

**Public and stakeholder consultation on a  
Variation Order to modify the  
Congestion Charging scheme**

**Impact Assessment**

## Table of contents

1. Introduction .....	3
1.1 Background.....	3
1.2 Proposed changes included in this assessment.....	4
1.3 Purpose of the impact assessment .....	4
1.4 Scope of the impact assessment .....	5
2. Analysis of proposed changes .....	5
2.1 Methodology.....	5
2.2 Economic impacts .....	5
2.3 Equality impacts .....	11
2.4 Health and environment impacts.....	15
2.5 Climate change mitigation and adaptation .....	18
3. Monitoring .....	21
Appendix A: MTS appraisal framework scoping.....	22

# 1. Introduction

## 1.1 Background

### ***Congestion Charging scheme and environmental discounts***

Proposal 129 of the Mayor's Transport Strategy (MTS) sets out that the Mayor will keep Congestion Charging under review and make variations to ensure the scheme remains effective in reducing traffic and congestion in central London and reflects best practice and other developments in relation to its operation and discounts and exemptions. The scheme has had a number of modifications since it was introduced in February 2003, including to its area, discounts and exemptions, charge and penalty charge level, payment methods, operation and service providers.

Since its introduction, the Congestion Charging scheme has had environmental discounts to encourage drivers to switch to more environmentally friendly vehicles. The Alternative Fuel Discount ran from February 2003 until December 2010 and provided a 100% discount for certain vehicles powered by an alternative fuel and not solely by petrol or diesel, which also met minimum air quality emissions requirements. Following technological developments in the vehicle market, which meant that many conventional vehicles had lower carbon dioxide (CO<sub>2</sub>) emissions than those eligible for the Alternative Fuel Discount, it was replaced by the technology neutral Greener Vehicle Discount (GVD), a 100% discount for cars with CO<sub>2</sub> emissions of 100g/km or less that meet the Euro 5 emission standard.

Electrically propelled vehicles are also eligible for a 100% discount from the Congestion Charge under the Electric Vehicle Discount. In January 2011, plug-in hybrid electric vehicles meeting minimum criteria, which use a rechargeable battery pack that can be charged from an external source of electricity, in addition to a conventional petrol or diesel engine, also became eligible for the Electric Vehicle Discount.

### ***Background to the proposed changes***

When the GVD was introduced in 2011, the Mayor, Boris Johnson, committed to review the discount by 2013, recognising that, as the low emission vehicle market grew, increasing numbers of cars qualifying for the discount would enter the zone and could potentially start to erode the congestion and environmental benefits of the scheme. TfL's review of the GVD has shown that, while the discount successfully increased the proportion of cars with fewer emissions using the zone by around 30%, thereby helping to reduce air pollution and CO<sub>2</sub> emissions, increasing traffic resulting from the GVD was estimated to have caused additional congestion valued at around £1.5m net in 2011.

Following a review of the operation of the Congestion Charging scheme, Transport for London (TfL) recommended to the Mayor that the option to pay the charge in selected shops and petrol stations (the retail payment channel) be closed. The popularity of the channel has fallen considerably in recent years, with only 6% of charges now paid in shops, making this channel expensive for TfL to operate.

TfL is also proposing to increase the Congestion Charging penalty charge to bring it into line with those for critical traffic enforcement contraventions, including moving traffic, parking and bus lane contraventions on the strategic road network, which were increased to £130 on 15 April 2011.

The Mayor has now asked TfL to consult on three proposed changes to the scheme.

A Variation Order (VO) is the means by which changes to the Congestion Charging scheme are made. The VO requires public and stakeholder consultation to inform a decision by the Mayor on whether or not to approve the changes, with or without modifications. This impact assessment accompanies the consultation on the VO.

## 1.2 Proposed changes included in this assessment

The following three changes to the Congestion Charging scheme are proposed in the VO:

- **Introduce a new Ultra Low Emission Discount (ULED) to replace the GVD and Electric Vehicle Discount.** The proposed ULED would provide a single 100% discount from the Congestion Charge for all electric vehicles as well as for cars and vans (light goods vehicles not exceeding 3.5 tonnes) that emit 75g/km or less of CO<sub>2</sub> and meet the Euro 5 emission standard. The GVD would close to new applicants on 28 June 2013 but drivers already registered for the GVD at this date would continue to receive it until 26 June 2015. Vehicles currently eligible for the Electric Vehicle Discount would automatically be eligible for the ULED.
- **Remove the option to pay the charge in shops.** The retail payment channel allows the Congestion Charge to be paid using cash in shops and petrol stations using e-pay. The retail payment channel would close on 28 June 2013.
- **Increase the penalty charge from £120 to £130.** It is proposed to increase the penalty charge, to bring it in line with moving traffic, bus lane and parking penalty charges. The penalty charge would increase on 29 April 2013.

## 1.3 Purpose of the impact assessment

This document provides a detailed assessment of the proposed changes to determine what impacts may be likely to arise and to what degree. The proposed changes are in conformity with the MTS (as they must be by law) and there is no specific requirement to undertake a Strategic Environmental Assessment in respect of them. However, whilst this is not a statutory assessment, to ensure consistency of approach, the VO has been assessed using the same approach as the earlier impact assessments undertaken to support the MTS, published in May 2010, and the May 2010 consultation on the VO which included the introduction of the GVD, amongst other changes.

The assessment identifies the current baseline conditions, in terms of traffic levels, emissions, costs and revenue, and provides a comparison of the forecast impacts of the 'status quo' scenario with the forecast impacts of the changes in the VO.

## 1.4 Scope of the impact assessment

An initial screening was undertaken, based on professional judgement, to determine the relevant MTS objectives for this assessment. Appendix A provides a list of the objectives considered and identifies those not considered in this impact assessment.

Table 1 below sets out the impact rating used in the assessment of the VO against the relevant MTS objectives.

**Table 1: Impact rating criteria**

++	+	0	-	--	
Significant positive	Minor positive	Neutral	Minor negative	Significant negative	No effect

## 2. Analysis of proposed changes

### 2.1 Methodology

In order to assess the impact of the VO, it is first necessary to describe the baseline situation and how it is likely to evolve if the status quo is maintained, that is if the proposed changes were not introduced. The assessment utilises analysis undertaken by TfL to understand the impacts of the proposed changes and to establish what wider measures may be required to mitigate any predicted adverse impacts of the proposed changes.

TfL's assessment has identified, where possible, quantifiable data and the analysis of impacts is based on current available information. The identification of the impacts has, however, more broadly relied on qualitative data and the exercise of professional judgement to determine the relative significance and severity or scale of the impacts.

A series of impact assessments were carried out to support the introduction of the Congestion Charging scheme and further impact assessments were carried out to consider the impacts of major changes to the scheme, including both the introduction and removal of the Western Extension zone and the introduction of the GVD. TfL has published six Congestion Charging impacts monitoring annual reports and monitoring data from the Congestion Charging scheme is also considered in the annual Travel in London reports. These documents, as well as camera monitoring data, provide the current baseline information.

### 2.2 Economic impacts

An efficient and effective transport system for people and goods is essential to support sustainable economic development and population growth. Congestion on London's roads costs around £2bn each year and is a huge hindrance to businesses, commuters and the freight industry. The Congestion Charging scheme, introduced in February 2003, has delivered significant traffic reduction benefits in central London.

The economic impacts of the proposed changes are assessed with reference to:

- The effects on the volume of traffic, traffic speeds and the amount of delay, which in turn impact on economic productivity. This requires an understanding of how the proposed changes may impact on congestion within the Congestion Charging zone.
- The effects on TfL revenue and hence investment in transport improvements elsewhere on the network. This requires an understanding of the impact on traffic levels within the Congestion Charging zone.

### **2.2.1 Baseline conditions and context**

#### ***Traffic volume, speed and congestion***

The following baseline conditions for traffic volumes, speed and congestion have been taken from TfL's most recent Travel in London Report<sup>1</sup>. The volume of traffic, traffic speeds and the amount of delay all impact on business efficiency and sustainability and on economic productivity more generally. The general pattern on London's roads over the past decade has been a progressive decline in the volume of traffic. The trend towards lower traffic flows has been most pronounced in central London, where vehicle kilometres fell by almost 19% between 2000 and 2009. The introduction of Congestion Charging in 2003 has had a significant impact in shifting people away from using cars.

While traffic volumes have been falling within London, traffic has also been getting progressively slower over the past decade, particularly in central London. The historic decline in traffic speeds is most likely due to interventions that have reduced the effective capacity of the road network in order to improve urban realm, increase road safety and prioritise public transport, pedestrian and cycle traffic, as well as an increase in road works by utilities and general development activity. However, in the past three years, this trend towards slower traffic movement has ceased and traffic speeds have remained more stable.

Indicators of excess delay or congestion also suggest a stable overall picture, with some improvements in the past two years, following a general increase in congestion over the past decade. However, while levels of congestion in central London are close to pre-charging levels, the effectiveness of Congestion Charging in reducing traffic volumes means that conditions would be worse without the Congestion Charging scheme.

---

<sup>1</sup> Transport for London, 2012, Travel in London Report 4, <http://www.tfl.gov.uk/assets/downloads/corporate/travel-in-london-report-4.pdf>

### ***TfL revenues and investment***

By law, net revenues from the Congestion Charging scheme must be used for relevant transport purposes in London which provide value for money. Any change in net revenue would therefore impact on the level of money available to fund other improvements to the transport network in London. TfL reported net income from Congestion Charging of £136.8m in the financial year 2011/12. It is worth noting that Congestion Charging revenue fell from £287m to £227m, reflecting the full year impact of the closure of the Western Extension zone on 24 December 2010 and lower levels of penalty charge income arising as a result of the introduction of Congestion Charging Auto Pay (CC Auto Pay)<sup>2</sup>.

### ***Removal of the retail payment channel***

When the Congestion Charging scheme was introduced in 2003, the retail channel was the most popular method of payment, accounting for 37% of all charge sales. Since this time, the volume of charges purchased in shops has declined, dropping to around 6% of charges purchased.

### ***Increase in penalty charge***

The penalty charge for not paying the Congestion Charge last increased in 2007, when it was brought into line with the rate for penalties for decriminalised traffic and parking offences. In April 2011, these penalties increased and the proposed increase in the Congestion Charging penalty charge would once again bring this penalty in line with moving traffic, bus lane and parking penalty charges.

## **2.2.2 Expected trends under the status quo**

If no changes were made to the Congestion Charging scheme, it is expected that the number of cars registering for the GVD and using the zone would continue to increase. Whilst there is generally a price premium on electric vehicles (which are also eligible for a 100% discount under the Electric Vehicle Discount), the GVD provides a cheaper way to access a Congestion Charging discount as the eligible cars are relatively less expensive. An electric quadricycle, for example the Renault Twizy can be purchased from £6,690 while electric cars range from £18,000 to £30,000 (including a £5,000 grant from the Office for Low Emission Vehicles). This compares with £6,000 to £16,000 for a new conventional petrol or diesel car, or around £20,000 for a petrol hybrid car, with CO<sub>2</sub> emissions of 100g/km or less.

The number of cars meeting the GVD eligibility criteria continues to rise. When the GVD was introduced in January 2011, around 18 models of car met the criteria and this has now risen to 54 models, with numerous variations. As of October 2012, almost 17,500 cars were registered for the GVD. At the present rate of uptake, the number of cars registered for the GVD could exceed 26,000 by 2013.

---

<sup>2</sup> Transport for London, 2012, Annual Report and Statement of Accounts 2011/12, <http://www.tfl.gov.uk/assets/downloads/corporate/tfl-annualreport-2012.pdf>

Presently, around 2,500 GVD eligible cars (emit 100g/km of CO<sub>2</sub> or less and meet Euro 5) are observed during charging hours in the Congestion Charging zone on a typical weekday. This figure is roughly halved on Saturdays and Sundays (when charges do not apply), indicating the incentive effect of the GVD influencing car purchasing decisions of regular business-commuting drivers. Of these eligible cars, around 1,000 are registered for and claiming the GVD on an average day, indicating that many drivers of eligible cars have not registered for the GVD.

Continuing with the GVD in its current form could be expected to increase traffic volumes in the Congestion Charging zone. This is because the provision of a discount creates an incentive for certain drivers to enter the Congestion Charging zone who were previously deterred, or travelling by other modes. It is forecast that 2,000 additional cars registered for the GVD would use the zone during charging hours each day, with a total of up to 6,000 GVD eligible cars likely to be seen in the zone daily by the end of 2013. This additional traffic would be made up of traffic induced to drive by virtue of relatively cheap access to a 100% discount from the Congestion Charge, given the wide range of relatively affordable models that qualify for the GVD.

This group may be boosted by drivers who were receiving the Alternative Fuel Discount, for whom the sunset period closes at the end of 2012. Some of the drivers receiving the Alternative Fuel Discount may wish to maintain a discount by purchasing a different car, and if the GVD was to continue, many of these could be expected to purchase a GVD eligible car.

The number of electric vehicles using the Congestion Charging zone has remained relatively stable for the past two years, although, it is expected to increase as the electric vehicle market continues to expand<sup>3</sup>. There are currently 2,000 vehicles registered for the Electric Vehicle Discount and around 400 electric vehicles use the zone daily. Vehicles registered for the Electric Vehicle Discount would automatically qualify for the ULED and there is not expected to be any impact on owners of electric or plug-in hybrid vehicles from the proposed changes.

### ***Removal of the retail payment channel***

The operational cost of the retail payment channel is a transactional cost based on volumes and paid directly to epay, the company providing the service in shops to allow retail payments of the Congestion Charge. As the number of transactions falls, this payment channel has become relatively more expensive for TfL to operate.

### ***Increase in penalty charge***

If TfL was not to increase the penalty charge, it would lose potential revenue and the Congestion Charge penalty charge would not be consistent with those for other traffic enforcement contraventions.

---

<sup>3</sup> Department for Transport statistics indicate that, across the UK, new electric vehicle registrations have increased in the past year with 728 new cars and quadricycles registered in the UK in quarter 2 of 2012 compared with 366 in quarter 2 of 2011.

### **2.2.3 Assessment findings**

While the proposed changes are not expected to have a significant effect at a macro level, there could be some particular impacts and these are set out below.

#### ***Traffic volume, speed and congestion***

The closure of the GVD would be expected to have a small positive impact on road traffic volumes and congestion as drivers of vehicles that would have been eligible for the GVD are deterred from using the zone through having to pay the daily charge. It is assumed that the number of cars registered for the discount using the zone during the sunset period (1 July 2013 to 26 June 2015) would remain constant. However, a small number of drivers who already have or may have purchased a vehicle eligible for the GVD could be expected to purchase an ultra low emission vehicle to qualify for the ULED.

It is anticipated that the number of ultra low emission vehicles registered for the ULED would increase to in excess of 8,000 registered vehicles by the end of 2015 as the market expands and as drivers take advantage of the plug-in car and plug-in van grants from the Office for Low Emission Vehicles (OLEV), the Congestion Charging discount and generally lower running costs. It is forecast that around 2,000 ultra low emission vehicles would claim the ULED on a daily basis by the end of 2015.

As stated above, it is anticipated that the removal of the GVD would result in a small reduction in traffic in the zone during charging hours in the short term as some of the previously induced traffic is deterred again. This effect will diminish as the market for vehicles claiming the ULED grows. The induced traffic (estimated to be around 2,000 cars per day by the end of 2013) contributes less than 0.5% to total traffic volumes in the Congestion Charging zone, so the effect on both traffic speed and congestion of removing these vehicles is not significant.

#### ***Replacement of the GVD with the ULED***

The two year sunset period would allow drivers registered for the GVD to continue benefiting from the discount, with potential savings of up to £4,536 if they were to drive in the zone on each charging day (at the CC Auto Pay rate). It is worth noting, that even with the removal of the GVD, cars eligible for the discount continue to benefit from paying no vehicle excise duty, reduced company car tax and from lower fuel costs as these cars tend to be more fuel efficient than other cars.

Some individual drivers and fleet operators may also choose to purchase an electric vehicle in order to qualify for the ULED. The OLEV's £5,000 plug-in car grant and £8,000 plug-in van grant make ultra low emission vehicles relatively more attractive, despite the price premium on their purchase. In addition, electric vehicles also benefit from not having to pay vehicle excise duty or company car tax, considerably lower fuel costs and lower maintenance costs. It is expected that the closure of the GVD could lead to an increase in the uptake of electric cars by removing a discount available to cheaper alternative petrol and diesel low emission cars.

While the replacement of the GVD and Electric Vehicle Discount with the ULED would be expected to have a small positive impact on vehicle volumes in the Congestion Charging zone during charging hours, it is not expected to have a significant impact on general congestion in London or on average business vehicle purchasing or running costs as the volumes of these vehicles compared to the London fleet size are small. Therefore, these proposals would have no impact on the wider economy or businesses. There is not expected to be an impact on freight transport and transfer within and around London and the South East given that the GVD only applies to cars and any freight vehicles that qualified for the Electric Vehicle Discount would automatically receive the ULED.

### ***Removal of retail payment channel***

Shops and other retail outlets which allow the payment of the Congestion Charge would no longer receive a payment per transaction from epay if the retail payment channel closes. The money individual retailers make on such transactions is determined by epay, however it is likely to be a very small amount and the removal of the channel would be unlikely to significantly impact such retailers. The epay system is primarily aimed at mobile phone top ups and Congestion Charge transactions make up only a very small proportion of epay business in shops. The removal of the retail payment channel is therefore not considered to have significant impact on the economy or businesses.

### ***Increase in penalty charge***

The £10 increase in the penalty charge would impact negatively on drivers incurring a penalty charge. The growth in registrations for CC Auto Pay, whereby drivers using the Congestion Charging zone do not risk receiving penalty charges for forgetting to pay the charge, suggests that the number of drivers the penalty charge increase will affect is minimal. Furthermore, this is the first opportunity TfL has had to increase the penalty charge to bring it in line with penalties for other traffic contraventions, which increased in April 2011, so drivers incurring Congestion Charging PCNs would have been paying relatively less. Overall, it is not considered that the increase in the penalty charge would have an effect on the behaviour of drivers, therefore, it is not considered to have a significant impact on the economy or businesses.

### ***TfL revenues and investment***

It is estimated that the closure of the GVD would result in an increase in TfL's income from Congestion Charging of between £1m and £2m per year.

The removal of the retail payment channel is expected to save TfL around £600,000 per year.

The proposed increase in the Congestion Charging scheme penalty charge is estimated to provide an additional £20.5m net income over the TfL's Business Plan period 2013/14 to 2021/22.

Overall, it is considered that the proposed changes to the Congestion Charging scheme would have a positive impact on TfL's income from Congestion Charging, the net revenue of which must be spent on improving transport, in line with the MTS.

## 2.2.4 Overall conclusions

Overall, the proposed changes are assessed as having a very small positive economic impact due to reductions in traffic and congestion and the potential for increased net revenue from the Congestion Charging scheme, which must be used for relevant transport purposes in London.

The assessment against the relevant MTS Secondary Objectives is as follows:

+	<p><b>Promote more sustainable transport and travel patterns for all users and potential users of the London transport system:</b> The proposed changes would incentivise the uptake of ultra low emission vehicles and lead to small reductions in traffic during charging hours in the Congestion Charging zone, although these are likely to be small in size and not significant.</p>
X	<p><b>Increase the economic efficiency and environmental sustainability of freight transport and transfer within and around London and the South East:</b> While the proposed changes are forecast to result in small reductions in traffic and congestion during charging hours in the Congestion Charging zone, it would have little or no impact overall on economic efficiency and environmental sustainability of freight transport across London and the South East.</p>

## 2.2.5 Mitigation

No significant effects have been identified and therefore no mitigation measures are proposed.

## 2.3 Equality impacts

### 2.3.1 Introduction

As a public body, TfL is subject to the equality duty created under the Equality Act 2010. Section 149 of the Equality Act sets out the general equality duty, which requires TfL and the Mayor to have due regard to the need to:

- Eliminate unlawful discrimination, harassment and victimisation
- Advance equality of opportunity between different groups, and
- Foster good relations between different groups.

The general equality duty covers protected characteristics, including age, disability, sex, gender reassignment, pregnancy and maternity, race, religion or belief and sexual orientation. In line with best practice TfL also considers the needs of groups who also have the potential to be socially excluded, namely: people on low incomes; refugees and asylum seekers; the homeless; and jobseekers.

The equalities impact assessment process was principally based on the Equality and Human Rights Commission Equality Impact Assessment guidelines<sup>4</sup>, which were also used to assess the effects of the VO to introduce the GVD. The equality impact assessment is conducted in two key stages. The first is an initial screening stage to see if the proposed changes are relevant or could have implications for equality. The second stage involves fully assessing the proposed changes to make sure they do not have negative or adverse effects on different sections of the impacted communities, including establishing what practical actions would be required to mitigate any adverse or negative impacts and what actions will help promote equality.

A scoping assessment was undertaken which found no equalities impacts from the three proposed changes on the TfL equality target groups. However, it was identified that the removal of the retail payment channel could affect people without access to a debit or credit card, who are more likely to be people who have the potential to be socially excluded. A more detailed assessment of the proposed closure of the retail payment channel has therefore been undertaken.

### **2.3.2 Baseline conditions and context**

Research into the payment of the Congestion Charge at retail outlets undertaken by TfL in 2006 indicated that, at this time, if the retail channel was to be removed, over half of customers paying the charge in shops would be inconvenienced to some degree, particularly for residents<sup>5</sup>. However, the introduction of CC Auto Pay in January 2011, which allows customers to pay a discounted daily charge and avoid penalty charges, and allows residents to pay the charge at the residents' discount rate for single days rather than the week of charges required by other payment methods, accelerated the move away from retail sales, with only around 6% of charges now purchased in shops. CC Auto Pay is now the most popular payment channel with around half of total sales and the proportion of sales by CC Auto Pay is expected to increase at the expense of other payment methods.

With the closure of the retail channel, customers will require access to a debit or credit card or cheque to be able to pay the charge. Data on the number of households without access to debit or credit cards or cheque books is not currently available, but access to bank current accounts is a reasonable proxy to use. In 2010/11 7% of households in Greater London and 9% of households in inner London did not have access to a current account<sup>6</sup>. Household income is a factor with 26% of households with a weekly income of less than £200 not having a current account compared with only 2% of households with a weekly income of £900 or more. The proportion of households without access to a current account is also higher where there is no full-time work, unemployment or worklessness (21%). Younger and older people are also less likely to have a current account (24% of 16-24 year olds and 23% of adults 85 years or older)<sup>7</sup>.

---

<sup>4</sup> [http://www.equalityhumanrights.com/uploaded\\_files/equality\\_impact\\_assessment\\_template.doc](http://www.equalityhumanrights.com/uploaded_files/equality_impact_assessment_template.doc)

<sup>5</sup> TfL, Research into Congestion Charging payment at retail outlets and other channels, 4 April 2006, [http://source.tfl/utills/documentlibrary/ccr-details.asp?doc\\_id=939](http://source.tfl/utills/documentlibrary/ccr-details.asp?doc_id=939)

<sup>6</sup> Department for Work and Pensions, Family Resources Survey UK 2010/11 (June 2012), [http://research.dwp.gov.uk/asd/frs/2010\\_11/frs\\_2010\\_11\\_report.pdf](http://research.dwp.gov.uk/asd/frs/2010_11/frs_2010_11_report.pdf)

<sup>7</sup> Department for Work and Pensions, Family Resources Survey UK 2010/11 (June 2012), [http://research.dwp.gov.uk/asd/frs/2010\\_11/frs\\_2010\\_11\\_report.pdf](http://research.dwp.gov.uk/asd/frs/2010_11/frs_2010_11_report.pdf)

Levels of car ownership in London tend to be lower than those in the rest of the country (43% of London households don't own a car compared with 23% nationally)<sup>8</sup>. Car ownership is also linked with household income with lower income households less likely to own a car than higher income households. Factors that affect car ownership include the cost of purchasing and running a car, including fuel, parking and the Congestion Charge as well as the availability, quality and price of alternatives, such as public transport. In London, public transport accessibility is very good, particularly in central London. In London overall, car ownership has remained stable but car use has declined<sup>9</sup>. Household income also has an impact on the types of journeys undertaken, with lower income groups making more bus trips and higher income groups tending to use car, rail and the Underground more for their trips.

### **2.3.3 Expected trends under the status quo**

If the retail payment channel remained open, it is anticipated that the number of charges purchased using this method would further decline as customers continued to shift to CC Auto Pay. The retail payment channel is expensive for TfL to operate and with declining charges purchased in retail outlets represents poor value for money.

### **2.3.4 Assessment findings**

The closure of the retail payment channel would disadvantage customers without access to a credit or debit card who would no longer be able to pay the charge in advance or on the day or travel in the zone using cash. Customers without access to a debit or credit card are more likely to be from households without access to a bank account and to come from households with low incomes and/ or unemployment or worklessness, both indicators of the potential for social exclusion.

Pre-paid debit cards are available, including cards that do not require a credit check. However, these cards tend to incur opening and administration fees and fees to top-up the card and/ or take money out/ use the card for online or other purchases. Alternatively, a customer could also pay the Congestion Charge using a debit or credit card registered to another person, or in advance by mail using a bank draft, although this would also incur charges for the issue of a bank draft and require a period of time (around 10 days) to allow for postage and processing of the cheque.

It is likely that only a very small number of Congestion Charge users may not have access to a debit or credit card to pay the charge (the debit or credit card used does not have to be registered to the same address as the vehicle). Low income households are less likely to own a car and the high cost of parking and the Congestion Charge, as well as the accessibility and quality of public transport in the Congestion Charging zone make it unlikely people from such households would want to drive in the zone.

---

<sup>8</sup> Transport for London, 2010, Travel in London Report 3, <http://www.tfl.gov.uk/assets/downloads/corporate/travel-in-london-report-3.pdf>

<sup>9</sup> Transport for London, 2010, Travel in London Report 3, <http://www.tfl.gov.uk/assets/downloads/corporate/travel-in-london-report-3.pdf>

There is a precedent within TfL to move customers away from using cash to pay for services. The Barclays Cycle Hire scheme requires a debit or credit card to hire a bike. Bus and Underground users are discouraged from using cash to pay for trips with higher cash fares and encouraged to use Oyster instead (although Oyster cards can be topped up using cash). Similarly, many local authorities in London now provide options to pay for on street parking using mobile phone text messaging and most car parks accept debit and/or credit cards to pay for parking.

As set out above, the removal of the retail payment channel would save TfL around £600,000 per year. Reducing the operating costs of the Congestion Charging scheme would provide a small increase in the net revenue of the scheme which, by law, must be reinvested in transport in London. This could be considered to benefit users of public transport, who may be represented in one of the equalities target groups.

#### ***Replacement of the GVD and Electric Vehicle Discount with the ULED***

It is not expected that the replacement of the GVD and Electric Vehicle Discount with the ULED would have a significant impact on people represented in the equalities target groups.

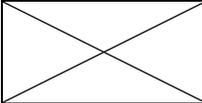
#### ***Increase in the penalty charge***

It is not forecast that the increase in the penalty charge would have a significant impact on people represented in the equalities target groups. As set out above, the increase in the penalty charge would lead to a small increase in TfL's net revenue. This could be considered to benefit users of public transport, who may be represented in the equalities target groups.

### **2.3.5 Overall conclusions**

Overall, the proposed removal of the retail payment channel, the only way of paying cash for the charge, is assessed as having a small, but not significant, negative impact on people who are more likely to be socially excluded. Socially excluded people, including those on low incomes and the unemployed, are less likely to be able to access debit or credit cards to pay the charge, but are also less likely to own a car and drive it in the Congestion Charging zone. The replacement of the GVD and Electric Vehicle Discount and the increase in the penalty charge is not expected to have an equalities impact. However, an increase in TfL net revenue as a result of the proposed changes would have a small positive impact through increased investment in transport in London.

The assessment against the relevant MTS Secondary Objectives is as follows:

-	<p><b>To address the key barriers to equality of access for all users and potential users of the London transport system:</b> A very small number of Congestion Charge users without access to a credit or debit card would be disadvantaged with the removal of the retail payment channel by being unable to pay the charge using cash. However, increases in TfL net revenue from the proposed changes would benefit public transport users through additional investment in transport.</p>
	<p><b>To give all users and potential users equal opportunity to access the London transport system and sustainable transport choices:</b> No effects on equalities target groups are expected as a result of the proposals.</p>

### 2.3.6 Mitigation

While no significant effects have been identified, TfL is undertaking consultation on the VO, which provides an opportunity to investigate whether there are any implications from the removal of the retail payment channel. The Mayor will consider responses to the consultation before he makes a decision as to whether or not to proceed with the proposed removal of the retail payment channel.

TfL makes information about the Congestion Charging scheme available in different languages and in a variety of formats to ensure all people have access to the information.

## 2.4 Health and environment impacts

### 2.4.1 Introduction

The Mayor has a legal obligation to meet national and European targets for air quality in London, and a statutory duty to have an Air Quality Strategy. Despite improvements in recent years, transport in London remains a significant source of the air pollutant emissions contributing to the overall concentrations of pollutants in the air and adversely affecting the health of Londoners.

Noise is a quality of life issue as it can significantly affect health and wellbeing. TfL's Perception of the Travel Environment Survey, undertaken in summer 2011, found that satisfaction with transport-related noise in London was fairly good. It is not expected that the proposed changes to the Congestion Charging scheme would have any significant impact on transport-related noise. However, any shift towards electric vehicles in the longer term could be expected to have a positive impact on transport-related noise as these vehicles are considerably quieter than conventional internal combustion engines.

The proposed changes were subject to a Health Impact Assessment screening. This determined that they were not likely to have a significant effect on health and that there would be no need to carry out a Health Impact Assessment upon them. While it is acknowledged that air pollutants can impact on a person's health, given the estimated small reduction in emissions from the proposed changes, the overall impact on air pollutant concentrations would be negligible. It would be difficult to determine any impact from the proposed changes on air pollution concentrations separate from other background influences, such as weather patterns, and the impact of the Mayor's Air Quality Strategy (MAQS) programme.

Air quality concentrations differ fundamentally from emissions, in that local emissions from sources in London only account for part of the total pollutants in the air, and this proportion varies considerably according to time, weather conditions and location. This means that it is possible to observe widely differing concentrations of pollution on successive days when emissions from sources in London are similar. It also means that, whatever measures are taken locally to reduce emissions from sources in London, these can only ever have a proportionately smaller impact on pollution concentrations. In the case of emissions from the GVD or proposed ULED, since the focus area and vehicle group are small, the resultant change in emissions would not show up in overall concentrations and would not be discernable from the effect of other MAQS measures. For this reason, concentration modelling of the effects of the proposed changes has not been carried out.

#### **2.4.2 Baseline conditions and context**

In central London, road transport accounts for around 80% of particulate matter (PM<sub>10</sub>) emissions. It also accounts for 46% of emissions of oxides of nitrogen (NO<sub>x</sub>) across Greater London. Concerted action and a range of specific initiatives such as the Low Emission Zone and the bus retrofit programme have been successful in reducing harmful air pollutants and in working towards meeting statutory limit values for ambient concentrations of PM<sub>10</sub> and nitrogen dioxide (NO<sub>2</sub>). The MAQS and MTS set out a number of proposals for reducing harmful emissions, including supporting the uptake of ultra low emission vehicles such as electric cars and vans in order to reduce emissions from private vehicles.

It is worth noting that emissions of PM<sub>10</sub> from car tyre and brake wear are now greater than those from car exhausts. This reflects the fact that measures have been taken to reduce emissions from exhausts but similar reductions have not been achieved for tyre and brake wear emissions, largely because there has been no legislative impetus to develop technical improvements affecting tyre and brake wear emissions. Any incentives to encourage the uptake of electric (and hybrid) vehicles could be considered to have a positive impact on emissions of air pollutants because, in addition to having no tailpipe air pollutant emissions, some of these vehicles have lower tyre and brake wear emissions of PM<sub>10</sub>, owing to deployment of regenerative braking systems.

While Euro standards have been successful in dramatically cutting particulate matter emissions, research into the application of Euro standards has highlighted that the recent iterations of these standards have not delivered the expected improvements in emissions of NO<sub>x</sub>, especially for diesel cars and vans. Over the past few years, the amount of primary NO<sub>2</sub> emitted directly by these vehicles has increased and overall NO<sub>x</sub> emissions (which include NO<sub>2</sub>) have tended to stabilise (rather than reduce).

### **2.4.3 Expected trends under the status quo**

The cars currently eligible for the GVD are relatively cheaper than equivalent sized electric models and over half of the available models are diesel. Without changes to the GVD, there is a risk that the discount could reward car purchasing behaviour that needs no incentive because of the low motoring costs of the eligible cars, rather than encouraging a shift to the cleanest ultra low emission vehicles on the market. In addition to an increase in traffic volumes and congestion, any increase in the proportion of diesel cars using the Congestion Charging zone could be considered to have a negative impact on air pollution emissions. There is the possibility that future models of diesel cars could be eligible for the ULED. However, achieving 75g/km or less of CO<sub>2</sub> will be relatively difficult and it is therefore likely by the time such vehicles are available, they would meet the stricter Euro 6 emissions standard which will require air pollutant emissions from diesel engines to be almost equivalent to those from petrol engines.

### **2.4.4 Assessment findings**

It is estimated that there may be 2,000 ULED cars and vans by the end of 2015. These vehicles could potentially save 15 tonnes of NO<sub>x</sub> and 740kg of PM per year, based on an annual distance of 10,000km per vehicle. If the GVD was to remain unchanged, the predicted induced traffic would increase emissions of NO<sub>x</sub> and PM<sub>10</sub> by the same amount by the end of 2013.

Over half of the car models currently eligible for the GVD are diesel. Emissions of air pollutants (principally NO<sub>x</sub> and PM) from diesel cars are higher than from petrol cars. Therefore, any increase in the proportion of the car fleet that runs on diesel risks leading to an increase in air pollutant emissions, in addition to the increase in emissions that would be expected as a result of increased vehicle volumes. In particular, current diesel cars emit NO<sub>x</sub> and PM at levels at least three times greater than petrol cars, although this differential should decrease as Euro 6 cars become available. It is not anticipated that diesel cars that could meet the CO<sub>2</sub> emissions criteria for the ULED would become available before 2014 when the Euro 6 air quality standard is introduced.

This issue of air pollutant emissions from light duty diesel cars and vans would be addressed by the technical standards for the ULED, as the criteria, whilst securing additional reductions in CO<sub>2</sub> emissions, would, for the foreseeable future, be satisfied by electric and plug-in hybrid electric vehicles. Most of the plug-in hybrid electric vehicles utilise petrol engines and therefore do not emit significant levels of air pollutant emissions. It is further anticipated that plug-in hybrid electric vehicles operating under the ULED may run on 'electric only' mode whilst in the Congestion Charging zone. This means that as take up of the ULED increases, a steadily growing group of electric and plug-in hybrid electric vehicles could potentially emit no exhaust emissions whilst operating in sensitive urban areas within central London.

#### ***Removal of retail payment channel***

It is not expected that the removal of the retail payment channel would have an impact on health and the environment.

### ***Increase in the penalty charge***

It is not expected that the increase in the penalty charge would have an impact on health and the environment.

#### **2.4.5 Overall conclusion**

Overall, the closure of the GVD and introduction of the ULED would be likely to lead to a small reduction in air pollutant emissions. Any increase in the uptake of electric vehicles which have lower tyre and brake wear emissions of PM<sub>10</sub> would have a positive impact on air pollution. However, the effect of the proposals would not be significant given the small size of the impact. In the future, the increase in the proportion of ultra low emission vehicles would be expected to further reduce air pollutant emissions from transport. The closure of the retail payment channel and the increase in the penalty charge are not expected to have an impact on health and the environment.

The assessment against the relevant MTS Secondary Objectives is as follows:

<b>0</b>	<b>To promote enhanced health and wellbeing for all:</b> The impact of the proposed changes on the attainment of this objective is assessed as being neutral.
<b>+</b>	<b>Improve air quality and the noise climate across London:</b> The impact of the proposed changes on air quality and the noise climate across London would be neutral as the drivers who would be deterred from driving in the zone by the closure of the GVD are already driving low emission cars so the emissions reduction would be very small. However, in the future, the increase in the proportion of vehicles emitting no or fewer emissions using the Congestion Charging zone would be expected to lead to reductions in air pollutant emissions.

#### **2.4.6 Mitigation**

No significant effects have been identified and therefore no mitigation measures are proposed. TfL's ongoing monitoring programme includes reporting on air quality and specific emissions from transport.

## **2.5 Climate change mitigation and adaptation**

### **2.5.1 Introduction**

The Mayor has a duty to address climate change so far as it relates to Greater London and must take action with a view to mitigating or adapting to climate change and take into account governmental policies relating to climate change or the consequences of climate change. Alongside wider national initiatives, the Mayor has committed to reduce London's CO<sub>2</sub> emissions by 60% from their 1990 levels by 2025.

Climate change mitigation refers to measures that will reduce emissions of greenhouse gases in the atmosphere. Climate change mitigation is achieved through the implementation of low carbon technologies, improvements in the energy efficiency of various operations as well as changes in people's behaviours to support reductions in greenhouse gas emissions. Climate change adaptation is concerned with changes that need to be made, including to infrastructure and processes, to support reductions in greenhouse gas emissions.

The likely effects of the proposed changes are considered in relation to the headline objective and the mitigation sub-objectives developed for the Integrated Impact Assessment for the MTS in 2009.

### **2.5.2 Baseline conditions and context**

CO<sub>2</sub> is London's dominant greenhouse gas emission and ground-based transport is a significant source, accounting for around 22% of overall emissions in 2008 (approximately 9.4m tonnes of CO<sub>2</sub> in 2010). Road transport emissions account for 71% of the ground-based transport emissions (around 6.7m tonnes in 2010) with the major emitters being cars, HGVs and vans<sup>10</sup>.

TfL estimates that CO<sub>2</sub> emissions in the Congestion Charging zone fell by around 16% following the introduction of Congestion Charging in 2003. This was split relatively evenly between savings due to a reduction in the number of vehicles entering the zone and more fuel efficient driving conditions resulting from lower congestion. While this was offset to some extent by increases in emissions elsewhere from traffic deterred from entering the zone, TfL estimates that there was a net reduction overall<sup>11</sup>.

Increased traffic flows in an area would lead to higher CO<sub>2</sub> emissions but the intensity of these emissions will vary depending on the fleet composition and congestion. In terms of fleet composition, older vehicles have higher CO<sub>2</sub> emissions as measured in g/km of CO<sub>2</sub>, while congestion increases fuel consumption and thus CO<sub>2</sub> emissions. The composition of vehicles by mode also affects CO<sub>2</sub> emissions with HGVs, buses and vans having higher CO<sub>2</sub> emissions than cars. However, the total overall CO<sub>2</sub> emissions from cars are higher given their considerably greater number.

Taking account of the current mix of fuels used to generate electricity in the UK, electric vehicles produce up to 40% less CO<sub>2</sub> than an equivalent petrol or diesel vehicle ("well to wheel" emissions produced over the life of the vehicle, including manufacture). There have been rapid advances in the design and technology of electric vehicles, which makes new generation models similar in style, with all the usual conveniences of their petrol and diesel counterparts.

London is already a key market for electric vehicles in the UK. Over 2,000 vehicles are currently registered for the Electric Vehicle Discount, with around 400 electric vehicles being seen in the Congestion Charging zone each day. In London around

---

<sup>10</sup> Transport for London, 2012, Travel in London Report 4, <http://www.tfl.gov.uk/assets/downloads/corporate/travel-in-london-report-4.pdf>

<sup>11</sup> Transport for London, 2006, Central London Congestion Charging Scheme Impacts Monitoring, Fourth Annual Report, <http://www.tfl.gov.uk/assets/downloads/FourthAnnualReportFinal.pdf>

90% of all car trips are less than six miles and across the UK over 99% of all car journeys are less than 100 miles. Electric cars available now, or coming to the market shortly, typically have a range of around 100 miles. The government and vehicle manufacturers estimate that London will take the largest share of new electric vehicle sales in the UK – of between 30% and 50%.

The Mayor's objective is to achieve 100,000 electric vehicles in London as soon as possible. TfL is working with the London boroughs and other stakeholders to enable and support the development and mass market uptake of low carbon road vehicles through planning powers and initiatives such as Source London. Source London is an electric vehicle membership scheme enabling London-wide use of a growing number of charge points. Source London already has over 800 publicly accessible charge points. There are also a number of government incentives for the purchase of electric vehicles, with exemptions from vehicle excise duty and company car tax. As well as the £30m Plugged in Places fund which supports the installation of charge points, the government also offers a consumer grant of up to £5,000 towards the cost of eligible ultra low emission cars and £8,000 towards the cost of eligible ultra low emission vans.

### **2.5.3 Assessment findings**

The proposals are not expected to have a significant impact on climate change mitigation and adaptation.

The GVD successfully boosted the proportion of low emission cars using the Congestion Charging zone by around 30% and led to a reduction in CO<sub>2</sub> emissions compared with the Alternative Fuel Discount, which it replaced. It has also capitalised on the trend in reducing CO<sub>2</sub> emissions in the new car market generally. However, since its introduction, there has been a rapid growth in the number of car models that qualify for the GVD, with 54 models currently eligible. Given that diesel engines have lower CO<sub>2</sub> emissions than petrol engines of equivalent output, it is not surprising that over half of the cars that qualify for the GVD are diesel, with higher emissions of air pollutants.

As per the air quality findings, any reduction in traffic and congestion as a result of the proposed closure of the GVD would be expected to lead to a reduction in CO<sub>2</sub> emissions. Furthermore, the proposed ULED would incentivise the uptake of the cleanest ultra low emission vehicles available on the market, both cars and vans, by reducing incentives for the purchase of other less clean low emission vehicles, thereby further contributing to reductions in emissions. However, given the relatively small impact on traffic and the relatively small number of electric vehicles actually being driven on London's roads, the reductions in emissions would be very small. If the number of vehicles claiming the ULED reaches 2,000 by the end of 2015 and these vehicles cover 10,000km per annum, this would lead to a reduction in CO<sub>2</sub> emissions in excess of 1,000 tonnes per annum by the end of 2015, compared with the current average CO<sub>2</sub> emissions for new cars in the UK.

#### ***Removal of retail payment channel***

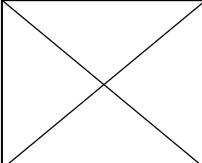
It is not expected that the removal of the retail payment channel would have an impact on climate change mitigation and adaptation.

### ***Increase in the penalty charge***

It is not expected that the increase in the penalty charge would have an impact on climate change mitigation and adaptation.

#### **2.5.4 Overall conclusions**

The assessment against the relevant MTS Secondary Objectives is as follows:

0	<b>To contribute to the reduction of greenhouse gas emissions arising from within the London area:</b> The closure of the GVD and introduction of the ULED is forecast to have a very small positive impact on CO <sub>2</sub> reduction in the Congestion Charging zone in the future, compared with the status quo position, although, given the relative small size of the zone in relation to London, this is not significant in a London-wide context.
	<b>To reduce GHG emissions arising from operations and service provision:</b> Many vehicles used in public sector operations and service provision are exempt from the Congestion Charge and therefore the proposals are not expected to have an effect on GHG emissions arising from operations and service provision.

#### **2.5.5 Mitigation**

No significant effects have been identified and therefore no mitigation measures are proposed.

### **3. Monitoring**

In line with Proposal 129 of the MTS, the Mayor will keep the Congestion Charging scheme under review, making variations to ensure the continued effectiveness of the policy reflects best practice, improves the operation of the scheme, or helps it to deliver the desired outcomes of the MTS. The proposed changes set out in the Variation Order will be monitored within this context.

## Appendix A: MTS appraisal framework scoping

The appraisal framework used to assess the MTS is more comprehensive than necessary to assess the impacts of this VO. As the Congestion Charging scheme is already in operation, some of the secondary objectives will not be affected in any way by the proposed changes. Consequently, an initial screening was undertaken as part of the impact assessment, based on professional judgement, to ensure only the relevant objectives were included. Those not considered relevant are indicated below.

### Primary and secondary MTS objectives considered in this impact assessment (those not considered in this impact assessment are indicated with a \*)

#### Primary objective A: To contribute to, and facilitate, more sustainable and efficient economic progress within London

- Promote more sustainable transport and travel patterns for all users and potential users of the London transport system
- Increase the economic efficiency and environmental sustainability of freight transport and transfer within and around London and the South East
- Facilitate and contribute to regeneration across all communities in London \*
- Contribute to enhanced productivity and competitiveness amongst all businesses within the London area \*
- To help facilitate and contribute to increased employment and earnings especially in low-waged areas \*
- To contribute to the alleviation of poverty and its contributory factors \*

#### Primary objective B: To enhance equality and actively mitigate the barriers to this

- To address the key barriers to equality of access for all users and potential users of the London transport system
- To give all users and potential users equal opportunity to access the London transport system and sustainable transport choices

#### Primary objective C: To contribute to enhanced health and wellbeing for all within London

- To address health inequalities and factors which negatively impact upon health and wellbeing \*
- To promote enhanced health and wellbeing for all
- Improve air quality and the noise climate across London

#### Primary objective D: To promote safety and security for all working, travelling and using London transport services and facilities

- Increase security and resilience to major incidents on the network \*
- Increase road safety for vehicles and pedestrians \*
- Increase staff and passenger safety on all modes of transport \*
- Contribute to the reduction of crime and fear of crime for all users and potential users of the London transport system \*

#### Primary objective E: To contribute to the mitigation of and adaptation to climate change

- To contribute to the reduction of GHG emissions arising from within the London area
- To reduce GHG emissions arising from operations and service provision
- To enhance and facilitate adaptation to the impacts of climate change \*

**Primary objective F: To protect and enhance the physical, historic, archaeological and socio-cultural environment and public realm**

- To promote more sustainable resource use and waste management \*
- To protect and enhance the built environment and streetscape through planning and operations \*
- To protect and enhance the natural and physical environment including biodiversity, flora and fauna through planning and operations \*
- To protect and enhance greenscapes, riverscapes and waterways through planning and operations \*