough of Redbridge; London Borough of Richmond Upon Thames; London Borough of Sutton; London Borough of Tower Hamlets; London Borough of Waltham Forest; London Borough of Wandsworth; London Councils; London Cycling Campaign; London Tourist Coach Operators Association (LTCOA); London TravelWatch; Metropolitan Police; Network for Clean Air; RAC Foundation; Richmond Park Liberal Democrats; Southwark Living Streets; The Crown Estate; The Energy Saving Trust; The Fitzrovia Partnership BID; The Little Bus Company; The Society of Motor Manufacturers & Traders (SMMT); Toyota; Transport-watch; UK Hydrogen and Fuel Cell Association; UKLPG; and Westminster Living Streets.

11.3.2. The following representatives from the trade and industry commented on this theme: Addison Lee; GMB Professional Drivers Branch (GMB); Licensed Private Hire Car Association (LPHCA) which also responded on behalf of Spotty Cars, Greater London Hire, Cruise Minibuses and Crawford Cars; Private Hire Board (PHB); Uber; and Unite the Union.

11.3.3. From public and business respondents, 595 comments were made on this theme which constitutes 4 per cent of all respondents.

Issues raised in relation this theme:

- ***Inclusion of PHVs in the central London ULEZ emission standards***
- ***Support / opposition for changes to the requirements for newly licensed PHVs***
- ***Availability of PHV suitable ZEC vehicles from 2018***
- ***Prohibitive cost of PHV suitable ZEC vehicles***
- ***Charging infrastructure for ZEC vehicles***
- ***Other PHV comment***

PHV compliance with the central London ULEZ emission standards

11.3.4. The following stakeholders made comments on this issue: Age UK London; Air Quality Assessments Ltd; Air Training Corps; Alliance of British Drivers; Belgravia Residents Association; Better Bankside; BVRLA; Camden Cyclists; Camden Green Party; Campaign for Better Transport; Disabled Motoring UK; FirstGroup plc; Ford Motor Company Limited; Friends of the Earth; General Motors UK; I Like Clean Air; inmidtown BID; Lambeth South Public Health; London Borough of Brent; London Borough of Haringey; London Borough of Lambeth; London Borough of Merton; London Borough of Newham; London Borough of Redbridge;

London Borough of Sutton; London Borough of Tower Hamlets; London Borough of Waltham Forest; London Borough of Wandsworth; Metropolitan Police; Network for Clean Air; Richmond Park Liberal Democrats; The Crown Estate; The Little Bus Company; and UK Hydrogen and Fuel Cell Association.

11.3.5. Within this theme, 404 comments were made by the public and businesses suggesting that taxis/PHVs must comply with the central London ULEZ emission standards. This is 2 per cent of all respondents.

11.3.6. The majority of stakeholders in relation to this issue either supported or strongly supported the proposal for PHVs to comply with the ULEZ emission standards in order to drive in the ULEZ from 2020 without paying a daily charge (similar to other cars and vans). In addition, both Addison Lee and the LPHCA were explicit in their support for the proposal, with the latter suggesting standards for petrol vehicles should be tightened even further (see Theme C for a discussion on this issue).

TfL response

11.3.7. TfL welcomes support from stakeholders and PHV trade organisations that PHVs should be compliant with the ULEZ standards when driving in the zone from 2020.

Support / opposition for changes to the requirements for newly licensed PHVs

11.3.8. The following 12 stakeholders agreed with the proposal for ZEC PHVs: Age UK London; Air Quality Assessments Ltd; Air Training Corps; Belgravia Residents Association; Better Bankside; British Motorcyclists Federation; BVRLA; CAL; Camden Cyclists; Camden Green Party; City of London Corporation; Disabled Motoring UK; FirstGroup plc; Ford Motor Company Limited; Friends of the Earth; Heart of London Business Alliance; I Like Clean Air; inmidtown BID; Islington Green Party; Jaguar Land Rover; Lambeth Green Party; Lambeth South Public Health; Living Streets; London Borough of Brent; London Borough of Haringey; London Borough of Lambeth; London Borough of Merton; London Borough of Newham; London Borough of Redbridge; London Borough of Richmond Upon Thames; London Borough of Sutton; London Borough of Tower Hamlets; London Borough of Waltham Forest; London Borough of Wandsworth; London Councils; London Cycling Campaign; London Tourist Coach Operators Association (LTCOA); London TravelWatch; Metropolitan Police; Network for Clean Air; Richmond Park Liberal Democrats; Royal Borough of Greenwich; Southwark Living Streets; The Crown Estate; The Fitzrovia Partnership BID; The Little Bus Company; SMMT; UK Hydrogen and Fuel Cell Association; Unite the union and Westminster City Council.

11.3.9. Question 21b asked if respondents supported a ZEC requirement for PHVs: 72 per cent of the total 16,281 respondents either supported or strongly supported the proposal for ZEC PHVs. Of the 120 'PHV respondents', 20 per cent either supported or strongly supported and 62 per cent either opposed or strongly opposed the proposal for ZEC PHVs.

11.3.10. In relation to this issue, 4 comments were made by the public and businesses either agreeing or disagreeing with the proposed PHV ZEC requirement, which is less than one per cent of all respondents.

11.3.11. The majority of stakeholders either supported or strongly supported the requirement for ZEC PHVs without providing any further comment. The Ford Motor Company and the SMMT supported an 'ambitious but realistic' approach on PHVs but reiterated the importance of criteria being consistent with measures that encourage the uptake of ULEVs at a national level. The SMMT also noted that the ZEC criteria for PHVs should reflect the availability of vehicles on the market as well as those coming to market between now and 2018. It stated that TfL's approach is right in promoting and encouraging the cleanest and most efficient vehicles but it must also recognise that the market is still in development and criteria should support vehicles across technology types and diversity in the industry.

11.3.12. Clean Air in London (in conjunction with the LTDA) commented that the criteria for ZEC PHVs should be a zero emission range of 40 miles with immediate effect (as opposed to 2018 because many such vehicles are available to purchase today). The City of London Corporation noted that the criteria for ZEC PHVs should be petrol only to enable additional emission benefits. Unite said it is essential there is parity between the taxi and Private Hire requirements because the two trades are in increasingly direct competition. It suggested that it would be unfair to require all newly licensed taxis to be ZEC whilst allowing newly licensed PHVs over 18 months old to be diesel.

11.3.13. The following stakeholders opposed the proposal for ZEC PHVs: 680&MO Club; Campaign for Air Pollution Public Inquiry; General Motors UK; Toyota; and Transport-watch. These stakeholders either opposed or strongly opposed the requirement for ZEC PHVs without providing any further comment.

11.3.14. There was limited support from PHV trade organisations and the following were opposed to the ZEC PHVs proposal: Addison Lee; GMB; LPHCA; and the PHB. Specifically, these organisations welcomed the overall approach to license PHVs based on emission standards but cited specific concerns in relation to the ZEC vehicle criteria and consequently, the availability of suitable vehicles and its implementation date.

11.3.15. Addison Lee suggested that ZEC PHV standards should not be based on a minimum range in zero emission mode, but instead based on emissions only.

TfL response

11.3.16. TfL welcomes support from stakeholders for the changes to the requirements for newly licensed PHVs. Although there was limited support from PHV trade organisations, it is considered that the proposal to replace the five year introductory age limit for newly licensed PHVs, with a new approach based on emissions standards, was widely accepted. By removing the five year rule, TfL is able to allow PHV operators to license older, cleaner petrol vehicles, which helps to address the demand for fuel efficient petrol hybrid vehicles (eg Toyota Prius) that would otherwise have not been eligible for licensing. It provides consistency with the ULEZ emission standards for central London. However, it was clear from the consultation there were specific concerns related to the proposed ZEC criteria for newly licensed PHVs that are less than 18 months old. Issues raised in relation to this criterion are addressed in more detail below.

11.3.17. A minimum zero emission range was proposed because this aligns with the approach taken by OLEV for plug-in car grants. It also creates the possibility for geo-fencing in the future, subject to technological advances and trials.

11.3.18. The LPHCA stated that a 'Regulatory Impact Assessment' should be undertaken. TfL assumes this means an impact assessment of the proposed regulatory changes for PHV licencing. This is included within the IIA undertaken on the ULEZ proposals and attached to this report.

11.3.19. It is acknowledged that there are concerns about the ZEC requirement for PHVs regarding the range of models available and the purchase premium. In the preceding section on the taxi proposals TfL set out its recommendation that it carry out further consultation and engagement with regard to the proposals for taxis and PHVs as soon as practicable. It would therefore be appropriate to include a consideration of potential exemptions to the ZEC requirement for PHVs within this work.

Availability of PHV suitable ZEC vehicles from 2018

11.3.20. The following stakeholders agreed with the proposed implementation date of 2018 for the PHV ZEC requirement: Belgravia Residents Association; Disabled Motoring UK; Friends of the Earth; Heart of London Business Alliance; I Like Clean Air; inmidtown BID; London Borough of Lambeth; London Borough of Redbridge; London Borough of Sutton; London Borough of Waltham Forest; The Fitzrovia Partnership BID; and UK Hydrogen and Fuel Cell Association. The Islington Green Party noted its support for introducing a requirement in 2018 that newly licensed vehicles would be ZEC however it did not differentiate whether this

support was for PHVs or taxis or both. It later went on to note however that PHVs should be ZEC by 2020.

11.3.21. The following stakeholders considered the proposed implementation for the PHV ZEC requirement could be achieved earlier than 2018: Age UK London; Air Quality Assessments Ltd; CAL; Camden Cyclists; Camden Green Party; Campaign for Better Transport; City of London Corporation; Lambeth South Public Health; London Assembly Labour Group; London Borough of Barking & Dagenham; London Borough of Brent; London Borough of Haringey; London Borough of Merton; London Borough of Wandsworth; Royal Borough of Greenwich; Southwark Living Streets; and The Crown Estate.

11.3.22. The London Borough of Brent noted that it would not oppose any proposals to bring forward the dates of these requirements, as they believe a balance needs to be struck between the policy objective of improving air quality and providing private hire firms (in particular) with an opportunity to adjust and augment their vehicle fleets prior to implementation of the ULEZ. CAL specifically requested that proposals for electric or plug-in petrol electric hybrids with a minimum daily range of 40 miles for all newly PHVs is implemented with immediate effect because many such vehicles are available to purchase today.

11.3.23. The following stakeholders considered the proposed implementation for the PHV ZEC requirement cannot be achieved until later than 2018: Air Training Corps; Alliance of British Drivers; Campaign for Air Pollution Public Inquiry; Ford Motor Company Limited; General Motors UK; Lambeth South Public Health; Toyota; and Transport-watch. Ford Motor Company Limited suggested the introduction timing of the proposed ZEC PHV criteria should be in line with those of private passenger cars (ie 2020). Toyota noted that timescales are too soon when accounting for the rate of development of vehicle technology.

11.3.24. Question 24b asked respondents if they considered the proposed 2018 date to be ‘about right’, ‘could be achieved earlier’ or ‘couldn’t be achieved until later. ’ 31 per cent of the total 16,281 respondents considered the proposed date of implementation for ZEC PHVs to be about right, 25 per cent considered that it could be achieved earlier than 2018 and 23 per cent considered that it can't be achieved until later than 2018. Of the 120 ‘PHV respondents’, 15 per cent considered the proposed date to be about right, 7 per cent considered that it could be achieved earlier than 2018 and 60 per cent considered that it can't be achieved until later.

11.3.25. There was only limited support from PHV trade organisations owing to concerns about the availability of vehicles and the date of implementation: Addison Lee; GMB; LPHCA; and the PHB.

11.3.26. Addison Lee noted that there are no ZEC vehicles currently on the market that meet its customer requirements and the ZEC PHV criteria should only be based on emissions without including a zero emission range. It also suggested there should be a phased implementation from 2020 to 2024 to ensure a smoother transition for the entire PHV market. It was concerned that the newly licensed requirements would affect the residual value of its fleet, which in turn has an impact on fares. It also notes that new regulations or changes could affect disabled and vulnerable passengers as none of the currently available eligible ZEC vehicles are wheelchair accessible and they cannot be converted. Similarly, the GMB stated there is not a people carrier (eg '7 seater') on the market that would be eligible and meet operators' needs.

11.3.27. The LPHCA noted that specifying the same ZEC criteria for PHVs and taxis is onerous because the PHV fleet has a small emissions footprint and the average fleet age is already around five years. Furthermore, it noted the ZEC PHV standards do not cater for the breadth of the industry as there are not enough suitable and eligible vehicles on the market. It was identified as a particular concern for the luxury segment of the PHV market, with the example that present and future plug-in electric Mercedes Benz vehicles will not meet the ZEC criteria and cost over £100k. The LPHCA went on to state that the ZEC PHV standards should be mapped to Euro standards and emissions output, and it would be better if it only specified Euro 6 for diesel and petrol.

11.3.28. The PHB stated that the new proposals for PHVs are not practicable or possible within the time scales because there are an insufficient variety of vehicles on the market – such as those that are suitable for carrying school children, wheelchairs or luggage to airports. It requests that TfL considers simply specifying that all newly licensed PHVs must be Euro 6 compliant. Uber requested that the proposal is closely monitored, with maintained flexibility in the implementation timetable. It also agreed with the proposal to have a two tier vehicle standard according to whether a vehicle is new or used in order to protect new entrants to the PHV market.

TfL response

11.3.29. TfL has held a regular dialogue with the PHV trade organisations and a broad range of vehicle manufacturers to inform its understanding on the availability of vehicles that meet the proposed ZEC criteria. Please refer to Appendix I for a list of taxi and PHV meetings.

11.3.30. TfL has undertaken an analysis of the PHV fleet which demonstrated there are five manufacturers that supply around 80 per cent of the vehicles (Ford, Toyota, Mercedes, Vauxhall, and Volkswagen). TfL has made every effort to get an up to date understanding of the intention of these manufacturers (and others) in relation to the ZEC vehicles they will bring to market prior to 2018.

11.3.31. With regard to vehicle availability, the PHV trade organisations had specific concerns in relation to models that are suitable for the 'luxury' segment of the industry as well as the availability of wide bodied models that can accommodate three passengers comfortably in the back. The latter vehicles are often those that hold up to six passengers (ie a '7 seater') – although average occupancy rates are likely to be up around 2 –3 people at a time as acknowledged by the PHV trade representative during discussions with TfL.

11.3.32. Since the start of the ULEZ consultation, the OLEV has announced new criteria for ULEVs eligible for the plug-in car grant, which takes effect from April 2015. In addition to vehicles available on the market today, the OLEV has stated there is likely to be a further 40 models forthcoming over the next three years that would meet this criteria. TfL has identified that by making the following changes to the ZEC criteria, it would better align with those used by OLEV:

- ≤50g/km CO_2 and minimum zero emission range of 10 miles or
- >50g/km and <75g/km CO_2 and minimum zero emission range of 20 miles

11.3.33. By making this change there would be a greater availability of eligible vehicles suitable for the luxury segment of the PHV market (eg Mercedes-Benz). However, the vehicle market is continuing to evolve and it is essential TfL monitors its development in order to support the introduction of ZEC PHVs. This is particularly important for operators that wish to license newly manufactured 7- seater vehicles.

11.3.34. It is important to note that the ZEC standard would only apply to vehicles less than 18 months old (at the time of licensing). This means that operators and individuals are able to license non-ZEC vehicles older than 18 months old that meet the Euro 4 petrol and Euro 6 diesel ULEZ emission standards from 2018. By making this distinction in the age of the vehicle and removing the five year introductory rule entirely (thereby allowing older, cleaner petrol vehicles), the availability of second-hand vehicles and range of models that can be licensed as PHVs for the first time is greatly increased.

11.3.35. Even with these clarifications, TfL recognises that there is concern from the PHV trade about vehicle availability and is therefore proposing that this be included as a consideration in the further consultation and engagement with regard to the taxi and PHV proposals.

Prohibitive cost of ZEC PHVs

11.3.36. Westminster Living Streets noted that Taxi and PHV fares should be adjusted so that passengers pay for the replacement of fleets, which is fairer than making all Londoners (including those who do not use polluting taxis and PHVs) pay the EU

fines. CAL requested the delivery of new Vehicle Excise Duty bands and Benefits-in-kind taxation, if necessary initially just for new and used taxis and PHVs, based on the total sum of real world tailpipe emissions (grams per kilometre) of carbon dioxide (CO_2), fine particles ($PM_{2.5}$) and nitrogen dioxide (NO_2).

11.3.37. The following representatives from the trade and industry commented on this sub-theme: Addison Lee; GMB and the LPHCA.

11.3.38. The LPHCA was concerned there is insufficient funding available for the PHV trade and that assistance should come from the Government but not in the form of a scrappage scheme. It was suggested that without this support the impact on trade would be many hundreds of millions of pounds. Furthermore, the cost of ZEC vehicles could be 50 per cent higher and these will increase once specialist servicing and battery disposal is taken into consideration.

11.3.39. The GMB stated that the hardest hit will be low income drivers who will not be able to afford new vehicles. Furthermore, PHV fares have not kept pace with consumer costs and it was suggested that some form of minimum fare will be needed to help with cost of purchasing new vehicles or a cap on numbers of drivers entering the trade. While Addison Lee had little concern about the cost of meeting the ULEZ emission standards in central London from 2020, it believed the ZEC criteria for PHVs from 2018 would not be economically and financially viable in the given timescales. It was stated that fleet replacement costs could increase by around £50m and that the net capital cost could be paid for by increasing fares significantly. Furthermore, its drivers would not find the use of ZEC vehicles economically viable because of there being a higher premium for the vehicle.

TfL response

11.3.40. TfL has identified that the vehicle criteria for ZEC PHVs could be aligned with the revised eligibility criteria for plug-in car grants to ensure the PHV trade would be eligible for the proposed top-up purchasing grant. There is also a purchase premium on these vehicles and while TfL expects the plug-in car grant to be continued, further confirmation from OLEV about their future plans is required

11.3.41. As set out in the preceding sections, it is therefore recommended that the Mayor asks TfL to undertake further consultation and engagement on the published taxi and PHV proposals in light of uncertainties including the funding available to implement and support them.

Charging infrastructure for ZEC PHVs

11.3.42. Jaguar Land Rover was the only stakeholder to comment on this issue, stating that it supports the PHV ZEC criteria but charging infrastructure is unlikely to be sufficiently mature enough until 2025.

11.3.43. The following representatives from the trade and industry commented on this issue: Addison Lee; GMB; LPHCA; PHB; and Uber.

11.3.44. Addison Lee was concerned about the accessibility of charge points for drivers that do not have off-road access and that little agreement has been made in relation to a standard plug formats for rapid charging infrastructure. The GMB felt that the proposal should be delayed as the level of required charging infrastructure is not in place and there are maintenance issues with the current system. It noted that most charge points are not fast and if electricity prices go up then consumers will have to pay more. Furthermore, many professional drivers do not have a garage or driveway, which makes residential charging difficult.

11.3.45. The LPHCA suggested that PHVs would continue to run on petrol or other fuels as they would not be able to charge up owing to a lack of infrastructure, which has the potential to undermine the benefits of the ZEC vehicle standard. The PHB noted there is a constant challenge for TfL and London boroughs to find space for vehicles to stop and charge. Uber commented that there is a strong need for charging infrastructure to be put into place to support ZEC PHVs.

TfL response

11.3.46. TfL's response to concerns about the availability of appropriate charging infrastructure is given in Theme P: Infrastructure, and in Chapter 3.

11.3.47. For both ZEC taxis and PHVs, TfL recognises that the charging infrastructure currently in place in London will not be sufficient by itself for meeting the demands of this industry. TfL has secured £10m from the National Infrastructure Plan to deliver rapid charging infrastructure in London. In addition, TfL will be bidding for funding for a rapid charging network through OLEV's £32m fund for the installation of new charging infrastructure across the UK. TfL will publish a Delivery Plan for Ultra Low Emission Vehicles in summer 2015 which will outline a deployment strategy for rapid charging in London. It is therefore recommended that the Mayor asks TfL to undertake further consultation and engagement with the taxi and PHV trades and other relevant consulted stakeholders on the published taxi and PHV proposals as soon as practicable. This would include a consideration of the charging infrastructure.

TfL recommendation

It is recommended that the Mayor asks TfL to undertake further consultation and engagement with the taxi and PHV trades and other relevant consulted stakeholders as soon as practicable on the proposed licensing changes for these vehicles before making a final recommendation to him.

12. Conclusions and recommendations

12.1. TfL's conclusions

12.1.1. TfL considers that this Consultation Report on the outcomes of the consultation (alongside the Impact Assessment, Scheme Description and Supplementary Information that was provided for the consultation) provides the information and analysis needed for the Mayor to make an informed decision, taking into account the range of views expressed during the consultation, as to whether to confirm the VO, with or without modifications. It also provides information for the Mayor to consider on the issues relating to the proposed changes to the taxi CoF and PHV Vehicle Regulations.

12.1.2. The Mayor has also been provided with copies of all the consultation responses. This report and the consultation responses will thus allow the Mayor to take into account the range of views expressed during the consultation. In this report, TfL has analysed the consultation responses and set out its views on the representations received on the proposals. The proposed ULEZ met with strong support from the 123 stakeholders who responded (40 support it as proposed and a further 56 support it but believe it should go further) and, in answer to Question 14 on the questionnaire, overall 59 per cent of public and business respondents supported or strongly supported ULEZ. Only 5 stakeholders completely opposed a ULEZ, 8 were supportive of improving air quality but did not support the currently proposed ULEZ and two did not comment.

12.1.3. Among taxi and PHV trade organisations, comments focused on the proposals for these trades rather than the ULEZ in principle or as it affects other vehicles. About half of these respondents commented that they either supported ULEZ (with opposition to the specific taxi and PHV proposals) or were supportive of measures to improve air quality.

12.1.4. There is almost universal acknowledgement that action must be taken to improve air quality, even among those not in favour of the ULEZ. Question 13 asked how important it was to tackle poor air quality in central London and there was a high level of endorsement; 79 per cent agreed it was important or very important. Although not part of this consultation, TfL had in 2013 undertaken an Air Quality in London survey in which 98 per cent of all respondents indicated that road traffic was the main reason for poor air quality in London, and 96 per cent of all respondents felt that more should be done to limit pollution.

12.1.5. The ULEZ proposal contains many different elements, reflecting that it proposes a scheme which would apply to all vehicles driving within central London. As already set out, the proposals include a requirement for vehicles to meet specified emissions standards to drive in central London without paying a daily charge

(which would be introduced in September 2020) and changes to taxi and PHV licensing requirements. This latter would apply London wide and require all newly-licensed taxis and PHVs to be ZEC from September 2018 and reduce the taxi age limit from 15 to 10 years from September 2020.

12.1.6. Certain elements of ULEZ were more strongly-supported than others. Most well-supported was the proposal for TfL buses, which overall 82 per cent of public and business respondents supported (Question 20). Support for the introduction of emissions standards for motorcycles was the least well-supported of all the vehicle types that respondents were asked about (Question 15), with only 34 per cent supporting and 42 per cent opposing. Support for both the setting of an emissions standard (Question 15) and the proposed daily charge for non-compliance (Question 18) was generally better-supported for heavier vehicles (HGVs, coaches, buses, vans, minibuses) than for cars and motorcycles, and diesel cars were supported more than diesel cars in this respect. Except for motorcycles, the support for including all vehicle types in the scheme was in each case higher than the opposition.

12.1.7. All vehicles contribute to air pollution and the ULEZ has been developed in order to address emissions from all vehicles in the most appropriate way for each vehicle type, with the proposed standard and charge for non-compliance taking into account individual and overall contribution to emissions. In the Air Quality in London survey carried out in 2014, 98 per cent of respondents agreed that road traffic was the primary cause of air pollution in London, and 96 per cent said that more should be done to limit this pollution. Respondents were asked which vehicle types should be addressed (from a list of buses, coaches, taxis, private hire vehicles, cars, motorbikes, HGVs and vans), and all of these types were endorsed by over two-thirds of respondents. The highest percentage was for buses at 96 per cent, with motorbikes the lowest at 68 per cent.

12.1.8. The treatment of two vehicle types in particular attracted considerable comment: TfL's NRM buses and non-TfL buses and coaches. It is proposed that a Euro VI standard is set for all buses (TfL and non-TfL), with the exception of TfL's Euro V NRM buses, which have a separate emissions standard (see Chapter 2). The application of a separate standard for these buses alone is considered to be justified given their high replacement costs and the current lack of a retrofit solution, together with the fact that they are already close to meeting the Euro VI standard. As stated in detail in Theme I, it would cost around £100m of public money to replace Euro V NRMs with Euro VI buses, and this outlay would result in a very small emissions saving, given that Euro V NRMs (as opposed to non-NRM Euro V buses) are already very close to the Euro VI emission for NO_x. Many stakeholders were keen to see improvements to the TfL bus fleet beyond the ULEZ and money spent on Euro V NRM replacement could, it is believed, be

better spent on this. Additionally, TfL will continue to work with manufacturers on a retrofit solution to be ready in time for 2020.

12.1.9. Coach and bus operators were strongly opposed to the Euro VI standard, citing the high cost of vehicles, long replacement cycles and, in some cases, the limited working hours of, for example, sightseeing buses. It is acknowledged that individual businesses may experience a cost impact of a higher proportion than that on the overall London economy (the compliance costs to businesses are less than a tenth of one per cent of the value of the London economy). For this reason it has been important to give sufficient lead-in time for the ULEZ and to specify standards which allow for conventional vehicles which are already available to drive without charge. A diesel coach or bus could be up to 6 years old in 2020, and not incur a charge. A retrofit solution may emerge for wider commercial use in this time, not least due to the development of a solution for TfL's buses, and TfL will provide information on compliance to operators if the ULEZ is confirmed. Finally, it should also be stated that although the diesel-electric hybrid Euro V NRMs have emissions lower than a standard Euro V vehicle, and are in fact closer to Euro VI, this is *not* the case for other Euro V buses and coaches.

12.1.10. Many stakeholders were keen to see the boundary of the ULEZ extended from the start, or called for a plan for boroughs to opt in to the zone over time. The reasons for consulting on a zone which is the same as the CCZ have been given elsewhere in this report; in summary it focuses the scheme on the area where pollution is highest, and enables the use of a zone which is already well-understood and for which infrastructure is already in place. There is potential, subject to further statutory consultation, for the boundary to be extended at a later date. TfL will continue to work with boroughs on the measures outlined in TERM to improve air quality locally.

12.1.11. However, a preliminary appraisal of an extended boundary is that its adverse economic and social impacts would far outweigh any emissions benefits. As it is, five million cars (to say nothing of other vehicles) enter the zone in a given year; were the zone to be bigger, this number would be exponentially increased, and the impacts much greater and wider. The LEZ, which is Londonwide and covers heavier diesel vehicles, will remain in place and could also be changed in the future, subject to statutory consultation.

12.1.12. Finally it should be reiterated that although the impacts of the ULEZ will be felt most strongly in central London, its benefits would be spread much more widely, as most journeys do not take place exclusively within the zone. Appendix M shows the projected emissions savings in each London borough if the full ULEZ proposal was implemented as consulted on. In the central zone the number of people living in areas of NO_x exceedance would be reduced by 74 per cent: in the inner zone this would be 50 per cent and in the outer zone, 42 per cent (again, if the full ULEZ proposal as consulted on was implemented). Additionally, the Mayor

could direct TfL to undertake further work on extending the boundary at a date in the future, subject to a statutory consultation.

12.1.13. In order to maximise the impact of ULEZ on emissions, few exemptions (and no discounts) were proposed. There were calls for discounts or exemptions from some quarters for disabled people/vehicles used by disabled people, motorcycles, LPG vehicles and businesses, especially SMEs. In response to this, TfL is recommending to the Mayor that there is a change to the proposed exemption for historic vehicles, to align it with the Government's definition in the VED class. TfL is also recommending the inclusion of a three-year sunset period for vehicles that have a 'disabled' or 'disabled passenger vehicle' tax class. There would be negligible impact on emissions from these discounts.

12.1.14. It is not recommended that any discount or exemption is made for motorcycles; TfL acknowledges that their contribution to NO_x emissions is relatively small but as stated above, it is considered important that all vehicles play their part. Motorcycles would in some cases be in the historic tax class and those younger than 13 years old in 2020 would in any case comply with the standard set for them. It is not recommended that any change is made for LPG vehicles. With regard to business or SME discounts, the impacts on London's economy were assessed in the EBIA, which acknowledged that there would be costs to individual businesses, albeit in the scale of the overall economy these are very small. Even if it were desirable to do so, defining a 'small business discount' would be practically very difficult and would lead to calls for discounts from other quarters. It is important to maintain the air quality impacts of the ULEZ and discounts and exemptions would, in sufficient quantity, serve to undermine these.

12.1.15. There was some concern about the disparity between the Euro standards for petrol and diesel vehicles, which are Euro 4 and Euro 6 respectively. The regulation for NO_x emissions from a Euro 6 diesel engine and a Euro 4 petrol engine are the same (0.08g/km), although of course a Euro 6 petrol engine is even lower (0.06g/km). The proposal maintains a technology-neutral approach because it achieves consistency between petrol and diesel engines, which means it is fair to the owners of these vehicles.

12.1.16. Related to this is a view that the ULEZ might achieve a greater reduction in CO_2 emissions if the proposal specified a Euro 6 standard for both petrol and diesel engines. While this is true, the main objective of the proposal is NO_x reduction, albeit there are also considerable CO_2 reductions with the proposal as it stands (15 per cent in central London). Other measures are in place to reduce CO_2 emissions, and in any case, focussing on CO_2 emission levels from conventional vehicles is not the most effective way to do this, given that road transport is responsible for only four per cent of total CO_2 emissions across London.

12.1.17. There was some opposition to the proposed sunset period for residents of the ULEZ: 40 per cent overall did not support this compared to 35 per cent who did. It is interesting to note that while support for it was stronger among respondents who lived in the zone than those outside it, a third of these residents stated their opposition. There was an even balance of support from stakeholders. No change to the proposed sunset period is recommended.

12.1.18. Several stakeholders were concerned about the real-world emissions of Euro 6/VI vehicles, following the disappointing performance of Euro V. In response to this, and to inform the development of the ULEZ proposal, TfL commissioned its own research using its own suite of London drive cycles, applied to a range of vehicle types and weights. The results are described in Chapter 3. In summary, these tests demonstrate the worthwhile emissions savings from Euro 6/VI and should provide assurance to the Mayor in his consideration of the ULEZ decision.

12.1.19. Prior to the consultation starting, TfL commissioned an IIA of the impacts; this and the component Economic and Business, Equalities, Environmental and Health Impact Assessments were available during the consultation. A further update to the IIA (at Appendix K) was produced to assess the effects of the recommended changes to the proposal.

12.1.20. Comments related to the impact of the proposals focussed on the negative impacts in terms of costs to individuals and, especially businesses. The IIA identified a short to medium-term economic impact to businesses of between £120-250m, which amounts to less than <0.1 per cent of London's economy which would diminish over time. Even without the ULEZ, most vehicles (73 per cent of cars and 44 per cent of vans) using the zone would meet its emissions standards in 2020 and would be unaffected. The EBIA also assessed the monetised health benefits from the health benefits of ULEZ - £101m in 2020 (£32m in 2025). This includes better health leading to more productivity and a reduction in the costs of ill health to the economy.

12.1.21. This report has set out that TfL will be applying for grants from OLEV to support the implementation of ULEZ. Other mitigations will include enhancements to public transport, walking and cycling, which could be alternative modes for some journeys made in the ULEZ.

12.2. Recommendations to the Mayor

12.2.1. TfL recommends that the Mayor should consider the whole of this report and other relevant information available to him, including advice from GLA officers and the contents of the Impact Assessment, and consider the responses to the consultation, together with the considerations of TfL, particularly with relation to Chapter 6 of this report, and consider whether further consultation, further information or the holding of some form of inquiry is necessary or appropriate

prior to his decision whether or not to confirm the VO. If the Mayor considers that no further consultation is necessary or appropriate and that the holding of a public inquiry is not necessary or appropriate, to confirm the VO with the minor modifications as described.

12.2.2. In conclusion, the following two changes to the Variation Order are recommended to the Mayor:

- The inclusion of a three year sunset period for vehicles with a 'disabled' or 'disabled passenger vehicle' tax class; and
- Changing the definition of the historic vehicle exemption so that it aligns with the Government VED definition.

12.3. Taxi and PHV proposals

12.3.1. The published proposals for taxis and PHVs would, in the main, be implemented by changes to licensing and would apply Londonwide, not just in the ULEZ. Licensing is a more direct means of implementing changes than a scheme with a charge; taxis would be exempt from the ULEZ standards that apply to other vehicles, but PHVs would not.

12.3.2. In the consultation responses, it was apparent that there was some confusion regarding the proposals for taxis. It was proposed that taxis be exempt from the ULEZ emissions standards proposed for other vehicle types (including PHVs). This exemption must be understood in the context of emissions standards for taxis being proposed for implementation via means of changes to licensing. In the ULEZ proposal as consulted on, there would still be emissions standards specified for taxis.

12.3.3. The taxi exemption and the inclusion of PHVs in the ULEZ standards are set out in the Variation Order and, as such, are subject to approval by the Mayor. Changes to licensing are implemented by changes to the Conditions of Fitness (CoF) for taxis and the Vehicle Regulations for PHVs. These would be taken forward by TfL separately.

12.3.4. There has been very extensive engagement with both taxi and PHV trades before and during the consultation, and this continues. Appendix I is a list of these meetings.

12.3.5. With regard to the taxi and PHV proposals, views diverged between the trade organisations on the one hand and the public and other stakeholders on the other. Additionally, it is possible to separate responses from individuals working in the trade from other questionnaire respondents, although the numbers were low (120 PHV drivers/owners/operators and 500 taxi drivers/owners). Therefore these percentages are also presented here and in Chapter 11.

12.3.6. As already set out in Chapter 11 and at the start of this report, it is not recommended that the taxi and PHV proposals are implemented at this time; instead it is recommended that the Mayor asks TfL to undertake further consultation and engagement with the taxi and PHV trades on these proposals as soon as is practicable before making a final recommendation to him. This work would comprise further analysis by TfL and its consultants, and continued consultation with vehicle manufacturers, representatives of London's taxi and PHV owners and operators, OLEV and Government.

12.3.7. Even given this recommendation, it is nonetheless important to summarise in this Report the issues arising in relation to each of the aspects of the taxi and PHV proposals, and TfL's response to them. This is provided in detail in Chapter 11 and it is recommended should be considered as part of the further consultation process.

Taxi ZEC requirement and 10 year age limit

12.3.8. It was proposed to reduce the taxi age limit from the current 15 years to 10 years in September 2020 and to introduce a requirement from 1 January 2018 that all newly-licensed taxis be zero emission capable.

12.3.9. Most taxi trade organisations opposed the 10 year age limit; it was supported by the majority of non-trade stakeholders, including all of the London boroughs responding to the consultation. The LTDA and LCDC and other respondents from the trade were particularly concerned about the costs of compliance. Among trade respondents, the reduction in the taxi age limit was supported by only six per cent of respondents (87 per cent opposed or strongly opposed). Among *all* respondents, however, almost half (48 per cent) supported it.

12.3.10. In the consultation materials, TfL's position was that both the ZEC requirement and the age limit are necessary in order to achieve the optimal emissions savings from the taxi fleet. Taxis are a significant contributor to NO_x emissions in London. Older vehicles are considerably more polluting than newer ones; the combination of a reduced age limit and the ZEC requirement would reduce taxi NO_x emissions by 45 per cent and PM_{10} exhaust emissions by 71 per cent across London in 2020. These are considerable savings. It is acknowledged that there will be a compliance cost for owners of taxis. For this reason a £40m fund has been reserved in the TfL Business Plan and TfL will seek further funding from OLEV. A few respondents also referred to the current 'exemption' from the age limits for LPG taxis (which is in fact a further 5 years' compliance time).

12.3.11. The taxi trade is concerned there are uncertainties about the required funding and approach to take with regard to financial assistance towards mitigating the impact of the reduced taxi age limit. TfL's original £40m estimate may change in the light of the work currently being undertaken by its consultants.

12.3.12. For the taxi proposals, the ZEC requirement from 2018 (Question 21a) was supported/strongly-supported by 73 per cent of public and business respondents. However, the response from the trades was less supportive. Among taxi respondents, the ZEC taxi requirement was supported by only 12 per cent, and opposed by 84 per cent.

12.3.13. With regard to the implementation date for the ZEC taxi requirement, the majority of non-trade stakeholders either agreed with the 2018 date or stated that it could be achieved earlier. Most taxi trade organisations said it could not be achieved until later and noted that no such taxis were currently available to buy. There was also strong concern about the cost of ZEC taxis and what help would be available to purchase them. Finally, there was concern about the readiness and availability of suitable charging infrastructure. In the questionnaire, the responses from the group of all respondents were evenly-spread, with 32 per cent saying it was 'about right' for taxis, and 31 per cent for PHVs. From trade respondents, 92 per cent of ‘taxi respondents’ said it could not be achieved until after 2018.

12.3.14. TfL understands that the introduction of the ZEC requirement would be a significant innovation and would require supporting measures. Frazer Nash is operating prototypes in London and, in its response, LTC confirmed its investment in the development of a ZEC model. It is important to give certainty to manufacturers who are investing large sums of money in this technology and also to provide reassurance that there will be a market for the Euro 6 taxis which will be available later this year. TfL’s plans for developing a charging strategy is set out in Chapter 3 and is acknowledged as an issue that will require further resolution prior to implementation of the policy.

12.3.15. While ZEC taxis will offer savings in terms of fuel costs for drivers, it is recognised that the initial purchase cost will be high relative to a conventional vehicle. There is money in the TfL Business Plan and TfL will seek further funds from OLEV and other sources.

12.3.16. In conclusion, there is support for the taxi aspects of the ULEZ proposal outside the trade organisations but strong concern both within and outside the trade about the compliance costs and practicability of the proposals. Work is in progress on how drivers may be assisted with the costs of replacement and the purchase of ZECs; TfL will be setting out later this year its Delivery Plan for charging infrastructure.

PHV ZEC requirement

12.3.17. For PHVs, it was proposed that a requirement for all newly-licensed PHVs to be ZEC be introduced from January 2018. Other vehicles presented for licensing as

PHVs would have to meet Euro 4 standard for petrol and Euro 6 standard for diesel. No change was proposed to the age limit (it would remain at 10 years). Separately, but relevant to the consideration of the proposal, the requirement for newly-licensed PHVs to be less than 5 years old has been removed for hybrid vehicles[40] and it should be noted here that if the ULEZ proposal were to be approved, the age limit for all newly-licensed PHVs would be superseded by the new requirements (ZEC or Euro 4/ Euro 6).

12.3.18. For PHVs, similar concerns were raised as for taxis: principally the cost and availability of ZEC vehicles from 2018 and the charging infrastructure available. Again, there was concern about having suitable on-road charging points in order to incorporate charging into the working day and to cater for drivers unable to charge at home.

12.3.19. The majority of non-trade stakeholders supported the introduction of the ZEC requirement for PHVs. From the trade, there was some support in principle for licensing based on emissions standards but were concerned about the criteria proposed and vehicle availability. Question 21b asked about the introduction of the ZEC requirement for PHVs. Among all respondents, 72 per cent were supportive (very similar to the taxi figure); among PHV respondents, 26 per cent supported and 62 per cent opposed. Unlike taxis (which are purpose built to specifications and for which only a few models are licensed), PHVs are essentially the same as private cars and there are very many models available, albeit not all of these will be ZEC. There are however already models available to buy now which would meet the ZEC requirement.

12.3.20. For the ZEC requirement for both PHVs and taxis, a minimum range of 30 miles and a maximum 50g/km CO_2 was proposed. The OLEV offer a plug-in car grant which can be used to purchase compliant PHVs. Following the consultation period it announced that it would be changing its criteria from April 2015, introducing two new options, both with range and CO_2 parameters. This means that more models would be eligible for the grant. It is therefore recommended that, subject to the recommended review, the criterion for ZEC PHVs be amended to align with OLEV, which will ensure consistency with the grant and also widen the range of vehicles available. It is not recommended that any change be made to the criterion for taxis given that these are purpose built vehicles and ZEC models are currently in development.

12.3.21. Addison Lee commented that the ZEC requirement was incompatible with its operating model of using 7-seater vehicles. Similar comments were made in relation to luxury models of PHV. It is acknowledged that at present there is no 7-seater and the ZEC requirement is, under present circumstances, a limiting factor. It is expected that the choice of vehicles will grow in the time between now and

[40] TPH Notice 17/14

2018. It should also be reiterated that the ZEC requirement would only apply to vehicles less than 18 months old at point of licensing; non-ZEC vehicles over 18 months old may still be licensed if they meet the Euro 4 petrol or Euro 6 diesel standard.

12.3.22. In terms of the date of introduction of the ZEC requirement (Question 24b), as was the case for taxis, the response was evenly spread among 'about right', 'could be earlier' and 'can't be achieved until later' from all respondents. From the PHV respondents, 15 per cent said it was about right, 60 per cent said it couldn't be achieved until later and 7 per cent said it could be achieved earlier.

12.4. Recommendations to the Mayor on the taxi and PHV proposals

12.4.1. During the consultation a number of issues have been identified that suggest further consultation and engagement with the taxi and PHV trades and other consulted stakeholders are needed before any conclusive decision on the particular measures proposed as part of ULEZ for taxis and PHVs is made.

12.4.2. There are uncertainties around the level of funding required and approach to take with regard to financial assistance towards mitigating the impact of the reduced taxi age limit. There is also a need to provide further clarity with regard to the funding required to assist with the purchase of ZEC taxis and PHVs. Of particular concern for the PHV industry is the range of vehicle models which will satisfy the ZEC requirement and the needs of different operators. Finally, for both taxis and PHVs there is uncertainty about the availability of appropriate rapid-charging infrastructure for ZEC vehicles.

12.4.3. It is therefore recommended that the Mayor asks TfL to undertake further consultation and engagement with the taxi and PHV trades and other relevant consulted stakeholders on the proposed licensing changes for these vehicles before making a final recommendation to him. However, there remains a clear recognition that taxis are a particularly significant source of emissions in London and that further action will be required to tackle this as part of the ULEZ package.

12.4.4. This engagement would comprise further analysis by TfL and its consultants, and continued consultation with vehicle manufacturers, representatives of London's taxi and PHV owners and operators, OLEV and Government.

12.5. Public inquiry into the Variation Order proposals

12.5.1. This section examines the issue of whether the Mayor should hold some form of inquiry as part of a process of determining whether or not to confirm the VO. The GLA Act provides that the Mayor may 'hold an inquiry, or cause an inquiry to be held, for the purposes of any order containing a charging scheme'. Whether an inquiry should be held (and if so its scope) to consider the proposed changes to the Congestion Charging scheme is a matter for the Mayor to decide.

12.5.2. The Campaign for Air Pollution Public Inquiry (CAPPI) and the United Cabbies Group both called for an investigation into the existing taxi age limits, the Mayor of London and TfL in relation to these, and into the London Taxi Drivers Association (LTDA).

12.5.3. An inquiry could take a number of forms, including a public inquiry. Whilst the Mayor has a broad discretion he must approach the matter with an open mind. He needs to ask himself whether he has sufficient information available without holding an inquiry; and whether the issues raised, by objectors in particular, are sufficiently clear to him so that he can properly assess this information and weigh conflicting views (including taking account of representations and objections) without the benefit of an independent report following an inquiry.

12.5.4. A Congestion Charging case, City of Westminster & Others v Mayor of London [2002] EWHC 2440 (Admin); [2003] LGR 612, held that the Mayor had to apply his mind genuinely and rationally to the issue of whether to hold an inquiry, taking into account all relevant considerations, and that, save perhaps exceptionally, Article 6 of the European Convention did not require an inquiry to be held. TfL does not consider that any significant evidence beyond that already supplied by TfL and GLA officers would emerge in an inquiry which would assist the Mayor's decision. An inquiry would also delay the confirmation of the VO. TfL does not consider there are any issues which point strongly to the holding of an inquiry and does not recommend that an inquiry be held. However, the Mayor is advised that risk of delay should not be the prime focus in determining whether to hold an inquiry.