

Board

Date: 17 December 2015

Item: Ultra Low Emission Zone (ULEZ) Portfolio

This paper will be considered in public

1 Summary

ST-PJ483 Ultra Low Emission Zone portfolio					
	Existing Financial Authority	Estimated Final Cost (EFC)	Existing Project Authority	Additional Authority Requested	Total Authority
Implementation	£96m	£150m	£2m	£10m	£12m
Operations	£235m	£275m	£0m	£0m	£0m
Total	£331m	£425m	£2m	£10m	£12m

Authority Approval: The Board is asked to approve the Financial and Project Authority set out in the paper to enable the feasibility, design and preparatory work of the Ultra Low Emission Zone (ULEZ) portfolio to March 2017. The Board is also asked to note the portfolio approach to delivering the ULEZ.

Outputs and Schedule:

ULEZ is a portfolio of measures which will encourage the use of newer, cleaner vehicles, addressing the urgent NO₂ air quality situation and improving the quality of life and health of Londoners. It has three core elements: Bus fleet emissions reduction; licensing requirements for zero emission capable taxi and Private Hire Vehicles (PHVs); and emissions-based vehicle charging for other road users in the ULEZ. It will reduce nitrogen oxides (NO_x), carbon dioxide (CO₂) and particulate matter (PM) emissions from transport and is aligned with the Mayor's Transport, Air Quality and Climate Change Mitigation and Energy Strategies. The Mayor has confirmed the vehicle charging element, and endorsed the bus, taxi and PHV licensing proposals, and has asked TfL to proceed with implementation of the ULEZ package. Vehicle charging will commence operation on 7 September 2020. Taxi and PHV licensing changes will start from 1 January 2018 and the cleaner bus procurement and retrofit programme is already underway.

This paper requests that the Board approves the recommendations set out in this paper to enable implementation of the portfolio to progress to March 2017. This will enable the delivery of the work packages set out at paragraph 7.8.

The ULEZ portfolio will seek further authority in line with TfL Standing Orders as set out in part 2 of the agenda.

- 1.1 On 2 December 2015, the Finance and Policy Committee endorsed the recommendations in this paper.

- 1.2 A paper containing exempt information is included on Part 2 of the agenda. The information is exempt by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

2 Recommendation

- 2.1 **The Board is asked to note the paper and the portfolio approach to delivering the ULEZ and:**
- (a) approve the additional Financial Authority to make budget provision for £94m (a cumulative total of £425m);**
 - (b) approve additional Project Authority of £10m for the feasibility, design and preparatory work of the ULEZ portfolio to 2017, bringing the total project authority to £12m;**
 - (c) note the portfolio approach to delivering the Ultra Low Emission Zone, which has a total EFC of £425m; and**
 - (d) note that, of the £94m gap between current Financial Authority and EFC, £35m is funded through Government grants which have either been received or committed and to note the proposals to fund the remaining £59m set out in Section 6 of the paper, including an option to reduce the scope of the portfolio.**

3 Background

The case for intervention

- 3.1 Significant steps have been taken in recent years to improve local air quality and reduce CO₂ emissions in London. Action taken by TfL and the Mayor in recent years includes:
- (a) promoting a shift towards more sustainable travel choices, including parking standards in the London Plan for electric vehicles, encouraging the use of car clubs, and promoting walking and cycling;
 - (b) environmentally efficient use of existing vehicles and technology, including No Engine Idling campaigns, smarter driving training for bus drivers, and the Fleet Operator Recognition Scheme (FORS);
 - (c) development and uptake of low emission vehicles and technologies, for example introducing the Low Emission Zone (LEZ), the Ultra Low Emission discount to the Congestion Charge (CC), installing electric vehicle charging infrastructure, setting age limits for taxis, and reducing emissions from the bus fleet; and
 - (d) tackling local air pollution focus areas, including installing green walls and trialling dust suppressants through the Clean Air Fund, and delivering innovative air quality projects with the boroughs via the Mayor's Air Quality Fund.
- 3.2 Despite this, the Government projects that London will continue to exceed the legal limit for nitrogen dioxide (NO₂) until 2025 without further interventions. Although London complies with PM limits, this pollutant is still considered a problem in terms

of its impact on human health, particularly for smaller particles which are not currently subject to limit values. Additional measures are also needed to ensure the Capital is on the right trajectory to meet its ambitious CO₂ reduction target.

- 3.3 The European Union (EU) sets legal limits (called 'limit values') for concentrations of ambient air pollutants (Directive 2008/ 50/ EC). A member state which is in breach of limit values can be fined by the European Court of Justice if effective remedial action is not taken. The Supreme Court declared the UK to be in breach of the NO₂ limit values and the Directive in 2013. Soon after, in 2014, the European Commission commenced infraction proceedings against the UK Government. Given that the deadline for compliance was 2010, there is a real risk that the UK will be fined.
- 3.4 As 'emanations of the state', public bodies are under a direct EU law duty to take appropriate measures that are within their competence to achieve the limit value and bring the current breach to an end in the shortest time possible.
- 3.5 The Government have included the measures in the full ULEZ package in its draft London Air Quality Action Plan (currently being consulted upon) that it will submit to the European Commission by the end of the year, in accordance with a Supreme Court order. The ULEZ is an important component in the draft plan which, along with other measures, aims to achieve NO₂ limit value compliance in London by 2025. Inclusion of the ULEZ in the plan essentially commits to Government that TfL will deliver this.
- 3.6 However, the ULEZ alone will not bring London into compliance with the EU limit values. The Transport Emissions Roadmap (TERM) 2014 proposes several further actions to reduce transport emissions including: tightening the standards for the London-wide Low Emissions Zone 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 unfunded and further development work is ongoing.
- 3.7 Road transport accounted for 63 per cent of NO_x emissions in London in 2010. The Mayor has taken action to address non-transport emissions via measures including a construction machinery Low Emission Zone, emissions standards for boilers, the RE:NEW scheme to retrofit London's homes and the RE:FIT scheme to retrofit public buildings with energy saving measures. The Mayor is lobbying the Government to allow tighter regulation of non-road mobile machinery, set appropriate emissions standards for new developments, and prioritise measures that promote boiler replacement and energy efficiency.

Proposed action

Objective

- 3.8 The main objective of the ULEZ portfolio is to urgently reduce air pollutant emissions from road transport and thereby improve health in London. Central London is the area with the greatest exposure to poor air quality and the area in which road transport emissions can be most effectively tackled. The introduction of the ULEZ will reduce exhaust emissions of NO_x and PM, making central London a more pleasant place to live, work and visit and importantly, significantly improve health. The projected emissions reductions are set out in Table 1.

Emissions	ULEZ area	Inner London	Outer London	London-wide
CO ₂	-14%	-3%	-0.5%	-2%
NO ₂	-47%	-18%	-10%	-14%
NO _x	-49%	-18%	-10%	-14%
PM10 (exhaust)	-47%	-13%	-1%	-8%
PM2.5 (exhaust)	-48%	-13%	-2%	-8%
PM10 (total)	-11%	-2%	-0.1%	-1%
PM2.5 (total)	-16%	-3%	-0.2%	-1%

Table 1: Emissions impact in 2020 from ULEZ

3.9 Without ULEZ, 63 per cent of the population in central London will live in NO₂ exceedance areas by 2020. With ULEZ, this falls to 17 per cent of the population in central London living in exceedance areas. This is set out in Table 2. There will also be a positive impact on concentrations of PM₁₀ and PM_{2.5}.

Area	Estimated population in 2020	Proportion of population living in areas of NO ₂ exceedance in 2020	
		Without ULEZ	With ULEZ
ULEZ	200,000	63%	17%
Inner London	3,400,000	13%	6%
Outer London	5,500,000	2%	1%
Greater London	9,100,000	7%	3%

Table 2: Proportion of population living in areas of NO₂ exceedance in 2020

Scheme overview

3.10 The approved ULEZ package comprises three elements:

- (a) TfL buses: by 2020 all double deck buses operating in central London will be hybrids and all single deck buses will be zero emission;
- (b) taxis and Private Hire Vehicles (PHVs): must meet new licensing requirements including emissions standards and a Zero Emission Capable (ZEC) requirement for new vehicles licensed for the first time from 2018 and 2020 respectively; and
- (c) emissions-based vehicle charging: affecting cars (except taxis), motorcycles, vans, minibuses, buses, coaches and Heavy Goods Vehicles (HGVs). These vehicles need to meet new emissions standards from 7 September 2020 or pay a daily charge.

3.11 The area covered by ULEZ will be the same as the current CC Zone.

Monitoring and evaluation

3.12 TfL will monitor the impacts of the ULEZ scheme using existing mechanisms, including monitoring compliance rates using the enforcement camera network. Air quality monitoring results will be published in the GLA's annual report on progress against the Mayor's Air Quality Strategy and TfL's annual Travel in London report, which provides a comprehensive review of its services.

- 3.13 The availability of suitable ZEC vehicles is critical to the introduction of the taxi and PHV licensing requirements. TfL will continue to work with vehicle manufacturers to monitor the availability of ZEC vehicles in the lead-up to the introduction of changes to the licensing requirements for taxis and PHVs. TfL is committed to undertaking a review in 2020 of progress on the reduction in taxis over 10 years under the voluntary decommissioning scheme and ZEC taxi grant scheme. If progress is insufficient the introduction of a reduced mandatory taxi age limit may be considered.
- 3.14 The recent Volkswagen scandal does not alter TfL's understanding of the benefits of schemes such as ULEZ. TfL bases its policy development and assessment on the best understanding of how vehicles perform in the real world, not how they perform during official "type approval" emissions tests or the emissions limits within the Euro standards.

4 Contribution to Mayoral Strategies

- 4.1 The ULEZ relates directly to a number of proposals in the Mayor's Transport Strategy, specifically Proposal 95 on the LEZ, which states that "if necessary, the Mayor will consider introducing minimum requirements for other vehicles or tighten standards in particular locations in London". Proposals 92 and 93 on emissions from buses, taxis and PHVs, and supporting ULEVs, and 94 on local air quality measures are also relevant.
- 4.2 Policy 5 of the Mayor's Air Quality Strategy gives policy support to the ULEZ and states: "The Mayor will work with boroughs to assess the feasibility and cost effectiveness of a central London LEZ in the Congestion Charging zone".
- 4.3 The ULEZ portfolio will contribute to meeting the measures set out in the Mayor's strategies by reducing emissions from transport, moving London closer to achieving legal limits for NO₂ concentrations and encouraging the uptake of low emission vehicles.

5 Proposal

The ULEZ scheme

- 5.1 In order to achieve the objective of reducing NO_x, PM and CO₂ emissions in central London, change is required to introduce the newest, cleanest technology to the TfL bus fleet and taxi and PHV fleets and bring forward the replacement and renewal of the road transport fleet.
- 5.2 The Mayor announced his intention to introduce a ULEZ in central London in February 2013. Following this announcement, he asked TfL to take forward detailed planning and feasibility work to develop a proposal for the scheme.

Emissions reductions from TfL buses

- 5.3 Given their proportionately large contribution to road transport NO_x emissions, TfL will further reduce emissions from its bus fleet by ensuring all its buses operating in central London are zero emission at point of use for single deck buses and hybrid for double deck buses.

- 5.4 TfL will invest in its 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 the point of operation by 2020. All TfL buses operating in central London will be hybrid Euro VI or zero emission except for around 300 of TfL's New Routemaster buses, which have type approved Euro V engines.
- 5.5 These buses are the cleanest diesel-electric hybrids of their generation with NO_x emissions close to meeting the Euro VI standard (the Euro V New Routemaster models provides a reduction of 80 per cent NO_x emissions compared to a conventional Euro V, while the Euro VI model gives a reduction of 95 per cent in NO_x emissions). From 2015, all new New Routemaster buses in the TfL fleet are Euro VI.
- 5.6 This investment will deliver 2,900 double decker hybrids, and 300 single electric buses. Around 400 double deck Euro V buses that are not New Routemaster buses, will also be fitted with selective catalytic reduction (SCR) systems to achieve the Euro VI standard.

ZEC licensing requirements for taxis and PHVs

- 5.7 TfL will use its licensing requirements to reduce emissions from taxi and private hire fleets and to increase the number of taxis and PHVs capable of operating with zero emissions.
- 5.8 From 1 January 2018, all vehicles licensed for the first time as taxis in London must be ZEC. This is defined as a vehicle that emits ≤50g/km of CO₂, with a minimum zero emission range of 30 miles. A ZEC taxi must also be petrol fuelled if it has an internal combustion engine. Vehicles must also meet at least the Euro 6 standard.
- 5.9 A voluntary decommissioning scheme will be put in place by TfL in 2017 for taxis over 10 years old to speed up their removal from London's taxi fleet. The payments will be available to owners who give up their right to re-license their vehicles as taxis in London before it meets the 15-year age limit, and will be on a sliding scale reflecting the number of 'plates' it has left, as show in the table below.

Number of plates remaining	Payment amount
5	£5,000
4	£3,800
3	£2,800
2	£1,900
1	£1,200

Table 3: Taxi decommissioning payments

- 5.10 In addition, grants will be provided for the purchase of new ZEC taxis. The Office for Low Emission Vehicles (OLEV) provides a grant for the purchase of eligible vehicles (the plug-in car grant, PICG). The PICG is currently set at a maximum of £5k. TfL is proposing a 'top-up' grant of £3k in addition to the OLEV scheme for ZEC taxis, bringing the total assistance available for the purchase of a ZEC taxi to £8k.
- 5.11 From 1 January 2018, all vehicles licensed for the first time as PHVs will need to be Euro 6, or Euro 4 if a petrol hybrid vehicle.

- 5.12 From 1 January 2020, a ZEC licensing requirement will be introduced for new vehicles being licensed as PHVs. New vehicles are defined as being up to 18 months old from the date of first registration with the DVLA. The ZEC requirements align with the OLEV Plug-in Car Grant. In addition, older vehicles (those over 18 months old) licensed for the first time will be required to meet Euro 6.
- 5.13 From 1 January 2023, all vehicles licensed for the first time as PHVs must meet the approved ZEC requirement.
- 5.14 TfL is also working to support the provision of infrastructure for ZEC taxis and PHVs in London. This includes the deployment of a rapid charge point network with 150 charge points by 2018 and 300 by 2020. However, the delivery of charging solutions for residents without access to off-street parking is dependent on support and funding from OLEV.
- 5.15 The taxi compensation and grant scheme and rapid charging network will require new operations, either internal to TfL or subcontracted to a TfL supplier. The delivery of these and specific new requirements will be managed as projects within the wider ULEZ portfolio.

Emissions-based charging for road users

- 5.16 In addition to addressing emissions from TfL's own fleets and from taxis and PHVs, other vehicles driving in central London are expected to reduce their emissions.
- 5.17 From 7 September 2020, all cars (except taxis), motorcycles, vans, minibuses, buses, coaches and heavy goods vehicles will need to meet exhaust emissions standards or pay a daily charge to travel within the ULEZ, in addition to the Congestion or LEZ Charge. The charge levels are set out in Appendix 1. ULEZ will operate 24 hours a day, 365 days a year.
- 5.18 The ULEZ emissions standards are based on Euro standards, which define the limits for exhaust emissions for new vehicles sold in EU member states. The ULEZ emissions standards are set out in Appendix 1.
- 5.19 The vehicle emission standards and charging aspects of the ULEZ will be implemented by means of TfL using its road user charging powers. TfL has made appropriate amendments to the existing LEZ Scheme Order to implement vehicle charging in the ULEZ. This is because the primary objective of the LEZ is to improve air quality in London and it has been successful in reducing emissions from heavy diesel vehicles since its introduction in February 2008.
- 5.20 Monitoring and enforcement of the ULEZ would be by means of the Automatic Number Plate Recognition camera network used for the Congestion Charge.
- 5.21 The small number of vehicles that are exempt from the LEZ will be exempt from the ULEZ. In addition, residents who live within the ULEZ will be granted a 100 per cent discount for three years until 2023, while they continue to live in the zone, to give them more time to change their vehicle to meet the ULEZ standards. Vehicles that have a disabled or disabled passenger tax class will also be granted a 100 per cent discount until 2023. Taxis will also be exempt.

6 Progress in Implementation

ULEZ policy development and first consultation

- 6.1 The Mayor first announced his intention to develop the ULEZ in central London on 13 February 2013. Following this, TfL Planning started planning and feasibility work to develop the options and scope of the scheme. In November 2013, TfL organised the first stakeholder workshops to discuss the level of ambition set out by the Mayor. 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. The ULEZ proposals were then subject to public and stakeholder consultation.
- 6.2 TfL received 16,281 responses to the consultation on the ULEZ proposals from public and businesses. Of these, 79 per cent stated that it was important or very important to tackle poor air quality in London and 58 per cent supported or strongly support the introduction of a ULEZ in central London. TfL also received 123 stakeholder responses, of which 112 supported the proposals.
- 6.3 In March 2015, the Mayor confirmed that the ULEZ would be introduced in central London in 2020 and asked TfL to undertake further engagement with the taxi and PHV trades to refine its taxi and PHV licensing proposals.

Further consultation on taxi and PHV proposals

- 6.4 Following further engagement, TfL put forward revised taxi and PHV licensing proposals for public and stakeholder consultation from 1 July 2015 to 25 August 2015. TfL held an ongoing dialogue with the taxi and PHV trades throughout this second consultation. From this dialogue, the taxi trade indicated it was broadly satisfied with the revised taxi licensing proposals. However, the PHV trade remained apprehensive about the potential impact on its operations particularly as regards pricing, availability and variety of vehicles that would meet the modified ZEC PHV criteria. It also had concerns, shared with the taxi trade, about the implementation and suitability of a London wide vehicle charging infrastructure to support their commercial operations. In response to these concerns, TfL recommended further modifications to the PHV ZEC licensing requirements.
- 6.5 Whilst emissions savings from the revised taxi and PHV licensing proposals put forward in the second consultation were broadly similar to the original proposals, TfL identified a number of mitigation measures required to ensure benefits were maintained. These measures are to retrofit 400 additional Euro V TfL buses to Euro VI outside central London, facilitate a trial of electric buses with sightseeing/ tour operators and a further central London Low Emission Neighbourhood. These measures are sufficient to address the impact of the further changes to PHV licensing proposals following the consultation.

7 Financial Implications

- 7.1 The 2014 TfL Business Plan makes provision for the ULEZ portfolio of £331m. As part of the transfer of sponsorship to Surface Transport a full cost review has been completed, which has revised the estimated final cost (EFC) to £425m.
- 7.2 A summary of the costs (implementation and operation), their development and a budget are included in the paper on Part 2 of the agenda.

Cost Estimate Development

- 7.3 The Ultra Low Emission Zone (ULEZ) cost estimate increased by £94m (from £331m to £425m) between the initial planning estimate in at Gate A in August 2014 and the current estimate in October 2015, for the following primary reasons:

£m	Issue	Explanation
30	Treatment of third party funding	The original estimate of £331m was net of an anticipated £30m OLEV contribution, whilst the £423m is a gross cost estimate.
61	Changes of scope	The rapid charging infrastructure and taxi purchasing assistance grants were identified as requirements during the consultation on the Taxi and Private Hire related proposals, and were not part of the original scope. Third party funding of £35m for these items has already been committed and TfL is applying for a further £4m under the OLEV City Schemes bid.
21	Addition of risk	The original estimate of £331m did not include any provision for risk
(18)	Other net cost reductions	Primarily due to reduced cost of bus compliance, as the cost estimates have been updated based on the initial contracts impacted by ULEZ which have been awarded to date.
94	Total	

- 7.4 The cost review was completed in consultation with subject matter experts from across TfL who currently work within the areas impacted by ULEZ. They represent the best source for an accurate estimate given that much of the work included in the ULEZ scope has been delivered through TfL before or is an ongoing operation. Where possible, estimates have been prepared with input from existing suppliers (eg Capita) who would be utilised to deliver the requirement under ULEZ.
- 7.5 The knowledge of the subject matter experts and their experience with suppliers and in their market sectors provided an opportunity to benchmark costs for the ULEZ estimate either against existing contract costs or as provisional supplier pricing for proposed works.

Funding

- 7.6 In addition to the funding in the 2014 TfL Business Plan of £331m:
- a £25m DfT grant to assist taxi drivers in purchasing ZEC vehicles has been made available from 2015. This has been received by TfL; and
 - a committed £10m grant from the National Infrastructure Plan to assist with the installation of rapid charging units has been announced, to be introduced in 2017.

7.7 Therefore, net of the £35m additional third party income the funding gap is £59m. This funding gap will be closed through:

- (a) seeking funding from the OLEV, which is a cross departmental body working to support the early market for ultra low emission vehicles (ULEVs). OLEV is making a total of £500m available nationally to support ULEVs in the period 2015-20. The bidding process is taking place during 2015 and TfL's first bid was submitted on 2 October, including £4m for rapid charging. TfL is planning to submit a further bid for £20m to support the delivery of the bus element. Further bids will be submitted as the funding becomes available. The Mayor has also written to the Government asking for further funding to support a wider package of measures to improve air quality across London;
- (b) if TfL is unsuccessful in gaining OLEV funding it will become challenging to deliver the scheme as currently envisaged. It may be necessary to review and revise the scope of the ULEZ portfolio in order to deliver budget savings. As such the OLEV funding is critical to delivering the projected health and emissions benefits of the scheme;
- (c) the potential net revenue that ULEZ could generate once operational through user charges. ULEZ has not been designed as a scheme to raise revenue and the scheme will deter drivers of vehicles that do not meet the emissions standards from entering the congestion charging zone, which will therefore reduce congestion charging revenues. The scheme could generate up to £100m in net additional revenue over the Business Plan period, albeit this will be from the ULEZ scheme commencing in 2020. More detailed modelling of the revenue impact is underway; and
- (d) if TfL is unsuccessful in gaining sufficient OLEV funding, the modelling identifies there will be an insufficient net increase in revenue and it is not possible to reduce scope, the remaining funding gap will need to be considered as part of the next TfL Business Plan.

Authority request

7.8 This paper requests that the Board grant an additional £10m of Project Authority to enable to implementation of the portfolio to progress to March 2017. This additional authority will enable the delivery of the following work packages:

- (a) portfolio management including legal support and subject matter expert support to scope the different workstreams;
- (b) progress Rapid Charging Network through feasibility and early market engagement;
- (c) procure, install and operate up to five new air quality monitors;
- (d) commence the design of systems upgrades required for London Road User Charging (LRUC), Traffic Enforcement Noticing Processing (TENP) and Detection and Enforcement Infrastructure (D&EI) to accommodate ULEZ;
- (e) commence preliminary type design work for ULEZ signage;
- (f) commence scoping work for the taxi grant and decommissioning schemes;
- (g) commence the electric double decker bus demonstrator project; and
- (h) commence scoping work with central London boroughs on the Low Emission Neighbourhood.

- 7.9 The ULEZ Portfolio is a combination of multiple projects all aiming to either deliver the ULEZ scheme or otherwise enable TfL to comply with its emissions requirements. Each project will be managed separately under the ULEZ Portfolio that will coordinate and manage dependencies across the portfolio.
- 7.10 The ULEZ portfolio will seek the remaining Project and Procurement Authority in line with TfL Standing Orders. A summary of the estimated authority levels is included in Part 2 of the agenda.

Procurement strategy

- 7.11 The procurement strategy for individual workstreams will differ due to the differing requirements. All projects will adhere to TfL's procurement policies. Procurement Authority will be sought at the relevant level according to the value of individual projects. Tender and contract evaluations will be evidenced in individual project submissions.

8 Business Case

- 8.1 As part of the development of the ULEZ proposal, TfL Planning has developed the business case for the scheme. This outlines the strategic and policy background to the scheme, the options analysis undertaken and the details of the proposal. It goes on to describe the benefits and impacts of the scheme. The business case has been updated to reflect the revised taxi and PHV proposals confirmed following the public consultation that was completed in August 2015.
- 8.2 The ULEZ is designed to address the urgent need to improve London's air quality and reduce emissions of NO₂ and NO_x, particularly in central London where local air quality is currently worst (see section 3). The scheme is a Mayoral initiative and he has requested that TfL drive its implementation in order to meet his environmental and transport objectives and strategies (see section 10). Without ULEZ (and further action as set out in the Transport Emissions Roadmap) London is projected to continue to fail to meet legal limit values for NO₂ until 2025.
- 8.3 The introduction of ULEZ will result in substantial emissions reductions across London, which will result in health benefits for all those who live, work and visit London (see section 3). A study undertaken by King's College London in 2015¹ showed that an equivalent of 9,400 deaths in the Capital in 2010 could be attributed to poor air quality. The BCR monetises the emissions benefits of the ULEZ using approved Government methodology, however the social, political and moral imperatives should also be considered.
- 8.4 The ULEZ has a BCR of 0.9:1 as set out below. Nevertheless, the ULEZ has a compelling business case due to the legal, political, health, and social drivers for implementing the scheme.

¹ www.london.gov.uk/priorities/environment/publications/understanding-health-impacts-of-air-pollution-in-london

Benefits

- 8.5 The primary benefit that the ULEZ aims to generate is a reduction in emissions of NO_x, and consequently a reduction in concentrations of NO₂ associated with significant damage to human health. The NO_x emission reduction, and other associated emissions reductions, particularly PM₁₀ and greenhouse gases were monetised as part of the business case. Using the methodology set out in the Treasury Green Book, the emissions benefits in 2020 alone were calculated to be worth £94m for NO_x, and £2m for CO₂. This is expected to reduce in subsequent years as the scheme is designed to bring forward the natural replacement of vehicles driving in London.
- 8.6 As a consequence of the way the vehicle charging element will be implemented, with a charge for non-compliant vehicles, there will be further benefits (and disbenefits) arising from changes in journey times, the payment of charges and inconvenience due to having to change behaviour. The total expected benefit from journey time changes in 2020 is £32m. As with the emissions savings, this is expected to reduce in subsequent years as the effect of the ULEZ tapers over time.
- 8.7 The total monetised benefits of the scheme as calculated by the ULEZ Business Case Model over the period 2014 to 2029 are £518m.

Disbenefits

- 8.8 Disbenefits are expected to arise as a result of people paying the daily charge. For the purpose of producing a comprehensive business case, the quantity of charges paid is expected to be around £36m in the first year of operation. Total payments of the Congestion Charge are also expected to reduce by around £12m in the first year of operation because drivers will choose to avoid the zone altogether rather than pay the cost of compliance or the daily charge. There is, therefore, a net road user disbenefit between the ULEZ revenue and impact on CCZ revenue of £24m between September 2020 and September 2021. As compliance with ULEZ standards increases, this income will drop in future years.
- 8.9 In addition to the financial disbenefits related to the daily charges, there are wider disbenefits of the ULEZ associated with customers' behavioural responses to the ULEZ. These include the inconvenience from changing a destination or reduced levels of activity as a result of unwillingness to pay the cost of compliance or the daily charge. The ULEZ business case estimates this disbenefit at £25m in the first year of the scheme.
- 8.10 The total monetised disbenefits of the scheme as calculated in the ULEZ Business Case Model over the period 2014 to 2029 are £228m.

Benefit Cost Ratio

- 8.11 The ULEZ Business Case Model (BCM) provides a BCR of 0.9:1 when evaluated over the period from 2014 to 2029, first recognising benefits in 2018:

Summary of Economic Appraisal (2014 - 2029)	
Net Present Values	£m
Project Capex (incl risk)	-377
Maintenance	-64
Project Capex optimism bias	-1
3rd Party Contributions	32
Non Fares Income	118
Net Financial Effect	-292
Total benefits	518
Total disbenefits	-228
3 rd party contributions (deducted as per DfT guidelines)	-32
Total Benefit, £k	257
Benefit : Cost Ratio	0.9:1

Table 4: Summary of benefits

9 Delivery of the Portfolio

Key milestones

- 9.1 The key milestones to deliver ULEZ go live on 7 September 2020 are set out in Table 5 below.

Milestone	Target Date
TfL Board Approval	December 2015
Taxi grant and compensation Live	April 2017
Rapid charging (150 sites live)	December 2018
LRUC Integration complete	March 2020
ULEZ Operationally Ready	March 2020
Signage installation complete	July 2020
ULEZ Go Live	September 2020
Rapid Charging (300 sites live)	December 2020

Table 5: ULEZ Portfolio - key milestones

- 9.2 Options analysis and supplier engagement have already commenced, with seed funding, for the critical rapid charging network. With authority, this workstream will look to advance to procurement stage early in 2016.

10 Assurance

- 10.1 The IAR review of the ULEZ (Gate Review Meeting held on 19 May 2015) stated that there were no critical issues identified. Six secondary recommendations were made which have been addressed.
- 10.2 The IIPAG Review of the ULEZ (Gate Review Meeting held on 19 May 2015) stated that there were no critical issues identified. Six secondary recommendations were made which have been addressed.
- 10.3 The IAR review of the ULEZ portfolio (Options + Review submitted on 09 June 2015) stated that there are no critical issues and the project has been well prepared for handover to Surface Transport. TfL PMO recommends approval is granted to transfer the project to Surface Transport for delivery. Five secondary recommendations were made which have been addressed.

11 Next Steps

- 11.1 In parallel to seeking the approvals in this paper, the development of the Rapid Charging proposal will continue.
- 11.2 Subject to approval of the advertising campaign, press, trade magazine and radio advertising to start to publicise the vehicle charging and taxi/ PHV licensing aspects of the ULEZ will proceed.
- 11.3 The various workstreams will continue to be scoped and the projects needing to start during 2016 will be progressed.

12 Views of the Finance and Policy Committee

- 12.1 On 2 December 2015, the Finance and Policy Committee considered a similar paper. Members raised no specific issues for the attention of the Board and endorsed the recommendations in this paper.

List of appendices to this paper:

Appendix 1: ULEZ Emissions Standards

Exempt supplemental information is contained in a paper on Part 2 of the agenda

List of background papers:

IIPAG and PMO Reports and the Management Response

Transport Emissions Roadmap

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ULEZ Emissions Standards

Vehicle name	Description	ULEZ emissions standard ¹	Date when manufacturers must sell new vehicles meeting the emissions standards ²	Charge level if not compliant
Motorcycle, moped etc	Any motorcycle or moped, (tricycle or quadricycle).	Euro 3	From 1 July 2007	£12.50
Car and small van (except taxis)	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	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
Heavy goods vehicle (HGV)	Lorries and specialist vehicles of more than 3.5 tonnes gross vehicle weight	Euro VI	From 1 January 2014	£100
Bus/coach	Passenger vehicles with more than 8 passenger seats of more than 5 tonnes gross vehicle weight	Euro VI	From 1 January 2014	£100

¹ Euro standards for heavy-duty diesel engines use Roman numerals and for light-duty vehicle standards use Arabic numerals.

² These are usually a year earlier for early adopters.