

# **Proposed revision of the Mayor's Transport Strategy (MTS) to enable an expansion of the Ultra Low Emission Zone**

The proposed revised MTS text is set out below and – if approved by the Mayor – would take the form of an addendum document to the current MTS which was published in 2018.

## **The triple challenges of toxic air pollution, the climate emergency and traffic congestion**

### **1. Toxic air pollution**

The two pollutants that are of the greatest concern in London are nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM). Since the publication of the Mayor's Transport Strategy (MTS) in 2018, significant progress has been made in reducing these pollutants and improving air quality for Londoners.

This is in large part owing to the successful delivery of the actions set out in the MTS, including the implementation of the central London Ultra Low Emission Zone (ULEZ) in April 2019 and the expansion of the zone to cover inner London in October 2021 (see Proposal 24). The scheme delivers air quality benefits by encouraging individuals to use sustainable transport or switch to cleaner vehicles, thereby contributing to the reduction in the number of older, more polluting vehicles in London.

Compliance with the scheme has been high, including during the period between the announcement of the new zones and their formal implementation (the pre-compliance period) as Londoners made the switch to cleaner vehicles in anticipation of the scheme. Overall compliance with the central London ULEZ went from 39 per cent when the Mayor first announced the scheme, to 87 per cent two years after implementation.<sup>1</sup> A similar response to the expansion of ULEZ has been seen in inner London for motorcycles, cars and vans where compliance rates for these vehicles increased to 92 per cent a month after implementation, including a five per cent increase within the first month of operation alone.<sup>2</sup> Compliance rates for these types of vehicles in outer London were estimated to be at 82 per cent in November 2021 (reflecting a greater proportion of older vehicles)<sup>3</sup> and it could be expected that an expansion of the zone to whole of London would lead to a similar pattern of increasing numbers of compliant vehicles, both in the pre-compliance period and after scheme implementation, as seen previously.

The expansion of ULEZ to inner London has contributed to the ongoing reduction in London's air pollution. In the central zone, there was a 44 per cent reduction in roadside NO<sub>2</sub> between February 2017 and January 2020 and a 27 per cent reduction in PM<sub>2.5</sub>.<sup>4</sup> The number of state primary and secondary schools in areas exceeding legal limits for NO<sub>2</sub> fell from 455 in 2016 to 20 in 2019, a reduction of 96 per cent.<sup>5</sup>

As a result of the expanded inner London zone, and the accompanying tighter Low Emission Zone (LEZ) standards, NO<sub>x</sub> road transport emissions are expected to further reduce by 30 per cent in 2021 and PM<sub>2.5</sub> emissions to reduce by six per cent London-wide contributing to significant improvements to Londoners' health.

However, toxic air pollution in London remains the biggest environmental risk to the health of all Londoners, particularly the most vulnerable. There remains more that can and should be done to lower exposure to poor air quality as quickly and effectively as possible to protect human health, including potentially going beyond achieving existing UK air quality requirements.

The World Health Organization (WHO) guidelines were tightened in September 2021 so that there are now lower thresholds for recommended levels of pollutants. The UK Government is currently consulting on new legal limits for PM<sub>2.5</sub> as a result and the Mayor has made the case for these to be aligned with the new interim WHO targets and for the legal limit for NO<sub>2</sub> to be updated as well.

While all Londoners now live in areas which are within the UK legal limits for PM<sub>2.5</sub> (25 µg m<sup>-3</sup>), 88 per cent of Londoners still live in areas which do not meet the lowest WHO interim target (10 µg m<sup>-3</sup>), and all Londoners live in locations where concentrations exceed the guideline limit of 5 µg m<sup>-3</sup>. For NO<sub>2</sub>, we estimate that 2.8 per cent (225,000) Londoners are still living in areas that exceed the new WHO interim target (30µg/m<sup>3</sup>).

The reduction in NO<sub>x</sub> and PM<sub>2.5</sub> emissions from road transport since 2013 has not happened equally across London. Air pollution is overall lower in outer London. However, the rate at which toxic emissions have fallen in outer London has been slower than in the rest of London. Outer London, therefore, accounts for an increasing proportion of NO<sub>2</sub> and PM<sub>2.5</sub> emissions from road transport and - due to the higher proportion of older Londoners living in outer London boroughs - has the greatest share of premature deaths related to poor air quality.

## 2. Climate emergency

We are facing a climate emergency: global warming is going to exceed 2°C during this century unless there are deep and rapid reductions in CO<sub>2</sub> and other greenhouse gas emissions.<sup>6</sup> In February 2022, the UN's Intergovernmental Panel on Climate Change (IPCC) warned that global warming, reaching 1.5°C in the near-term, would cause unavoidable increases in multiple climate hazards and present multiple risks to ecosystems and humans<sup>7</sup>, with the most vulnerable the most at risk from adverse impacts.

In October 2021, the Government published a national net zero strategy setting out how it plans to meet the UK's legally binding emissions targets by 2050. The strategy includes a range of policy measures alongside funding to support the UK's transition to net zero and is supported by its transport decarbonisation plan (July 2021).

In January 2022, the GLA published the Element Energy report on London's 2030 net zero target. In response to this, the Mayor announced his preferred pathway to net zero carbon in London.<sup>8</sup>

25 per cent of the city's carbon emissions now come from road transport.<sup>9</sup> Some progress has already been made towards reducing vehicle carbon emissions in London. Between 2016 and 2019 there was an estimated six percent reduction in CO<sub>2</sub> emissions in the central London ULEZ compared to a scenario with no ULEZ.<sup>10</sup> CO<sub>2</sub> emissions from cars and vans in the expanded zone (within inner London) are expected to reduce by five per cent in the first year.<sup>11</sup>

However, there is more to be done including taking action to reduce vehicle kilometres travelled on London's roads by 27 per cent by 2030.

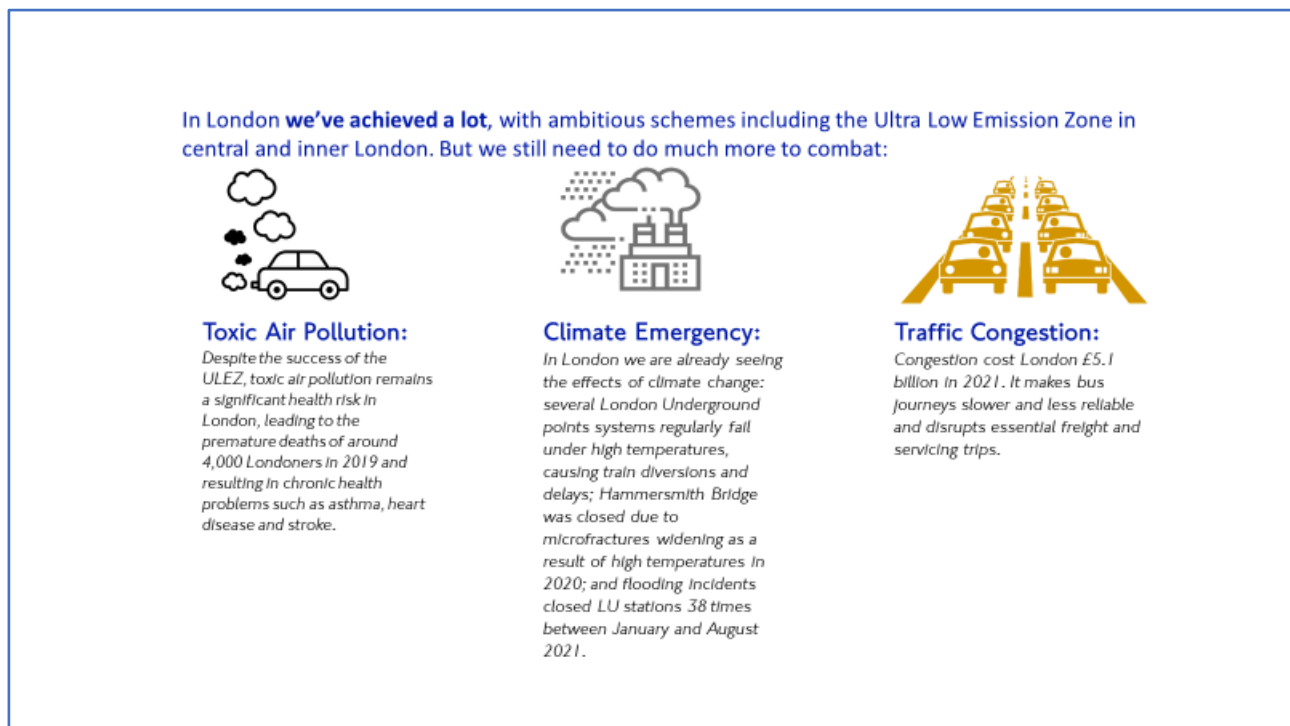
## 3. Traffic congestion

Vehicle congestion cost London £5.1 billion in 2021.<sup>12</sup> Congestion levels have returned to close to pre-Covid-19 pandemic levels. Congestion leads to gridlocked traffic as well as

increasing air pollution and carbon emissions. It also has adverse impacts on journey times for bus users, making this a less attractive mode of transport, and impacts on essential trips such as freight and servicing (including the emergency services).

Road user charging schemes can make a contribution to reducing congestion as demonstrated by the Congestion Charge in central London. The inner London ULEZ has only been in operation for a relatively short time but has already resulted in around 11,000 fewer vehicles in the expanded zone on an average weekday (about a one per cent reduction of traffic).<sup>13</sup>

### Figure 1: London faces the triple challenges of toxic air pollution, the climate emergency and traffic congestion



### Addressing the triple challenges

Each element of the triple challenges is complex and cannot be comprehensively addressed by any one measure. Nonetheless, reducing traffic is key to addressing each element; road user charging schemes have proven to be successful in doing so and will need to be part of the solution. Depending on the scheme design and objectives, impacts across each of the three challenges could vary.

Road user charging schemes can also support other MTS objectives, such as the target of 80 per cent sustainable mode share by 2041 and Vision Zero for road danger. They can also help Londoners to achieve the 20 minutes of active travel that is recommended for good health and wellbeing.



In the light of this, the Mayor has developed a new proposal:

**Proposal 24.1:**

The Mayor, through TfL and the boroughs, will seek to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion through road user charging schemes including by expanding the Ultra Low Emission Zone London-wide.

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<sup>1</sup> Central London ULEZ 2020 Report, March 2021

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<sup>2</sup> Expanded ULEZ First Month Report, 2021

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<sup>3</sup> Next Steps for Reducing Emissions from Road Transport, TfL, Jan 2022 <https://content.tfl.gov.uk/next-steps-for-reducing-emissions-from-road-transport.pdf>

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<sup>5</sup> LAEI press release: <https://www.london.gov.uk/press-releases/mayoral/huge-progress-made-in-improving-londons-aq> and LAEI 2019 [summary note](#)

<sup>6</sup> IPCC (2021) [Sixth Assessment Report \(ipcc.ch\)](#)

<sup>7</sup> [https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC\\_AR6\\_WGII\\_SummaryForPolicymakers.pdf](https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf)

<sup>8</sup> London Net Zero 2030: An updated pathway, GLA, 2022:

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<sup>12</sup> <https://inrix.com/press-releases/2021-traffic-scorecard-uk/> This figure does not take into account the cost of congestion on bus passengers and bus operating costs.

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**~~Proposed Revision of Addendum to the~~  
~~Mayor's Transport Strategy (MTS):~~  
~~Proposal 24.1 to enable an expansion of~~  
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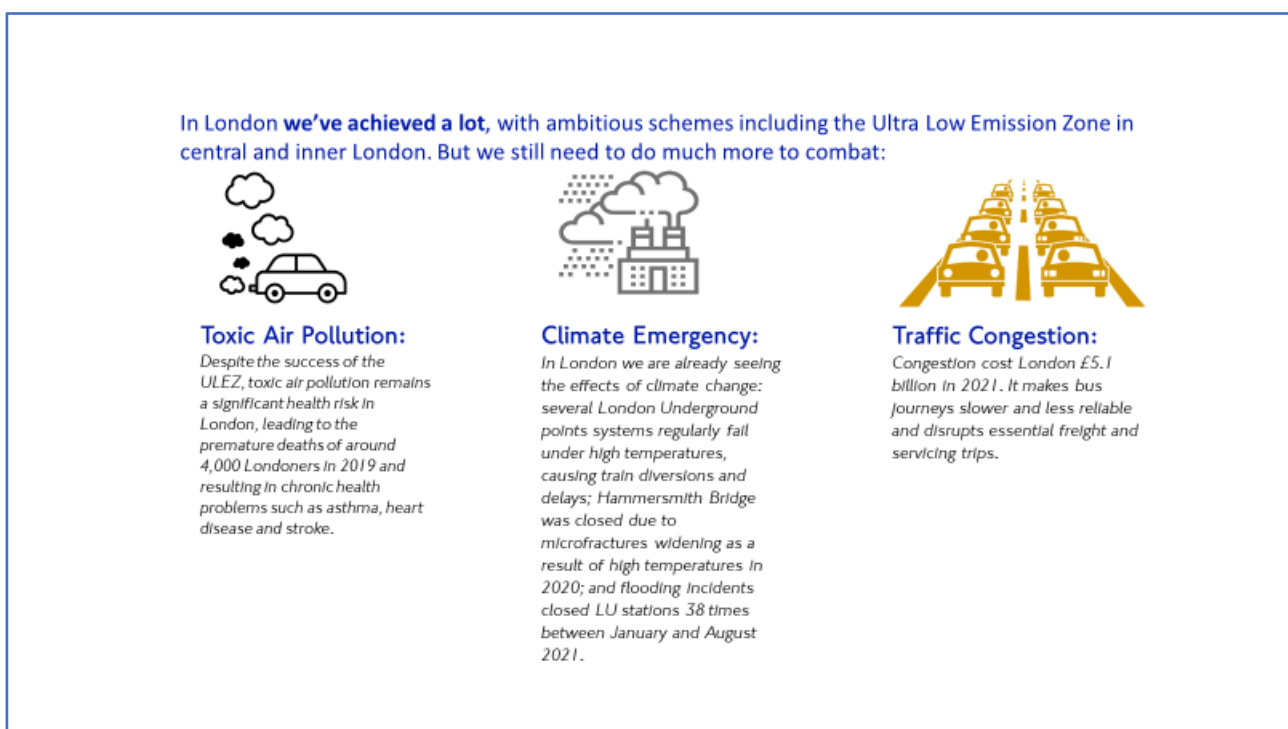
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Road user charging schemes can make a contribution to reducing congestion as demonstrated by the Congestion Charge in central London. ~~The inner London ULEZ has only been in operation since October 2021 but early indications suggest it has contributed to a reduction of around 21,000 vehicles (around two per cent) in the expanded zone on an average day compared to the month before the launch of the scheme.<sup>1</sup> The inner London ULEZ has only been in operation for a relatively short time but has already resulted in around 11,000 fewer vehicles in the expanded zone on an average weekday (about a one per cent reduction of traffic).<sup>14</sup>~~

**Figure 1: London faces the triple challenges of toxic air pollution, the climate emergency and traffic congestion**



## Addressing the triple challenges

Each element of the triple challenges is complex and cannot be comprehensively addressed by any one measure. Nonetheless, reducing traffic is key to addressing each element; road user charging schemes have proven to be successful in doing so and will need to be part of the solution. Depending on the scheme design and objectives, impacts across each of the three challenges could vary.

~~Proposals for any new or amended RUC schemes would need to be introduced in accordance with statutory procedure, including consultation requirements.~~

Road user charging schemes can also support other MTS objectives, such as the target of 80 per cent sustainable mode share by 2041 and Vision Zero for road danger. They can also help Londoners to achieve the 20 minutes of active travel that is recommended for good health and wellbeing.

In the light of this, the Mayor has developed a new proposal:

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# References

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- <sup>2</sup> Mayor of London press release, 19 July 2022 <https://www.london.gov.uk/press-releases/mayoral/londoners-breathing-cleaner-air-thanks-to-ulez>
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Proposals to help improve air quality,  
tackle the climate emergency, and  
reduce congestion by expanding the  
ULEZ London-wide and other  
measures

Proposed revision to the Mayor's  
Transport Strategy

Transport for London

August 2022

## Quality information

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Graduate Consultant	Consultant	Principal Consultant	Regional Director

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2	14.09.22	Revised following comments received		Principal Consultant
3	16.09.22	Revised following comments received		Principal Consultant
4	21.09.22	Revised following comments received 20.09.22		Regional Director

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# 1. Introduction

## 1.1 Background: Overview of the consultation

The Mayor's Transport Strategy (MTS) is a statutory document that sets out the Mayor's vision for transport in London. Transport for London (TfL), the London boroughs and other stakeholders use the MTS to plan and provide transport in London. All transport services and planning in London must align with the MTS.

TfL, on behalf of the Mayor, has consulted on a proposed revision to the MTS which would support the proposal to expand the Ultra Low Emission Zone (ULEZ) London-wide from August 2023 and provide a policy basis for future road user charging measures.

### 1.1.1 Consulting on the revision to the Mayor's Transport Strategy

In the current MTS, Proposal 24 sets out that the ULEZ will be expanded to inner London. This took place in October 2021. Proposal 24 would need to be supplemented to enable the ULEZ to be expanded to outer London so that it applies London-wide. In addition, it is proposed to provide for road user charging schemes to address the triple challenges of the climate emergency, toxic air pollution and traffic congestion.

A new Proposal 24.1 would be supplemented to the Mayor's Transport Strategy as follows:

#### **Proposal 24.1**

The Mayor, through TfL and the boroughs, will seek to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion through road user charging schemes including by expanding the Ultra Low Emission Zone London-wide

## 1.2 The consultation

TfL held a consultation between 20 May 2022 and 29 July 2022 (10 weeks) on the following proposals:

- Expansion of the Ultra Low Emission Zone (ULEZ) London-wide from August 2023;
- Removal of the annual £10 registration fee for Auto Pay for the ULEZ, Congestion Charge and the Low Emission Zone (LEZ);
- Changes to the penalty charge level for non-payment of the ULEZ and the Congestion Charge; and
- Changes to the Mayor's Transport Strategy.

In addition, TfL also sought views on the future of road user charging.

The findings from the consultation will be used to inform the decisions by the Mayor of London on the proposed changes. The Mayor will first decide on whether to publish the proposed revision to the MTS and then will make decisions on the remainder of the proposals as well as taking note of the comments on the future of road user charging.

## 1.3 The questionnaire

TfL designed and hosted the questionnaire on Have your say, the TfL consultation portal.

The questionnaire gave space to record any comments about the proposed revision to the MTS. The proposed revision was described in a supporting document and the text of proposed revision to the MTS was also provided.

Question 14 in the questionnaire asked:

**Please use this space to give us any comment about the proposed revision to the Mayor's Transport Strategy**

A copy of the questionnaire can be found in **Appendix A**.

## **1.4 AECOM's role in the consultation**

AECOM were appointed to carry out the following tasks:

- Thematic coding of open-ended questions;
- Quantitative analysis of the closed questions and demographic questions; and
- Cleaning and analysis of postcode data provided.

## **1.5 Format of report**

This report summarises the responses to the proposed MTS revision question (Question 14) in the consultation only.

The responses to the ULEZ and future road user charging questions asked in the consultation are available in a separate report.

The format for the report, following this introduction, is:

- Chapter 2: describes the methodology used; and
- Chapter 3: details the key findings to the MTS section of the consultation.

## 2. Methodology

### 2.1 Receiving responses

Most responses were received via the consultation questionnaire hosted on the TfL portal. To ensure inclusivity, TfL also gathered responses via email and hardcopy questionnaire. An “easy read” version of the questionnaire was also available.

TfL entered all responses received by methods other than the online questionnaire into the TfL portal. The database was delivered to AECOM in weekly batches for processing, analysis, and reporting.

### 2.2 Campaigns

When analysing the responses, it is apparent the consultation was subject to a number of campaigns, several of which commented on the proposed MTS revision. The campaigns that commented on the MTS revision were:

- **Fair Fuel UK:** a total of 4,726 responses were received. The response to the MTS used in this campaign was:

*“....we oppose amendments to the Mayor's Transport Strategy to enable him to charge us for driving virtually anywhere in Greater London....”*

- **London Friends of the Earth Network (via Action Network):** a total of 705 responses were received. The response to the MTS used in this campaign was the same as Wearepossible.org:

*“Please accept this email as my response to the consultation on proposals to extend the Ultra Low Emission Zone (ULEZ) London-wide from 29 August 2023. I agree with the proposed amendments to the Mayor's Transport Strategy.”*

- **Wearepossible.org:** a total of 4,312 responses were received. The response to the MTS used in this campaign was:

*“Please accept this email as my response to the consultation on proposals to extend the Ultra Low Emission Zone (ULEZ) London-wide from 29 August 2023. I agree with the proposed amendments to the Mayor's Transport Strategy.”*

All three campaigns listed above gave additional feedback to the consultation and this is included in AECOM's ULEZ/Future of road user charging report. In addition, two more campaigns were received about the ULEZ, but these responses did not refer directly to the MTS and therefore are not included in this report.

### 2.3 Thematic coding

All free-text responses and letters and emails were grouped into themes to allow meaningful analysis. Letter and email responses were combined with the free text comments given in the questionnaire for analysis purposes.

Where possible, free text responses have been analysed by topic rather than response to a question to allow meaningful analysis and avoid double counting where respondents have given the same response to several questions.

The themes from each question were created by AECOM using the initial set of responses, and these were verified by TfL before full coding began. Where new themes emerged, these

were verified before continuing. A minimum of 10 per cent quality assurance checks and validation were completed on the coding for each question by both AECOM and TfL.

### 2.3.1 Thematic coding for the MTS

While the questionnaire asked this specific question “**Please use this space to give us any comment about the proposed revision to the Mayor’s Transport Strategy**”, responses about the MTS were received in other locations, therefore themes were coded using the following criteria, either:

- In direct response to this question in the survey;
- In one of the other two free text boxes where comments were requested and the respondent specifically referred to the MTS or the triple challenges of toxic air pollution, the climate emergency and traffic congestion; or
- By email and with a reference to the MTS.

Under TfL’s direction, only comments received in direct response to the question or comments provided elsewhere that referred to the MTS or Mayor’s Transport Strategy specifically were included in the thematic coding for MTS. Any other comments were coded and included as part of a separate report about the ULEZ and the future of road user charging.

## 2.4 Analysis and reporting

The consultation was open to all and, respondents were self-selecting. This, coupled with the fact respondents could choose which of the questions they answered, means the results and responses should be viewed as indicative of the wider population and any identified sub-groups rather than representative. The profile of respondents is detailed in the next section.

It is important to note that only Table 2.1 (below) includes stakeholder responses.

## 2.5 Respondent profile

### 2.5.1 Type of respondent

A total of 57,913 responses were received for the consultation, of which 57,579 were from the public and 334 were classified as stakeholders by TfL. An additional 8 responses categorised as stakeholders were submitted to TfL after the deadline, these are not included in this report but have been considered in TfL’s report to the Mayor.

Of the 57,913 responses, 11,868 were identified as campaign responses, the total number of responses not including campaigns was 46,045.

**Table 2.1 Total Respondents**

Number of Respondents	Public	Stakeholders	Total
Total	57,579	334	57,913

Of the 57,913 respondents, 20,836 respondents (36 per cent) provided a comment about the MTS. The following Tables and Figures show the number of respondents that provided a comment about the MTS within the questionnaire. Some of the closed questions were not answered by respondents. Those who responded via email did not generally provide responses to closed questions. This has resulted in some base numbers being lower than the amount of people responding to the consultation.

Respondents represented the following types of respondent.



**Table 2.2 Respondent Type**

<b>Respondent type</b>	<b>Count</b>	<b>Percentage</b>
Employed in the current inner London ULEZ	3,424	33
Employed in outer London	3,163	30
A visitor to Greater London	1,132	11
A business owner in outer London	1,123	11
An owner of a business in the current inner London ULEZ	448	4
A London licensed taxi (black cab) driver	43	0
A London licensed private hire vehicle driver	32	0
None of these but interested in the proposals	2,694	26
Total	10,405	100

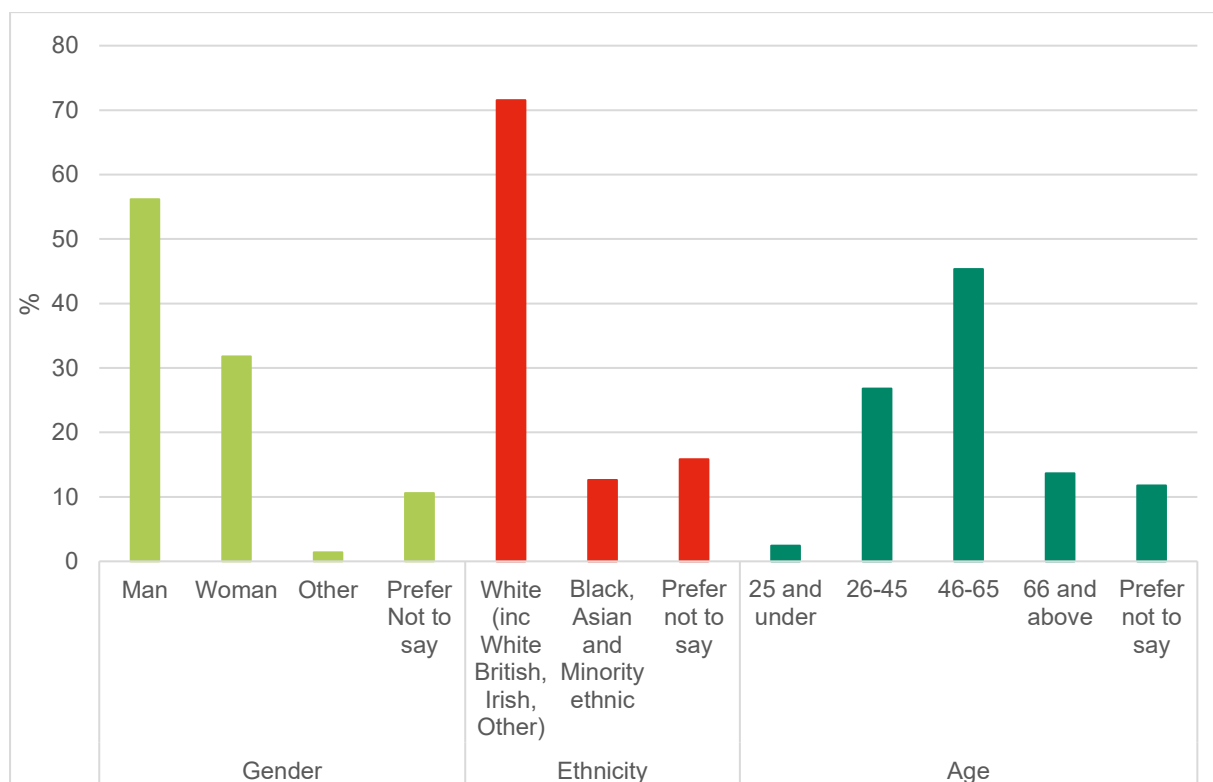
Respondents can be represented in more than one group therefore percentages do not add to 100

**Table 2.3 Respondent Residency**

<b>Respondent Residency</b>	<b>Count</b>	<b>Percentage</b>
In the current inner London ULEZ	4,831	23
In outer London	9,693	47
Neither of the above	5,177	25
Don't know	1,135	5
Total	20,836	100

## 2.5.2 Respondent profile

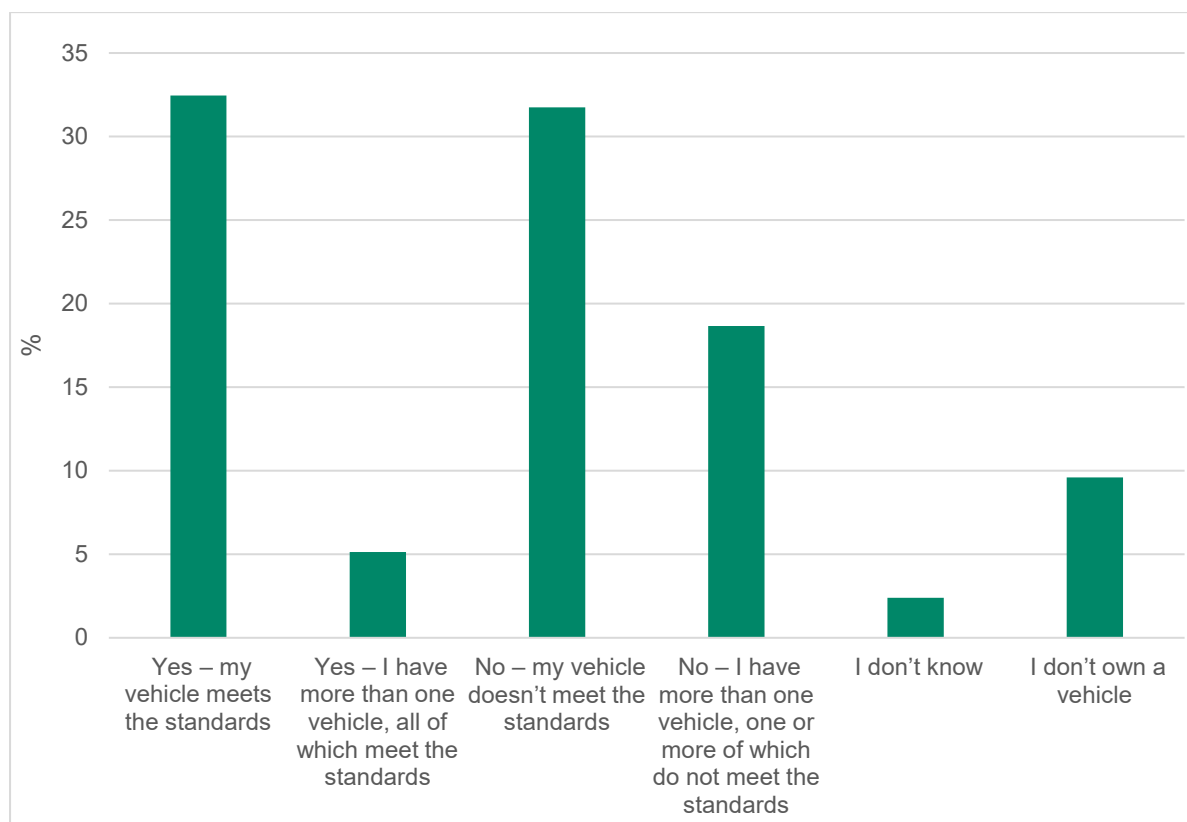
Respondents provided details about themselves such as age, gender and ethnic origin. These questions were optional. The percentages in Figure 2.1 are of those who provided this information and not of all respondents. Any difference in response by demographic profile should be treated with caution.

**Figure 2.1 Respondent profile**

Base: all respondents who provided demographic information (Gender 9,605; Ethnicity 9,604; Age 9,660).

All respondents who completed the survey were asked whether their vehicles would meet the required emissions standards, and a vehicle checker was provided for those who were unsure. Figure 2.2 shows that 37 per cent of those who responded about the MTS owned a vehicle or vehicles which all met the emissions standards for the ULEZ, while 51 per cent who responded about the MTS owned at least one vehicle that did not meet the emissions standards for the ULEZ.

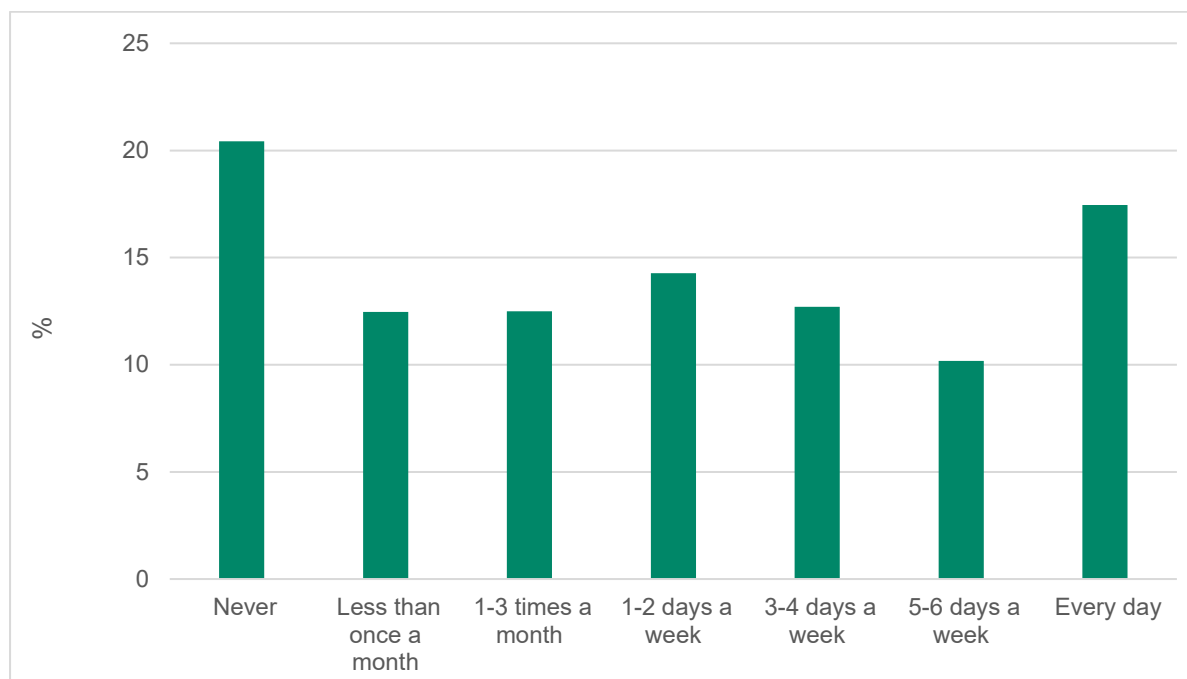
**Figure 2.2 Respondent vehicle type (%)**



Base: all respondents who answered (10,716)

Respondents were asked about their frequency of driving in Greater London with 17 per cent stating every day and 20 per cent stating they never drive in Greater London.

**Figure 2.3 How often do you drive in Greater London?**



Base: all respondents who answered (13,742)

### 3. Key Findings: Revisions to the MTS

#### 3.1 Introduction

The themes that were provided in response to the consultation question referring to the revision of the MTS are described in this section. Of the 57,913 respondents, 20,836 respondents (36 per cent) provided a comment about the MTS.

The majority of the comments provided were about the revisions to the MTS (19,817) while others only commented about the triple challenges being addressed (1,722) and some commented about both revisions the triple challenges.

**Table 3.1 Comments about the Revisions to the MTS**

	All responses	Public (including campaigns)	Public (excluding campaigns)	Stakeholder
Oppose / disagree with the revisions to the MTS to expand the ULEZ	7,653	7,637	2,909	16
Support / agree with the revisions to the MTS (general comments)	6,192	6,164	1,149	28
Oppose / disagree with the revisions to the MTS (general comments)	4,607	4,600	4,600	7
Revisions to MTS / ULEZ expansion are not justified / insufficient supporting evidence provided	762	723	723	39
Support / agree with the revisions to the MTS to expand the ULEZ	449	432	410	17
MTS should go further to achieve stated aims / should be more ambitious	191	184	184	7
Suggest there should be a vote / referendum on MTS revisions / ULEZ expansion	162	160	160	2
Other comments about the MTS revisions	123	115	115	8
Support the revision to the MTS but feel that the wording needs changing / suggestions of alternative wording	48	38	38	10
Was not aware of the MTS / its role in improvements / planning	23	23	23	0
Total number who commented on this topic	19,817	19,707	9,942	110

As mentioned in the addendum, Proposal 24.1, the Mayor, through TfL and the boroughs, **will seek to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion through road user charging schemes** including by expanding the Ultra Low Emission Zone London-wide Table 3.2 shows the comments provided about these challenges.

**Table 3.2 Comments about addressing the Triple Challenges**

	<b>All responses</b>	<b>Public (including campaigns)</b>	<b>Public (excluding campaigns)</b>	<b>Stakeholder</b>
Support / agree that air quality / health and wellbeing is an important topic / needs to be improved	937	912	909	25
Oppose / disagree that air quality/health and wellbeing is an important topic / does not need to be improved	410	409	409	1
Support / agree that climate emergency is an important topic / environmental impact needs to be improved	339	318	318	21
Support / agree that traffic congestion is an important topic / needs to be improved	284	266	265	18
Oppose / disagree that climate emergency is an important topic / environmental does not need to be improved	144	144	144	0
Oppose / disagree that traffic congestion is an important topic / does not need to be improved	123	123	123	0
Total number who commented on this topic	1,722	1,694	1,691	28

In addition, AECOM looked for comments about the integrated impact assessment carried out for the MTS, 18 respondents commented about this, of which 14 were from members of the public and 4 from stakeholders.

## 4. Comments on the consultation process and material

### 4.1.1 Summary

Respondents rated the quality of website accessibility highest, with 73 per cent considering it to be adequate, good, or very good. Respondents rated the quality of the consultation to be adequate, good, or very good in terms of written information (67 per cent) and website structure and ease of finding what they needed (67 per cent). There were mixed opinions about the online survey format, with 66 per cent rating it as adequate, good, or very good but 30 per cent rating it as poor or very poor.

**Table 4.1 What do you think about the quality of this consultation? (%)**

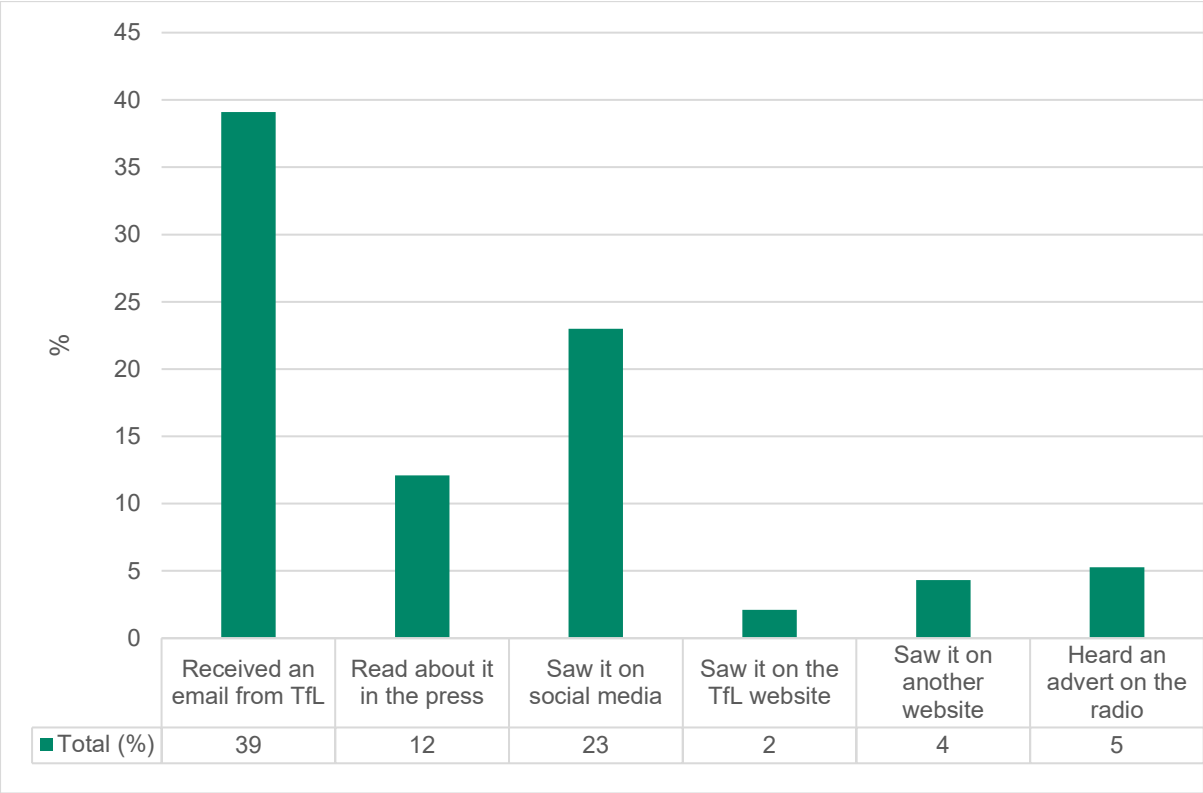
Component of consultation	Very good	Good	Adequate	Poor	Very poor	N/A
Website structure & ease of finding what you needed	10	21	36	12	15	6
Written information	9	21	37	13	14	7
Online survey format	9	21	36	15	15	3
Website accessibility	9	25	39	9	10	8
Maps, images & related diagrams	7	16	33	13	13	17
Promotional material	4	10	28	14	17	27
Events and drop-in sessions	2	4	14	10	17	53

Base: Website 10,424, Written info 10,347, Maps 10,299, Online survey 10,368, Website accessibility 10,322, Promotional material 10,239, Events 10,223.

### 4.1.2 How respondents heard of consultation

As part of a process to monitor and improve methods of communication to the public, TfL asked respondents how they heard about the consultation. Of those that responded, 39% had received an email from TfL inviting them to take part.

Figure 4.1 How did you hear about this consultation (the main way you heard)?



Base: all respondents who answered (10,624)

## Appendix A – Questionnaire

### 1. Background

We are consulting on proposals to extend the Ultra Low Emission Zone (ULEZ) London-wide from 29 August 2023. The current zone is within the North and South Circular Roads.

The ULEZ sets minimum emissions standards for “light” vehicles, such as cars, motorcycles and vans: drivers of vehicles that don’t comply must pay a £12.50 daily charge to drive within the Zone unless an exemption or discount applies. Most drivers in Greater London already have compliant vehicles with more than four in five vehicles in outer London already meeting ULEZ standards.

These proposals are part of the commitment by the Mayor of London and TfL to help improve air quality and public health, tackle the climate emergency and reduce traffic congestion.

Please answer two background questions first.

#### Q1. How concerned are you about air quality where you live?

*Concern scale: very concerned/ concerned/ No opinion /unconcerned/very unconcerned/don’t know*

*[question type - radio button]*

**Q2. Does your vehicle(s) meet the emission standards required to drive in London without paying the ULEZ charge?** Click [here](#) (link to checker) to check your vehicle if you are unsure.

- Yes – my vehicle meets the standards
- Yes – I have more than one vehicle, all of which meet the standards
- No – my vehicle doesn’t meet the standards
- No – I have more than one vehicle, one or more of which do not meet the standards
- I don’t know
- I don’t own a vehicle

*[question type - radio button]*



## 2. Proposed expansion of the Ultra Low Emission Zone (ULEZ) London-wide in 2023 including changes to Auto Pay and Penalty Charge levels

The following questions are about our proposals for the expansion of the ULEZ London-wide. These include questions on discounts, exemptions, reimbursements, and a vehicle scrappage scheme. There are also questions on changes to Auto Pay and Penalty Charge Notice levels for non-payment of the ULEZ and Congestion Charges. For full details please see the consultation materials.

Some drivers and vehicles qualify for a discount, exemption or reimbursement under the current inner London ULEZ and it is proposed that these arrangements would continue to apply in the expanded zone.

Full information is available here: [tfl.gov.uk/modes/driving/ultra-low-emission-zone/discounts-and-exemptions](https://tfl.gov.uk/modes/driving/ultra-low-emission-zone/discounts-and-exemptions)

In addition, some vehicles qualified for a temporary 100 per cent ULEZ discount and it is proposed that these arrangements are extended to the dates indicated below to allow further time to adjust to the proposed expansion:

- Disabled and disabled passenger tax class vehicles (until 24 October 2027)
- Wheelchair accessible private hire vehicles (until 24 October 2027)
- Minibuses used for community transport (until 26 October 2025)

### **Q3. Are you registered for a discount or entitled to an exemption for the current ULEZ?**

Yes/No/Don't know [*question type - radio button*] if yes selected please open to the choices. Below

Please indicate the relevant discount or exemption

- Vehicles for disabled people (with 'disabled' or 'disabled passenger vehicle' tax class)
- Minibuses used for community transport registered for discount
- Wheelchair-accessible private hire vehicles
- Other exempt vehicles, such as specialist agricultural vehicles, military vehicles, non-road going vehicles and mobile cranes
- Taxis
- Historic vehicles
- Showman's vehicles registered for discount
- Other (please use the comments box at the end of this section of the questionnaire to let us know)

[*question type – check box and skip logic*]

Some drivers and vehicles can claim a reimbursement of the ULEZ daily charge under an NHS patient reimbursement scheme. Full information is available here:

<https://tfl.gov.uk/modes/driving/reimbursements-of-the-congestion-charge-and-ulez-charge>

**Q4. Have you claimed a reimbursement of the ULEZ charge under the NHS patient reimbursement scheme?**

Yes/No/Don't know

*[question type - radio button]*

**Q5. How important do you consider it is to continue to have these existing discounts and exemptions and reimbursements for the ULEZ?**

*Importance scale (very important important/no opinion/unimportant/very unimportant/don't know)*

*[question type - radio button]*

Please use the comments box at the end of this section of the questionnaire to let us know of any views you have on this issue.

**Q6. Do you think we should provide any further discounts, exemptions or reimbursements for the ULEZ?**

Yes/No/don't know

*[question type - radio button]*

Please use the comments box at the end of this section of the questionnaire to let us know any views you have on this issue.

**Q7. We are proposing to expand the ULEZ London-wide on 29 August 2023. What do you think of the implementation date?**

- It should be earlier
- It is the right date
- It should be later
- It should not be implemented at all
- I don't know

*[question type - radio button]*

Please use the comments box at the end of this section of the questionnaire to let us know of any views you have on this issue

For the London-wide ULEZ proposal the Mayor is considering a large-scale and targeted vehicle scrappage scheme to support Londoners, including, for example, those on low incomes, disabled people, charities and businesses.

**Q8. How important is it that the proposed expansion of the ULEZ is supported by a scrappage scheme?**

*Importance scale*

*[question type - radio button]*

Please use the comments box at the end of this section of the questionnaire to let us know of any views you have on this issue.

To ensure that Penalty Charge Notices (PCNs) remain an effective deterrent, we are proposing to increase the PCN for the ULEZ from £160 to £180 for people with a non-compliant vehicle who do not pay the daily charge from 30 January 2023. We are also proposing to increase the PCN for the Congestion Charge, by the same amount, at the same time. If paid within 14 days, the amount would reduce by half.

**Q9. Do you consider the proposed PCN level of £180 is?**

- *Sufficient to act as an effective deterrent*
- *Not high enough to act as an effective deterrent*
- *Too high*
- *Do not know*
- *No opinion*

*[question type - radio button]*

Please use the comments box at the end of this section of the questionnaire to let us know of any views you have on this issue.

**Q10. How important is it that we remove the annual £10 Auto Pay administration fee per vehicle (for the ULEZ, the Low Emission Zone (LEZ), and the Congestion Charge)?**

The proposed removal of this fee would take place from 30 January 2023.

*Importance scale*

*[question type - radio button]*

Please use the comments box at the end of this section of the questionnaire to let us know of any views you have on this issue.

There are strict rules in place controlling the use of personal information. We have completed a Data Protection Impact Assessment available on our website. This sets limits on how this information can be used.

**Q11. How concerned are you about use of your data and the installation of more Automatic Number-Plate Recognition (ANPR) cameras to collect information on vehicle movements to enforce an expanded London-wide ULEZ?**

*Concern scale*

*[question type - radio button]*

Please use the comments box at the end of this section of the questionnaire to let us know of any views you have on this or anything else related to the use of personal information in an expanded ULEZ scheme.

**Q12. If you own a vehicle(s) that is not currently compliant with emissions standards and if we proceed with our proposals to expand the ULEZ to outer London , what do you intend to do?**

(if your vehicle is compliant or you do not own a vehicle skip this question). Please tick all that apply.

- Walk or cycle more
- Use public transport more
- Use taxis or private hire vehicles more
- Use a car club
- Trade the vehicle in for a compliant one
- Get rid of the vehicle
- Pay the charge when I use the vehicle
- Not make journeys I would have done
- I would do something else not listed
- Don't know

*[question type – check box]*

Please use the comments box at the end of this section of the questionnaire to let us know of any views you have on this issue.

**Q13. Please use this space to give us any comments about these proposals or impacts identified as part of the Integrated Impact Assessments. If you have identified any impacts, please let us know any suggestions to mitigate or enhance these.**

*[question type – open]*

### 3. Revision of the Mayor's Transport Strategy (MTS)

The Mayor's Transport Strategy (MTS) is a document that sets out the Mayor's vision for transport in London.

In the current MTS, Proposal 24 sets out that the ULEZ will be expanded to inner London in 2021, which happened in October 2021.

We now need a supplementary proposal and text to explain the importance of road user charging schemes, including the proposed London-wide ULEZ, to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion as well as other MTS objectives.

These changes are described in a supporting document for the proposed amendments to the Mayor's Transport Strategy, and the draft amendment

**Q14. Please use this space to give us any comments about the proposed revision to the Mayor's Transport Strategy.**

[question type – open]

## Shaping the future of road user charging in London

### Scene setting

Please let us know how important you think it is for us to take steps to address the triple challenges affecting London of improving air quality, tackling the climate emergency and reducing traffic congestion.

**Q15. How important is it to you that we take further steps to tackle air pollution in London?**

*Importance scale*

*[question type – radio button]*

**Q16. How important to you is it that we take further steps to tackle the climate emergency by reducing emissions in London?**

*Importance scale*

*[question type - radio button]*

**Q17. How important to you is it that we take further steps to tackle traffic congestion in London?**

*Importance scale*

*[question type - radio button]*

**Q18. How important to you is it that we take further steps to improve the health of Londoners and address health inequality in London?**

*Importance scale*

*[question type - radio button]*

Each element of the triple challenges is complex and cannot be comprehensively addressed by any one measure. Reducing traffic is key; road user charging schemes have proven to be successful in achieving this and will need to be part of the solution.

New technology could be used to integrate existing schemes such as the Congestion Charge, LEZ and ULEZ into a smarter, simpler and fair scheme that would charge motorists on a per mile basis. Different charging rates would apply depending on variables such as how polluting a vehicle is, the level of congestion in the area and access to public transport.

For any new road user charging scheme to be effective, we would also need to continue to make improvements to walking, cycling and public transport. If we do all of these things together, we could reduce traffic, making room for essential car journeys, improving journey times for buses, emergency services and freight and servicing trips as well as cutting the number of hours spent stuck in traffic and its associated costs. We are now starting to explore the potential for future road user charging.

Any potential scheme would be subject to further public and stakeholder consultation on detailed proposals at a later date.

More information is available in the document “Our Proposals to help improve air quality, tackle the climate emergency, and reduce congestion by expanding the ULEZ London-wide and other measures”

Please answer three questions to help shape the future of road user charging in London.

**Q19. If we were to develop a future road user charging scheme to replace our existing schemes, how important is it for the new scheme to address the following challenges?**

Challenges	Very important	Important	No opinion	Unimportant	Very unimportant	Don't know
Tackle air pollution						
Tackle the climate emergency by reducing emissions						
Tackle traffic congestion						
Improve health and well-being						
Provide more space for walking and cycling						
Improve bus journey times and reliability						
Improve journey times and reliability for freight and servicing trips						
Make roads safer for everyone						

*[question type – likert] Use matrix style question with challenges in the vertical column and importance scale on the horizontal – example format shown in notes*

Please use the comments box at the end of this section of the questionnaire to let us know of any views you have on this issue.

**Q20. If we develop a future road user charging scheme to replace existing schemes, what elements should be considered?** (select all that apply)

- The distance driven
- The time of day
- The type of vehicle (for example car, van, Heavy Goods Vehicle)
- How polluting the vehicle is
- Where the vehicle is driven in London
- The alternatives available for walking, cycling or public transport
- Household income
- Ability to choose between daily charges and pay as you go
- The number of journeys driven each day, week or month
- Other costs of driving (fuel duty and Vehicle Excise Duty)

*[question type – check box]*

Please use the comments box at the end of this section of the questionnaire to let us know of any views or suggestions you have to help shape the future of Road User charging.

**Q21. Please use this space to give us any comments or suggestions you have about shaping the future of road user charging in London.**

Open question



## About you:

**Demographics are asked when registering on the portal**

### **Q22. Are you a resident:**

- In the current inner London ULEZ (the area within the North and South Circular)
- In outer London
- Neither of the above
- Don't know

*[question type - radio button]*

### **Q23. Please confirm your postcode**

---

### **Q24. Are you please tick all that apply (profile of respondent)**

- An owner of a business in the current inner London ULEZ (the area within the North and South Circular)
- A business owner in outer London
- Employed in the current inner London ULEZ
- Employed in outer London
- A visitor to Greater London
- A London licensed taxi (black cab) driver
- A London licensed private hire vehicle driver
- None of the above but interested in the proposals

Other (please specify)

*[question type - checkbox]*

### **Q25. How often do you drive in Greater London?**

Never/ less than once a month/ 1-3 times a month/ 1-2 days a week/ 3-4 days a week/ 5-6 days a week/ every day

*[question type - radio button]*

### **Q26. If you are responding as an official representative of an organisation then please provide your organisational name \_\_\_\_\_**

### **Q27. What do you think about the quality of this consultation?**

Very good/good/adequate/poor/very poor/not applicable

- Website structure and ease of finding what you needed
- Written information
- Maps, images and related diagrams
- Online survey format
- Website accessibility
- Promotional material

No open question for the quality of consultation

*[question type – likert]*

[aecom.com](http://aecom.com)



**Proposed Mayor's Transport Strategy (MTS) revision Integrated Impact  
Assessment (MTS IIA)**

**IIA Report**

**17 May 2022**

**Transport for London**

**TfL**

**MTS Revision IIA Report**

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1	19/04	Outline Draft	AC	JP	JP	AO
2	29/04	Full Draft	AC	JP	JP	AO
3	12/05	Final Drat	AC	JP	JP	AO

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## Non Technical Summary

### Background

Air pollution is a significant public health challenge in London. Imperial College London assessed the impact on health of the mayoral air quality policies, and air pollution in London, based on 2019 and future levels of air pollution up to 2050. The highest number of deaths were identified in the outer London boroughs, mainly due to the higher proportion of elderly people in these areas, who are more vulnerable to the impacts of air pollution<sup>1</sup>.

On 4<sup>th</sup> March 2022, the Mayor announced that he had asked TfL to seek to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion through road user charging schemes including by expanding the Ultra Low Emission Zone (ULEZ) London-wide.

To facilitate these proposals, the Mayor considers that the current Mayor's Transport Strategy (MTS), published in 2018, needs to be revised.

Proposal 24 of the MTS currently states '*The Mayor, through TfL, will seek to introduce the central London Ultra Low Emission Zone (ULEZ) standards and charges in 2019, tighter emissions standards London-wide for heavy vehicles in 2020, and an expanded ULEZ covering inner London in 2021.*'

This proposal has served its purpose as in April 2019 the Mayor introduced the ULEZ, the world's toughest vehicles emission standards, in central London. The LEZ standard was tightened to Euro VI for HGVs, buses, coaches and other specialist vehicles on 1 March 2021. The ULEZ was then expanded to inner London in October 2021. Proposal 24 does not provide for the further expansion of the ULEZ and it is necessary that the proposal is supplemented with a new proposal and narrative that sets out how expansion of the ULEZ London-wide could help address the challenges that London is facing notwithstanding the successful implementation of the measures proposal 24 provided for. This is the nature of the proposed revision to the MTS that is being contemplated (Proposed MTS Revision).

TfL commissioned Jacobs in February 2022 to undertake an Integrated Impact Assessment (IIA), incorporating a Strategic Environmental Assessment (SEA) to assess the likely significant effects and impacts of the Proposed Revision (Proposed MTS Revision IIA).

### Proposed Revision and Alternatives considered

The Proposed MTS Revision under consideration would **provide for the expansion of the ULEZ beyond the north and south circular roads to cover almost the whole of Greater London (London-wide)**. Together with supporting narrative, a new proposal (proposal 24.1) would be added to the MTS as follows:

The Mayor, through TfL, and the boroughs, will seek to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion through road user charging schemes, including by expanding the Ultra Low Emission Zone London-wide.

The implementation of this proposal through the expansion of the ULEZ London-wide, including a scheme level IIA, will also be subject to public and stakeholder consultation, alongside the Proposed MTS Revision.

Two reasonable alternatives (the Alternatives) to the London-wide ULEZ which are also to be considered in this IIA are:

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<sup>1</sup> <https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/health-burden-air-pollution-london>

- Alternative A - Modifying the ULEZ to make it even more impactful in reducing emissions: building on the existing scheme by extending it to cover the whole of Greater London and adding small clean air charge for all but the cleanest vehicles
- Alternative B - A small, London-wide, clean air charge: a low level daily clean air charge for all but the cleanest vehicles to nudge behaviour and reduce the number of short journeys by car. This would operate on top of the existing ULEZ (central and inner London)

## **IIA Approach**

The purpose of this IIA is to assess the likely significant effects and impacts of the Proposed MTS Revision on the environment, the economy, equality, and health of Londoners to help inform the Mayor's decision on the changes to be introduced, including the design of any measures necessary to mitigate potential adverse impacts.

An IIA undertaken for the current MTS ("2018 MTS IIA") was published in 2017. This was followed by a Post Adoption Statement also published in 2018 which set out how the IIA had influenced the development of the strategy.

The IIA assessment framework as set out in the 2018 MTS IIA<sup>2</sup> has been retained and incorporates a strategic environmental assessment as required by the Environmental Assessment of Plans and Programmes Regulations 2004. Use of the assessment framework ensures a consistent approach is taken to the assessment and the findings of the current IIA can be read alongside the findings of the 2018 MTS IIA.

While the implementation of the London-wide expansion of ULEZ is likely to result in the potential for significant impacts on some of the topics, the impacts of the Proposed MTS Revision are relatively minor as only one proposal (Proposal 24) and accompanying text are being supplemented. Therefore, a proportionate and efficient approach was adopted for this IIA, while ensuring transparency of process. This approach was set out in the Scoping Report published in March 2022 and accepted by the Statutory Bodies<sup>3</sup>.

Acknowledging that the previous IIA was undertaken in 2018, policy and baseline data have been updated and presented in the accompanying 'London-wide ULEZ and MTS amendments baseline report for Integrated Impact Assessments' (hereafter referred to as "Baseline Report").

## **IIA Findings**

The purpose of this IIA is to determine whether the findings of 2018 MTS IIA would change as a result of the Proposed MTS Revision (and reasonable alternatives). As the previous IIA looked at the potential impacts of implementing the MTS in its entirety and this assessment focuses only on the impacts of adding a new proposal which will supplement only one existing proposal (Proposal 24), It has been assumed that the overall magnitude of change at a strategic level will be limited and a significant change in scale of effect or score for the MTS as a whole is unlikely.

Due to the nature of the Proposed MTS Revision (i.e. supplementing one Proposal – Proposal 24 - within the MTS) the overall magnitude of change at a strategic level will be limited. There are no impacts identified across any of the IIA objectives that are significant enough at this strategic level to change the assessment score for the MTS 2018 as a whole.

<sup>2</sup> <https://tfl.gov.uk/cdn/static/cms/documents/integrated-impact-assessment-report.pdf>

<sup>3</sup> Environment Agency, Natural England and Historic England.

The assessment did, however, identify some minor differences in the magnitude of the impacts as a result of implementing the Proposed MTS Revision compared with Alternative A (ULEZ expansion with a tighter standard) and Alternative B (Low level emission charge).

The assessment was informed by modelling presented in TfL's 'Next steps for reducing emissions from road transport'<sup>4</sup>. This modelling has been refined and updated for the more detailed assessment presented in the London-wide ULEZ IIA.

### **Environmental IIA Objectives**

The IIA has 11 assessment objectives that relate to environmental aspects of sustainability. The TfL modelling identifies that the Proposed MTS Revision and two Alternatives will see a reduction in NO<sub>x</sub> and carbon emissions and will help reduce volumes of road traffic and traffic congestion to a small degree. The ULEZ expansion with a tighter standard (Alternative A) would have the greatest reduction, however it should be noted the differences in reduction between the Proposed MTS Revision and two Alternatives are minimal in relation to the baseline. Limited modal shift is anticipated across the three options; however, Alternative A and Alternative B would provide the biggest shift due to the additional clean air charge. Positive impacts are identified on the historic environment, natural capital and noise and vibration as a result of reduced road traffic and the anticipated shift to low emissions vehicles. A shift to low emissions vehicles would result in a small negative impact on materials and waste as a result of the short-medium term increase in the number of non-compliant vehicles that would be scrapped, and the increase in demand for mineral resources in new replacement vehicles.

The assessment concluded that there are no impacts identified across the Proposed Revision and two Alternatives that are significant enough at this strategic level to change the existing scoring on the environmental objectives identified in the original 2018 MTS assessment.

### **Economic IIA Objectives**

The IIA has six assessment objectives that relate to the economy. The assessment identifies that the Proposed MTS Revision and Alternative A would result in negative impacts on employers in outer London due to the potential loss of individuals from outside Greater London who are willing to work in outer London. Businesses that operate outside standard working hours and in locations less accessible by public transport will be the most impacted especially those in the transport and distribution sectors and a range of building support services. Alternative B (Clean Air Charge) is likely to have the least impact on the economy.

As one of the biggest employers in outer London, it is anticipated that some employees at Heathrow Airport will be impacted by all the options as half of the airport's employees live outside Greater London. Some of this latter group may be more likely to switch jobs to avoid having to enter Greater London. There may also be minor negative impacts on outer London town centres retail activity due to the potential loss of spend from non-Greater London residents. Again, Alternative B would have the least adverse impact.

Under the Proposed MTS Revision and the two Alternatives there is also the potential for negative impacts for people on low incomes who travel by private vehicle in outer London to access employment or opportunities due to their lesser capacity to switch to a compliant vehicle and/or to change mode – especially those who are self-employed and rely on their vehicle to carry out their work, those who work in locations poorly served by public transport, or those who work out-of-hours.

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<sup>4</sup> Next steps for reducing emissions from road transport (TfL, January 2022). Available here: <https://content.tfl.gov.uk/next-steps-for-reducing-emissions-from-road-transport.pdf> [Accessed May 2022]



The assessment concluded that there are no impacts identified across the Proposed MTS Revision and two Alternatives that are significant enough at this strategic level to change the existing scoring on the economic objectives identified in the original 2018 MTS assessment.

### **Social and Health IIA Objectives**

The IIA included six assessment objectives that relate to the social and health objectives. The anticipated NO<sub>x</sub> emissions and carbon reductions would have corresponding health benefits due to the decreased level of air pollutants and may also encourage some people who have previously opted to travel by non-compliant vehicle into outer London to adopt walking or cycling to their destination instead of upgrading to a compliant vehicle or paying the charge.

The Proposed MTS Revision and two Alternatives would reduce the volume of road traffic on the transport network and reduce congestion to a small degree. In line with the previous assessment findings this may beneficially impact communities including the vulnerable who previously were disproportionately affected by traffic severance due to busy roads. However, there is also potential for communities which straddle the ULEZ boundary to be disproportionately impacted by the Proposed MTS Revision and the two Alternatives, as the charge(s) proposed could create a barrier between residents on either side of the boundary and between their homes and the facilities that they access on a regular basis (e.g. schools or other local facilities). Though it is considered that the scale of impact would be less with the Proposed Revision as the ULEZ would impact significantly fewer people than Alternatives A and B.

The Proposed MTS Revision and two Alternatives would result in disproportionate impacts on disabled people who are reliant on private vehicles to access employment and leisure opportunities and on older people. But far fewer are likely to be impacted by the Proposed MTS Revision given the relatively high levels of vehicle compliance and the grace period for disabled or disabled passenger vehicle tax class vehicles.

Under the Proposed MTS Revision and Alternative A some people with underlying health conditions who require access to healthcare more frequently and to attend appointments in person, would be eligible for the ULEZ NHS patient reimbursement scheme. However, under Alternatives A and B all drivers would be required to pay the low level charge.

The assessment concluded that there are no impacts identified across the Proposed MTS Revision and two Alternatives that are significant enough at this strategic level to change the existing scoring on the social and health objectives identified in the original 2018 MTS assessment.

## **Relationship to the London-wide ULEZ IIA**

A separate IIA of a London-wide ULEZ has been undertaken in parallel with this assessment of the Proposed MTS Revision. The findings of the London-wide ULEZ IIA have informed at a strategic level the assessment presented in this section, where relevant. However, the assessment of the London-wide ULEZ scheme is informed by more detailed modelling and undertakes a more detailed assessment than is possible or appropriate for strategic alternatives such as those presented in this IIA. Both documents are subject to public consultation and will be published on 20 May 2022.

## **Public Consultation**

The ten-week statutory consultation period on the MTS Revisions and this IIA Report commences on 20 May 2022.

# 1. Introduction

## 1.1 Background

In 2019, there were around 4,000 premature deaths in London related to air pollution. The greatest number of those premature deaths were in London's outer boroughs, where the ULEZ doesn't currently apply. This is because even though pollution is lower in the outer boroughs, there is a higher proportion of older people and children in these areas, compared with inner London, who are more vulnerable to the impacts of air pollution<sup>5</sup>.

Transport for London (TfL) have recently stated that if no additional action is taken to reduce air pollution beyond the existing policies committed to by the Mayor, around 550,000 Londoners would develop diseases attributable to air pollution over the next 30 years and the cumulative cost to the NHS and social care system is estimated to be £10.4 billion. Furthermore, the benefit of improving air quality to the UK and local economies has been analysed by CBI Economics who found the UK economy could benefit to the tune of £1.6 billion each year if it were to achieve the guidelines set by the WHO for air quality<sup>6</sup>.

The MTS sets out the Mayor's vision to create a fairer, greener, healthier and more prosperous London. A shift away from car travel in favour of walking, cycling and public transport will be critical to realising this vision and that is why the central aim of the strategy is for 80 per cent of all trips in London to be made on foot, by cycle or using public transport by 2041. This will support Good Growth, which works to re-balance development in London towards more genuinely affordable homes, reduce car dependency and create a more sustainable and socially integrated city. Achieving the aims of the MTS must start with an ambitious approach to London's streets, as that is where most travel happens.

The coronavirus pandemic has had a significant impact on how Londoners live and move within the city. During the lockdowns of 2020 and 2021, as traffic levels fell, Londoners experienced their local areas from a new perspective. With reduced capacity on public transport due to social distancing, more reliance on walking and cycling for their trips as well as their leisure time. It was clear the impact of reduced traffic had on air quality, severance (where destinations that are geographically close cannot be reached easily), noise, had on the general experience of local areas.

In moving on from the worst stages of the pandemic, London faces three major challenges:

- While we have seen significant progress in reducing harmful air pollution over the past decade, we know that we need to go further to protect human health
- It has become clear that we are facing a climate emergency, and that the impacts of extreme weather can affect us all
- We have also seen traffic congestion return as London returns to business as usual with costs to the economy and our quality of life

As identified in the challenges above air pollution is a significant public health challenge in London. City Hall commissioned Imperial College London to assess the impact on health of the mayoral air quality policies, and air

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<sup>5</sup> <https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/health-impact-assessment-air-pollution-asthma-london-0>

<sup>6</sup> Next steps for reducing road transport emissions (TfL, January 2022) <https://content.tfl.gov.uk/next-steps-for-reducing-emissions-from-road-transport.pdf>

pollution in London, based on 2019 and future levels of air pollution up to 2050.<sup>7</sup> The boroughs with the highest number of air pollution related deaths in 2019 were Bromley, Barnet, Croydon and Havering.

In December 2021, TfL presented the Mayor with a range of road user charging approaches that could be developed in the next few years to tackle emissions and resulting air pollution. The approaches presented to the Mayor were:

- Extending the ULEZ to cover almost all of Greater London (i.e. "London-wide ULEZ")
- Implementing a low-level daily Clean Air Charge for all but the cleanest vehicles
- A combined ULEZ expansion and Clean Air Charge
- Introducing a Greater London Boundary Charge for vehicles driving into London

A preliminary assessment of the potential of the four approaches was undertaken to understand their impacts, including impacts on air quality, traffic volumes and CO<sub>2</sub> emissions.

The Mayor considered the benefits and drawbacks of each of the four approaches and concluded that the proposal for a London-wide ULEZ in 2023 was the optimal approach to develop further and take to public and stakeholder consultation due to its higher impact on emissions whilst limiting the number of people impacted by the charge.

On 4<sup>th</sup> March 2022, the Mayor announced that through TfL, and with the cooperation of the boroughs, he will seek to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion through road user charging schemes including by expanding the Ultra Low Emission Zone London-wide.

To facilitate this, the Mayor considers that the current Mayor's Transport Strategy (MTS), published in 2018, needs to be revised.

Proposal 24 currently states *The Mayor, through TfL, will seek to **introduce the central London Ultra Low Emission Zone (ULEZ)** standards and charges in 2019, tighter emissions standards London-wide for heavy vehicles in 2020, and an **expanded ULEZ** covering inner London in 2021.*

This proposal has served its purpose as in April 2019 the Mayor introduced the Ultra Low Emission Zone (ULEZ), the world's toughest vehicles emission standards, in central London. The LEZ standard was tightened to Euro VI for HGVs, buses, coaches and other specialist vehicles on 1 March 2021. The ULEZ was then expanded to inner London in October 2021. Proposal 24 does not provide for the further expansion of the ULEZ and it is necessary that the proposal is supplemented with a new proposal and narrative that sets out how expansion of the ULEZ London-wide could help address the challenges that London is facing notwithstanding the successful implementation of the measures proposal 24 provided for. TfL has commissioned Jacobs to undertake an IIA to assess the likely significant effects and impacts of the Proposed MTS Revision (MTS Revision Proposals IIA). The IIA will consider and document the findings of the following established assessment processes to provide a proportionate, streamlined, and integrated assessment.

## 1.2 Purpose of this IIA

The purpose of an IIA is to promote sustainable development through better integration of sustainability and environmental considerations into plan preparation and adoption. It seeks to provide for a high level of protection of the environment, protected groups, human health, economy and community safety and security.

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<sup>7</sup> <https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/health-burden-air-pollution-london>

An IIA was undertaken for the current MTS ("2018 MTS IIA") which was published in 2018. This was followed by a Post Adoption Statement also published in 2018 which set out how the IIA had influenced the development of the Strategy. The transport policies and proposals within the adopted Strategy were subject to the following assessments:

- Strategic Environmental Assessment (SEA).
- Health Impact Assessment (HIA).
- Equality Impact Assessment (EqIA).
- Economic and Business Impact Assessment (EBIA).
- Community Safety Impact Assessment (CSIA)

The purpose of this IIA is to assess the likely significant effects and impacts of the Proposed MTS Revision on the environment, the economy, equality, and health of Londoners to help inform the Mayor's decision whether to publish the revision, including the design of any measures necessary to mitigate potential adverse impacts.

This IIA follows the EU SEA Directive as undertaking an SEA for new or revised plans became a statutory requirement following the adoption of European Directive 2001/42/EC (the SEA Directive) which was transposed into UK legislation by the Environmental Assessment of Plans and Programmes Regulations 2004 ("the SEA Regulations" SI2004/1633, as amended). The MTS is considered to be a plan for the purposes of the Regulations.

Table 1.1 summarises the IIA's compliance with EU SEA Directive<sup>8</sup>, by identifying where in this report and, where appropriate, in the 2018 MTS IIA report, the specific requirements under Part 3 of the SEA Directive and Regulation for an environmental report are addressed. This cross referencing of the previous IIA is in line with the proportionate approach set out in the Scoping Report.

Table 1.1 Compliance with EU SEA Directive

Information requirement of the SEA Directive (defined by Annex I)	Section of the IIA Report
An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes	Section 2
The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme	2018 MTS IIA section 4 and this IIA's Baseline Report
The environmental characteristics of areas likely to be significantly affected	2018 MTS IIA section 4 and this IIA's Baseline Report
Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to areas designated at the European level for importance to wildlife (SPAs, SACs)	2018 MTS IIA section 4

<sup>8</sup> Implemented in England by the Environmental Assessment of Plans and Programmes Regulation 2004/ 1633 ("SEA Regulations") as amended

The environmental protection objectives, established at international, Community or national level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.	2018 MTS IIA section 4 and this IIA's Baseline Report
The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the inter-relationships between these issues.	Section 5
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.	Section 5
An outline of the reasons for selecting the Alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	Section 3
A description of the measures envisaged concerning monitoring	Section 6
A non-technical summary of the information provided in respect of each of the above categories	Non-Technical Summary

### 1.3 Relationship with Proposed Scheme IIA

This IIA Report should be read in conjunction with the MTS IIA Scoping Report, the separate IIA of the proposed London-wide ULEZ (London-wide ULEZ IIA) which assesses in more detail the impacts of the proposed expansion of ULEZ to cover the majority of Greater London and, the shared Baseline Report. These documents will all be made available as part of the consultation materials which will be accessible on TfL's consultation website.<sup>9</sup>

The London-wide ULEZ IIA has been undertaken in parallel with this assessment of the Proposed MTS Revision. The London-wide ULEZ IIA is informed by detailed modelling and provides a more detailed assessment of impacts based on a full description of the Mayor's proposals for the expansion of ULEZ (hereafter referred to as the "Proposed Scheme").

The findings of this MTS Revision Proposals IIA have informed the development of the London-wide ULEZ IIA, by signposting at the strategic level potential impacts of the Proposed MTS Revision and its reasonable Alternatives.

<sup>9</sup> [tfl.gov.uk/clean-air](https://tfl.gov.uk/clean-air)

This supports the more detailed assessment of the Proposed Scheme within the London-wide ULEZ IIA, which also identifies potential targeted measures to mitigate the adverse impacts identified.

It is important to note that this MTS Revision Proposals IIA has adopted the 2018 MTS IIA assessment framework in full to ensure a consistent approach to the assessment of the Proposed MTS Revision. In contrast, the London-wide ULEZ IIA has tailored its assessment framework in the context of: their applicability/relevance to the significantly expanded geographical scope of the Proposed Scheme; and, the IIA framework employed for the assessment of the original central London ULEZ scheme in 2019 and its subsequent expansion in 2021.

Both IIAs are supported by a shared Baseline Report and are subject to public consultation and will be available for comment at the same time.

## 1.4 Engagement and Consultation

Regulation 4 of the Environmental Assessment of Plans and Programmes Regulations 2004 ("SEA Regulations") defines certain organisations with environmental responsibilities as consultation bodies. In England the statutory consultation bodies are Historic England, Natural England, and the Environment Agency. The MTS Revision Proposals IIA Scoping Report was issued to the statutory consultees for a consultation period of five weeks from March to April 2022.

The MTS Revisions IIA Scoping Report aligned with the requirements of the SEA Regulations and set out the sustainability issues, opportunities and an IIA assessment framework to test the how the proposed revision will impact on the 2018 MTS IIA findings. Responses from consultees were taken into consideration in the IIA assessment process and where relevant have informed the London-wide ULEZ IIA. Further details of the responses received can be found in Table 1.2

In relation to the London-wide ULEZ IIA, topic-specific workshops were held with a wide range of stakeholder organisations in March 2022 in order to understand the views of stakeholders on the potential economic, equality, health and environmental impacts of the proposals.

Table 1.2 Summary of Consultee responses

Consultee	Summary of Comments	Transport for London Response
Historic England	In addition to the National Planning Policy Framework (NPPF) and Planning Practice Guidance, we would advise that the IIA for the strategy should be reviewed in the context of Historic England's advice on <i>Strategic Environmental Assessment</i> , <i>Sustainability Appraisal</i> and <i>The Historic Environment</i> .	Noted. Taken into the consideration in development of this IIA. This document informed the development of the assessment framework, in the MTS 2018 IIA Report. This IIA adopts the same assessment framework and therefore in line with guidance.
	The key issues in relation to the historic environment on page 18 differ from those on page 136 of the adopted IIA. Furthermore, the assessment guide questions on the historic environment page 28 also differ from those on page 168 of the adopted IIA.	Amended to ensure the guide questions accurately reflect the published 2018 MTS IIA.

	We recommend that the key issues and guide questions from the adopted IIA are reinstated, as these are clearly derived from appropriate baseline information and more closely aligned with the NPPF's requirements in relation to the historic environment	
	We would however suggest one amendment to reflect NPPF terminology to the 2017 questions: Will the strategy .... Conserve and enhance <i>the heritage significance of sites, features and areas of historical, archaeological and cultural value/potential?</i>	The IIA assessment framework including all existing objectives and guide questions that were set out in the 2018 MTS IIA <sup>10</sup> have been retained. This will ensure a consistent approach is taken to the assessment and the findings can be read alongside the previous IIA Environmental Report findings.
Environment Agency	A review of the current IIA Scoping Report shows that Alternatives (to expanding the ULEZ) are proposed to be considered in the IIA. However, there is no clear reference to addressing trans-boundary / cumulative impacts. It would be logical to anticipate that a consequence of ULEZ expansion could be increased parking and road traffic on the periphery of the expanded ULEZ. This may be difficult to quantify, but appropriate to acknowledge and identify mitigation for to prevent poor air quality simply being an issue transferred from one area to another	The geographical scope of this assessment extends beyond the previous MTS 2018 which considered the area within the Greater London boundary to include potential impacts in areas adjacent to London.
	Also, we would like reassurance that the ULEZ expansion has considered the Environment Agency's regulation of sites (principally, waste sites), under the Environmental Permitting regime. The expanded ULEZ may have additional implications for London's waste industry, including for transport to and from regulated sites. The proposals may conceivably result in the displacement of some waste operations to locations beyond the ULEZ, and increase fly-tipping. There are implications for the delivery of the London Environment Strategy, and London Plan aims for net zero waste and other waste targets, and potential for environmental impacts from increased waste crime.	Impacts to waste operations were considered as part of the assessment that accompanied the introduction of the London-wide Low Emission Zone.  It is assumed that all successful applicants for a new scrappage scheme will be required to prove they have scrapped their vehicles an Authorised Treatment Facility in order to qualify for a grant.  For owners of non-compliant vehicles that do not qualify for scrappage, the risk of illegal fly tipping is considered to be low in the context of the current demand for second-hand vehicles nationally and the historically high price of scrap metal.  The potential for increased fly - tipping in those peripheral areas of

<sup>10</sup> <https://tfl.gov.uk/cdn/static/cms/documents/integrated-impact-assessment-report.pdf>



		Greater London which would not fall within the expanded ULEZ is acknowledged.
	Other implications for the IIA to consider include those for rail travel, where in increased passenger numbers potentially displace rail freight capacity, producing unintended environmental, economic and social impacts. We suggest that trans-shipment hubs should be preserved and enhanced within the ULEZ proposals for rail and water borne freight, thus supporting the move to more sustainable modes of transport.	The traffic modelling informing the proposals for a London-wide ULEZ indicates a 1.2 per cent increase in daily passenger trips by rail in 2023 compared with the reference case forecast. This relatively small change is not considered to have any implications for rail freight capacity.
Natural England	No comments on the Scoping Report	Noted

## 1.5 The Mayor's Transport Strategy

### About the strategy

The MTS (2018) is a statutory document that sets out the Mayor's transport vision for London. It is a key part of the strategic policy framework which supports and shapes London's social and economic development and is the principal policy tool through which the Mayor and TfL exercise their responsibilities for the planning, management, and development of transport in London.

The MTS is key to the delivery of the London Environment Strategy which commits the Mayor to accelerating the attainment of legal limits for air quality in Greater London as quickly and as effectively as possible, including through the reduction of emissions from London's transport network by enabling Londoners to switch to more sustainable forms of travel. In 2019 the Mayor introduced the ULEZ the world's toughest vehicle emission zone standards, in central London. It is a road user charging scheme which imposes a daily charge (currently £12.50) for use of a vehicle within the zone which does not meet the prescribed emissions standards. The zone originally covered only central London but was expanded to inner London in October 2021.

The current MTS sets out, through 26 policies and 108 proposals, how TfL and partners will deliver the transport plan for London for the period up to 2041.

The current MTS is delivered through TfL's annually revised Business Plan and borough Local Implementation Plans (LIPs) funded by TfL. The outcomes of the MTS are monitored and reported via the annual Travel in London Report.

### The need to revise the strategy

The current MTS needs to be revised in order to support the Mayor's current proposals for addressing the triple challenges of toxic air pollution, the climate emergency and congestion through road user charging including the expansion of ULEZ London-wide. The MTS is critical to the establishment or modification of a road user charging scheme. A scheme must facilitate the delivery of the MTS and be in conformity with it (required by paras 3 & 5 of Schedule 23 to the Greater London Authority (GLA) Act 1999). Given the importance of road user charging schemes to transport policy, it is customary for schemes, and proposed new or modified schemes, to be described in the MTS.

The Proposed MTS Revision will encompass the addition of a new Proposal 24.1 (going beyond existing Proposal 24, which has served its purpose as it provides for the introduction of the ULEZ in central and inner London and tighter standards for the Low Emission Zone, both of which have been implemented). Proposal 24.1 provides for the triple challenges of toxic air pollution, the climate emergency and congestion to be addressed through road



user charging schemes including the London-wide expansion of ULEZ. The accompanying MTS narrative will explain the rationale for expanding and maintaining the current ULEZ in the context of progress towards meeting legal limits and the Mayor's aspiration to go further than that legal baseline, particularly in the light of the World Health Organisation's ("WHO's") amended guidelines for recommended minimum levels of pollutants.

### Proposed Revision to be considered

The Proposed MTS Revision under consideration will **provide a policy foundation for the expansion of the ULEZ beyond the north and south circular roads to cover almost the whole of Greater London (London-wide)**. As stated above this would be implemented by the addition of a new Proposal 24.1 to the MTS. The proposed wording for this Proposal is:

*The Mayor, through TfL, and the boroughs, will seek to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion through road user charging schemes, including by expanding the Ultra Low Emission Zone London-wide.*

The implementation of this proposal at a scheme level, including a scheme level IIA, will also be subject to public and stakeholder consultation, alongside the Proposed MTS Revision.

Two reasonable Alternatives to the London-wide ULEZ proposal which are also considered in this IIA are:

- Alternative A - Modifying the ULEZ to make it even more impactful in reducing emissions: building on the existing scheme by extending it to cover the whole of Greater London and adding small clean air charge for all but the cleanest vehicles.
- Alternative B - A small, London-wide, clean air charge: a low level daily clean air charge for all but the cleanest vehicles to nudge behaviour and reduce the number of short journeys by car. This would operate on top of the existing ULEZ (central and inner London).

Under Alternative A, in 2023 the existing ULEZ standards would continue to apply but be expanded to cover the whole of Greater London with a £12.50 charge for motorcycles not meeting Euro 3 standards, petrol vehicles not meeting Euro 4 standards and diesel vehicles not meeting Euro 6 standards. Additionally, a low-level charge would apply to internal combustion engine (ICE) vehicles that meet the current ULEZ standards, but do not meet a potential new, tighter zero emission capable (ZEC) standard. Plug in hybrids, battery electric and hydrogen vehicles (i.e. ZEC vehicles) would not pay anything (neither the ULEZ charge nor the additional charge).

Under Alternative B, in 2023 there would be no change to the existing ULEZ boundary or emissions standards. Rather, a new low-level charge would be introduced across Greater London (in addition to the existing ULEZ covering central and inner London) which would apply to internal combustion engine (ICE) vehicles that meet the current ULEZ standards, but do not meet a potential new, tighter ZEC standard. Plug in hybrids, battery electric and hydrogen vehicles (i.e. ZEC vehicles) would not pay anything (neither the ULEZ charge nor the additional charge).

Table 2-1 below sets out a summary of the high-level modelling undertaken to inform the strategic assessment of the Proposed Revision and the Alternatives. This high level modelling has been taken from the TfL publication 'Next steps for reducing emissions from road transport' published in January 2022.<sup>11</sup> Please note a more detailed modelling exercise has been undertaken to inform the detailed assessment presented in the London-wide ULEZ IIA.

<sup>11</sup> Next steps for reducing emissions from road transport (TfL, January 2022). Available here: <https://content.tfl.gov.uk/next-steps-for-reducing-emissions-from-road-transport.pdf> [Accessed May 2022]

Table 2-1: Summary of high-level modelling outputs

	ULEZ expansion to outer London (Proposed Revision)	ULEZ expansion with a tighter standard (Alternative A)	Low-level emissions charge (Alternative B)
NO <sub>x</sub> emissions <sup>12</sup>	▼ 285 to 330 tonnes NO <sub>x</sub>	▼ 330 to 390 tonnes NO <sub>x</sub>	▼ 28 to 35 tonnes NO <sub>x</sub>
CO <sub>2</sub> emissions <sup>13</sup>	▼ 135,00 to 150,000 tonnes CO <sub>2</sub>	▼ 173,000 to 193,000 tonnes CO <sub>2</sub>	▼ 21,000 to 24,000 tonnes CO <sub>2</sub>
Traffic reduction	▼ <1% car trips ▼ 0.5 to 1% veh kms ▼ This equates to 20,000 to 40,000 fewer cars on London's roads every day	▼ 3% car trips ▼ 1.5% veh kms ▼ This equates to 100,000 fewer cars on London's roads every day	▼ 2.5% car trips ▼ 0.8% veh kms ▼ This equates to 60,000 to 80,000 fewer cars on London's roads every day
Mode shift	Marginal as 60,000 to 70,000 of the most polluting cars from London's roads are replaced with ULEZ compliant cars	▲ 0.5% With a strong shift to walk trips	▲ 0.5% With a strong shift to bus and walk trips

## 1.6 MTS Policy Context

The MTS sits alongside the following Mayoral strategies which also include policies to improve air quality, reduce emissions from transport and encourage to modal shift to sustainable transport options.

### London Plan (2021)

The London Plan is the overall strategic plan for London, and it sets out a fully integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years. Within the plan there is a strategic focus on quality of life, and it includes actions to target issues associated with air quality and other forms of pollution. This focus on improving air quality and quality of life is linked to policies which seek to improve health, reduce health inequalities as well as policies aimed towards tackling climate change.

### London Environment Strategy (2018)

This strategy outlines improvements to be made to the city's environment to ensure that London has the potential to grow cleanly whilst transforming the health and wellbeing of those living within its communities. There are

<sup>12</sup> For NO<sub>x</sub> emissions figures, the higher figure excludes a phase-out of ICE vehicles by 2030 and the lower figure includes this

<sup>13</sup> For CO<sub>2</sub> emissions figures given above, the higher figure excludes a phase-out of ICE vehicles by 2030 and the lower figure includes this

particular goals within the strategy that the proposed MTS revision would substantially contribute towards delivering, with a focus upon cleaner air, more accessible streets, and less disruptive ambient noise:

- Chapter 02 Transforming London's Environment - Londoners want their city to be clean, attractive, and healthy – living in a big city does not mean they should accept a dirty and polluted environment. The Mayor will clean up London's air, water and energy in a way that is fair, protects the health of Londoners, and contributes to the fight against climate change. Action will be taken now to introduce less polluting buses, deter the most polluting vehicles from being driven in London, and clean up the air around schools and new developments.
- Chapter 03 Air Quality - People's exposure to poor air can be reduced immediately through local action – children are particularly vulnerable to the effects of bad air as their lungs develop, so reducing exposure is especially important at places like schools. Meanwhile, longer-term efforts to tackle the sources of air pollution will be prioritised, including by reducing car use and switching to cleaner fuels, to ensure that London's entire transport system is zero emission by 2050.
- Chapter 08 Ambient Noise - Transport creates some of the city's worst noise problems, and planning for less car use and more walking, cycling and public transport use, alongside moving towards zero emission vehicles, will create a quieter city.

### **London Health Inequalities Strategy (2018)**

This strategy seeks to make London a healthier fairer city, with all Londoners having the best opportunities to live a long life in good health. In 2016 London had the biggest gap in life expectancy between local authorities of any region in England. There is an even bigger gap in terms of healthy life expectancy. One of the key determinants of health is the quality of our environment, including the quality of the air we breathe. One of the Strategy's five aims is that all Londoners benefit from an environment and economy that promote good mental and physical health. Under this aim the strategy has a specific objective to improve London's air quality and reduce the number of Londoners exposed to the harmful pollution, especially in priority areas like schools. Nitrogen dioxide (mainly caused by motor transport) and particulate matter are cited as being significant concerns for health.

The Mayor is seeking to achieve legal compliance with UK and EU air pollution limits as soon as possible. He also aims to reduce inequalities by supporting and empowering communities and Londoners in the most deprived areas (which tend to have higher levels of air pollution), and other places (such as schools) where air pollution is a particular concern, to reduce their exposure to poor air quality. ULEZ is identified as one of the measures to achieve this alongside encouraging reduced car use, making streets more accessible and welcoming, and giving people more chances to be more active, alongside other non-transport related measures.

## 2. Approach to IIA

### 2.1 Overview

An integrated assessment needs to be undertaken within a coherent assessment framework that enables the independencies between the different assessments to be identified and addressed. In this section we set out our overarching approach to the IIA.

An IIA provides an integrated assessment of the potential effects and identification of mitigation measures. It identifies interventions to ameliorate any negative effects and enhance beneficial effects of a proposal or plan. This IIA will comprise the following assessments:

- Strategic Environmental Assessment (SEA).
- Equalities Impact Assessment (EQIA).
- Health Impact Assessment (HIA).
- Economic and Business Impact Assessment (EBIA).

Undertaking an IIA allows for a single assessment framework to be employed to allow all effects to be assessed together, rather than individually. This has a number of benefits:

- A streamlined assessment process which should avoid duplication or internal inconsistencies.
- Identification of synergies between different proposals, and cross-cutting effects between topics.
- Identification of cumulative impacts across individual topic assessments.
- A clear exposition of the economic, environmental, and social impacts for London.
- Avoid / minimise overlap and duplication of effort.
- Streamline reporting requirements.
- Minimise stakeholder fatigue.

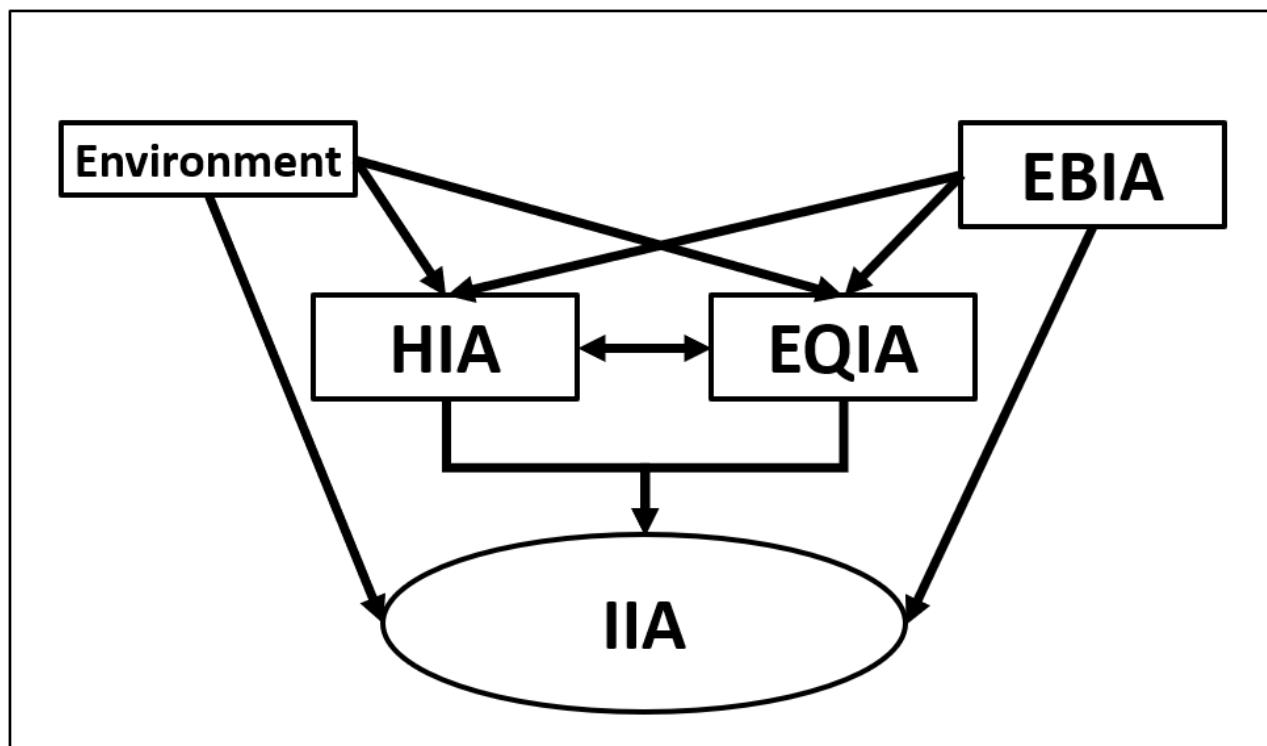


Figure 2-1 – The relationship between the different IIA assessment topics.

## 2.2 Strategic Environmental Assessment

Undertaking an SEA for new or revised plans became a statutory requirement following the adoption of European Directive 2001/42/EC (the SEA Directive) which was transposed into UK legislation by the Environmental Assessment of Plans and Programmes Regulations 2004 ("the SEA Regulations" SI2004/1633, as amended). The MTS is a plan for the purposes of the Regulations, which also apply to any significant revision of that strategy.

The objective of an SEA as set out in the Directive is: *"to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development"*.

The SEA Regulations require an environmental report to be prepared, and made available to the public which identifies, describes and evaluates the likely significant effects on the environment of implementing the proposed revision to the strategy and sets out the reasonable Alternatives taking into account the objectives and the geographical scope of the strategy.

As per the SEA Regulations, an assessment of the likely significant effects on the environment should be undertaken through assessing issues such as air quality, biodiversity, flora and fauna, climate change, energy use and generation, flood risk, geology and soils, heritage, health, landscape, townscape and public realm, materials and waste noise and vibration, water resources and quality.

This IIA is based on the principles of SEA but includes greater coverage of the social and economic aspects of sustainable development.

## 2.3 Equality Impact Assessment

The Equality Act 2010 (Equality Act) requires public authorities to work to eliminate discrimination and promote equality in all their activities. Section 149 of the Equality Act imposes a duty on all public authorities to have due regard to the need to eliminate discrimination, advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it and foster good relations between people who share a protected characteristic.

This may involve removing or minimising any disadvantage suffered by those who share a relevant protected characteristic, taking steps to meet the needs of such people; and encouraging them to participate in public life or in any other activity where their participation is disproportionately low, including tackling prejudice and promoting understanding. (The protected characteristics and groups for the purposes of the duty are age, disability, gender reassignment, pregnancy and maternity, race, sex, religion or belief, sexual orientation, and in certain circumstances marriage/ civil partnership status – see Table 2.1 below.) Compliance with the duty may involve treating people with a protected characteristic more favourably than those without the characteristic. The Mayor of London equality, diversity and inclusion strategy (2018) further highlights the Mayor's commitment to tackling inequality, improving life chances, and removing barriers that prevent people from reaching their full potential. In accordance with the IIA undertaken for the MTS in 2018, the equality impact assessment will also consider people on low incomes as well as refugees.

An EqIA forms an integral part of an IIA and likely disproportionate or differential effects on groups with relevant protected characteristics listed in Table 2.1 will be identified through assessing issues such as accessibility, air

quality, climate change, crime and security, connectivity, employment, education and skills, energy use and generation, housing, inclusion, landscape, townscape and public realm, and noise and vibration.

Table 2-1 : Definitions for groups with relevant protected characteristics

Protected characteristics as per Equality Act 2010	Definition of group as per Equality Act 2010	People within group referred to within this report
Age	A person of a particular age or persons of the same age group	Children (0-16) Younger people (aged 16-24); older people (aged 60 and over)
Disability	A person with physical or mental impairment which has a substantial and long-term adverse effect on that person's ability to carry out normal day-to-day activities	Disabled people
Gender reassignment	A person in the process of transitioning from one gender to another	Transgender people
Marriage and civil partnership	A person in a civil partnership or marriage between same sex or opposite sex	Not applicable to MTS IIA <sup>14</sup>
Pregnancy and maternity	A person who is pregnant or expecting a baby and a person who has recently given birth	Mothers or expectant mothers
Race	A person defined by their race, colour and nationality (including citizenship) ethnic or national origins	Black, Asian and minority ethnic (BAME)
Religion and belief	A person with religious and philosophical beliefs including lack of belief	People with a religion or belief
Sex	A man or a woman	Women
Sexual orientation	A person's sexual orientation towards persons of the same sex, persons of the opposite sex or persons of either sex	Lesbian, Gay, Bisexual and Transgender (LGBT)
Gypsy and Traveller Communities	A range of ethnic groups or those with nomadic ways of life who are not from a specific ethnicity.	Gypsies and Travellers

## 2.4 Health Impact Assessment

HIA is a means of assessing the likely health effects of plans, programmes, and projects. Section 41(4) of the GLA Act states that in preparing or revising any strategy the Mayor shall have regard to the effect which (inter alia) the proposed strategy or revision would have on the health of persons in Greater London and health inequalities between persons living in Greater London. The Mayor shall also include in a revised strategy the policies and proposals which he considers are best calculated to promote improvements in the health of persons in Greater London and the reduction of health inequalities between persons living in Greater London.

<sup>14</sup> Marriage and civil partnership are relevant to the public sector equality duty only to the extent that it requires a public body to eliminate discrimination, harassment, victimisation, and any other conduct that is prohibited by or under the Act. They are not a relevant protected characteristic for the purposes of other elements of the duty.

The purpose of HIA is to assist decision-makers in understanding the health impacts of a plan. It seeks to inform and enhance the decision-making process, making decisions more holistic and robust by:

- Highlighting practical ways to enhance the positive health, health equality and well-being effects of a plan.
- Avoiding or reducing the negative health, health inequality, and well-being effects.

There are two types of HIA – a rapid HIA and comprehensive HIA. A rapid HIA will be undertaken as part of the IIA. A rapid HIA is an interactive workshop that brings together stakeholders to identify and assess health impacts, informed by evidence.

The NHS Healthy Urban Design Unit (HUDU) checklist is commonly used for scoping a HIA and the HUDU tool has been used to help identify issues to be assessed.

The HIA for the IIA draws upon the HUDU checklist and TfL's HealthyStreets approach to draw on good practice, published guidance, and proven techniques. It identifies the likely significant effects on human health through assessing issues such as air quality, biodiversity, flora and fauna, climate change, crime and security, connectivity, employment, flood risk, physical activity, housing, inclusion, landscape, townscape and public realm, noise and vibration, water resources, and quality.

## **2.5 Economic and Business Impact Assessment**

One of the principal purposes of the Greater London Authority is to promote economic development and wealth creation in Greater London (Section 30(2)(a) and Section 41(4)). The Mayor shall have regard to these principal purposes when revising the MTS, as well as the effect the revision will have on the achievement of sustainable development in the UK. The revised policies and proposals should be those which the Mayor considers are best calculated to achieving sustainable development in the UK. A revision to the MTS should therefore consider the likely effects on London's economy through an EBIA.

While there is no statutory guidance on undertaking an EBIA, economic development is a key element of sustainability. The EBIA element will identify the likely significant effects on society and the economy through assessing issues such as climate change, crime and security, connectivity, economic competitiveness, employment, and energy use and generation.

The EBIA will assess how the revised MTS will affect accessibility, capacity, and generalised cost for London both holistically and, where applicable, on particular geographies (e.g. outer London, Town Centres) and sectors of the economy. In doing so it will make a broad assessment of how these changes will affect small and medium sized businesses, access to employment and training, and to international gateways. It will do this on the basis of high-level TfL modelling outputs, evidence from previous policies or investments and professional judgement.

## **2.6 IIA Legislative Requirements**

This IIA Report follows key legislation, policy and guidance including:

- Directive 2001/42/EC 'on the assessment of the effects of certain plans, and programmes on the environment' (European Commission, 2001) i.e. the SEA Directive.
- Environmental Assessment of Plans and Programmes Regulations 2004 (SI 2004 No 1633).
- A Practical Guide to the Strategic Environmental Assessment Directive (ODPM, 2005).
- Guidance on Integrating Climate Change and Biodiversity into Strategic Environmental Assessment (4th April 2013 European Commission).
- Historic England guidance (2013) on SEA Sustainability Appraisal (SA) and the Historic Environment.
- Planning Advisory Service (PAS) Good Plan Making Guide. Plan Making Principles for Practitioners (2014).



- Habitats Directive 92/43/EEC. (Which does not apply to this IIA/SEA for the reasons given in Section 6.2).
- Conservation of Habitats and Species Regulations 2010/490, as revised.
- National Planning Policy Guidance (online).

## 2.7 Our approach to the IIA of the Proposed MTS revision

While the Proposed MTS Revision is likely to result in the potential for significant impacts on some of the topics, it is considered that the changes to the current MTS are likely to be relatively minor as only one proposal (Proposal 24) and accompanying text are being supplemented. Therefore, we have adopted a proportionate and efficient approach to this IIA, while ensuring transparency of process. This approach was set out in the Scoping Report and accepted by the Statutory Bodies.

The IIA assessment framework as set out in the 2018 MTS IIA<sup>15</sup> has been retained. This will ensure a consistent approach is taken to the assessment and the findings can be read alongside the previous IIA Environmental Report findings. Specifically, in the assessment table in Section 5, the same guide questions have been used as in the MTS IIA of 2018.

Acknowledging that the previous IIA was undertaken in 2018, policy and baseline data have been updated and this has been scoped to focus the updates on topics where significant impacts are anticipated as result of the revision.

Full details on this approach are presented in the following sections:

- Section 4 Policy and Baseline Review
- Section 5 IIA Assessment Methodology

Table 2-2 below sets out the key stages and deliverables identified for this IIA.

Table 2-2: IIA Stages

Key IIA Stages		Deliverables
STAGE A	Set the context, baseline and policy approach and scope and objectives of assessment	IIA Scoping Report
STAGE B	Update Baseline and Policy, assess Alternatives, assess preferred approach, and propose mitigation where required	IIA Report
STAGE C	Prepare IIA Report	
STAGE D	Consulting on the draft revised MTS and the IIA Report	
STAGE E	Monitoring the significant effects of implementing the revised MTS	Post Adoption Statement

<sup>15</sup> <https://tfl.gov.uk/cdn/static/cms/documents/integrated-impact-assessment-report.pdf>

### **3. Policy and Baseline Review**

#### **3.1 Policy Overview and Update**

A plan or programme may be influenced in various ways by other plans or programmes, or by external environmental protection objectives such as those laid down in policies or legislation. An SEA requires that all relevant policies, plans, programmes, and environmental objectives are analysed to:

- Identify any external social, environmental, or economic objectives that should be reflected in the IIA process.
- Identify external factors that may have influenced the preparation of the plan.
- Determine whether the policies in other plans and programmes might lead to cumulative or synergistic effects when combined with policies in the plan.

The IIA process takes advantage of potential synergies and addresses any inconsistencies and constraints.

Within 2018 MTS IIA the most relevant plans were summarised and presented in appendix A of the final IIA Scoping Report, 2017. This appendix has been updated and presented in the Baseline Report.

An output of the previous policy review was the identification of a number of key environmental, economic and social objectives that were taken into account when developing the IIA objectives which formed the 2017 assessment. As the assessment framework from the previous IIA has been retained, the key objectives were reviewed as the policy was updated and it was considered that these objectives were still relevant. The list of objectives can be reviewed in Section 5 of the 2018 MTS IIA.

#### **3.2 Baseline Overview and Update**

Similar to the format of other IIAs, information will be provided on sustainability issues and baseline data which will be summarised across the IIA topics. Baseline data is collected across all IIA topics, allowing an analysis of trends to determine the likely significance of sustainability issues for the study area. The baseline data should include relevant environmental, social and economic and sustainability information from a range of sources which is both quantitative and qualitative. This information provides the basis for assessing the potential impact of strategic policies and informs the development of the assessment objectives.

A comprehensive baseline review was undertaken to inform the 2018 MTS IIA. It presented baseline information with respect to London's environment, population, and economy as they are related to and affected by the Capital's transport system (and are set out in full in Appendix F of the final IIA Scoping Report, 2017).

In line with the proportionate approach discussed in the above sections, baseline updates have been scoped to only the topics which are likely to see significant effects. The full baseline updates are presented in the Baseline Report.

Table 2-3 below sets out the data updates across the different assessment requirements.

Table 2-3: Baseline Updates

Topic	Updated Topics
Environment	Air Quality, Carbon, Materials and Waste, Biodiversity, Landscape and Townscape and Historic Environment.
Population	Profile of population with Protected Characteristics; Health Profiles for London Boroughs; Health and Equality evidence base in relation to Air Quality, Climate Change, Active Travel, Public Transport, Disabled vehicles, Vehicle replacement costs, crime and safety and access to health and social care, employment and education.
Economy	Local level employment and unemployment; travel patterns into and within outer London; identification and location of light good vehicle reliant industries; Google mobility data; travel to and expenditure in outer London town centres; and, travel to Heathrow.

## 4. Assessment Framework

### 4.1 IIA Objectives, Guide Questions and Indicators

An important element of the IIA process is the determination of IIA objectives. The achievement of objectives is normally measured by using indicators that are specific and measurable. IIA objectives are used to show whether the objectives and policies of a strategy are beneficial for the achievement of sustainable development, to compare the sustainability effects of Alternatives, or to suggest improvements.

In the 2018 MTS IIA an objectives-led approach was considered to be most appropriate in assessing the adopted MTS as it enabled the assessment of the extent to which each aspect of the MTS would contribute towards delivery of each objective as opposed to just meeting prescribed targets. Thus, a more qualitative approach was adopted that allowed for better identification and description of effects rather than attempting to assign a quantitative value, which is more limited and restrictive at this strategic level.

Draft IIA objectives were developed in accordance with:

- The findings from the review of relevant plans and programmes, and data gathered during scoping
- Consultation with the GLA
- Feedback from key stakeholders

Alongside each IIA objective was a set of guide questions that were used to help assess whether the adopted MTS would help to achieve or conflict with the objective.

The IIA adopted the same assessment framework to consider whether the proposed revision will be beneficial for the achievement of sustainable development, and to consider the sustainability effects of any proposed Alternatives.

The IIA objectives and assessment guide questions are provided in Table 4-1. Guide questions are coloured to indicate which of the elements of the IIA the question addresses:

- **Green = Strategic Environmental Assessment (SEA)**
- **Purple = Equality Impact Assessment (EQIA)**
- **Orange = Health Impact Assessment (HIA)**
- **Red = Habitats Regulations Assessment (HRA)**
- **Blue = Economic and Business Impact Assessment (EBIA)<sup>16</sup>**
- **Pink = Community Safety Impact Assessment (CSIA)**

Please note that while the previous assessment included a Habitats Regulation Appraisal (HRA) (related question shown in red), the assessment concluded that only policies and proposals which contribute to increased visitor/recreational pressure would require further assessment or lower tier assessment (findings presented in section 9.2 of final IIA Report). As the revision is unlikely to increase visitor/recreational pressure, an HRA was not undertaken to inform this IIA, however, the related IIA objectives were retained to ensure consistency of appraisal.

The objectives relating to Community Safety Impact Assessment (CSIA) have also been retained for consistency of appraisal, however due the scale of the Proposed Revision (i.e. a replacement of a single Proposal) a separate assessment has not been undertaken to inform this IIA.

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<sup>16</sup> This was called the Assessment of Economic Impacts (AEI) in the 2008 MTS IIA.

A total of 25 IIA objectives were used for the assessment of the MTS. Four priority objectives were identified on the basis of current conditions at the time and trends in order to help focus the later stages of the IIA on likely significant effects. The four priority objectives are:

- To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality and reduce exposure.
- To ensure London adapts and becomes more resilient to the impacts of climate change and extreme weather events such as flooding, drought and heat risks.
- To reduce the threat of climate change through reducing greenhouse gas emissions and moving towards a zero carbon London by 2050.<sup>17</sup>
- To improve the mental and physical health and wellbeing of Londoners, and to reduce health inequalities across the city and between communities.

The four priority objectives are highlighted in red in the table presented below.

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<sup>17</sup> The Mayor has stated his commitment to London becoming a net zero carbon city by 2030. The equivalent target in the MTS, however, remains as 2050 and is not proposed be updated as part of this revision. This is because the proposed revision is intended to be discrete and encompass only those changes which are necessary in order to progress with the enhancement of emissions-based road user charging. The revised text and the proposed extension of ULEZ that it supports as the first step in the programme will, however, contribute to the achievement of both the 2030 and 2050 targets given the forecast carbon benefits.

Table 4-1: IIA objectives and assessment guide questions

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, EBIA, CSIA</i>
<b><u>Environmental:</u></b> <i>Transport system's role in supporting natural environment by contributing to protecting and enhancing our natural, built, and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy<sup>18</sup></i>		
<b>Air quality</b>	1. To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality and reduce exposure	<ul style="list-style-type: none"> <li>Reduce NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> emissions from road transport?</li> <li>Reduce the number of people exposed to levels of NO<sub>2</sub> concentrations that exceed 40µg/m<sup>3</sup>?</li> <li>Reduce inequalities in access to clean air across London, particularly for those:               <ul style="list-style-type: none"> <li>who live in deprived areas?</li> <li>who live, learn, or work near busy roads?</li> <li>who are more vulnerable because of their age or existing medical condition?</li> </ul> </li> <li>Help to achieve national and international standards for air quality?</li> <li>Reduce costs to the economy resulting from premature deaths due to poor air quality?</li> </ul>
<b>Climate change adaptation and mitigation</b>	2. To ensure London adapts and becomes more resilient to the impacts of climate change and extreme weather events such as flood, drought, and heat risks.	<ul style="list-style-type: none"> <li>Help London's transport system function during extreme heat without impacts on human health?</li> <li>Help London's transport system function during a flood event or heavy rainfall?</li> <li>Reduce impacts on groups more vulnerable to the effects of climate change (e.g., older people are more vulnerable to excess heat)?</li> <li>Contribute to species &amp; habitat resilience?</li> </ul>
	3. To help tackle climate change through reducing greenhouse gas emissions and moving towards a zero carbon London by 2050.	<ul style="list-style-type: none"> <li>Reduce transport's contribution to CO<sub>2</sub> emissions?</li> <li>Help London meet its emission targets?</li> </ul>

<sup>18</sup> Transport system includes all infrastructure, services and operations by road, rail, underground, bus, boat, or other means of transport (including active travel) within the scope of the Mayor's transport strategy.

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, EBIA, CSIA</i>
		<ul style="list-style-type: none"> <li>Invest in green technologies, equipment and infrastructure that reduce GHG emissions?</li> <li>Contribute to effective traffic management to reduce GHG emissions?</li> <li>Help develop more efficient and sustainable freight transportation?</li> </ul>
Energy use and supply	4. To manage and reduce demand for energy, achieve greater energy efficiency, utilise new and existing energy sources effectively, and ensure a resilient smart and affordable energy system.	<ul style="list-style-type: none"> <li>Reduce transport's demand and demand for energy?</li> <li>Promote and improve energy efficiency in transport?</li> <li>Encourage uptake of green/cleaner fuels and renewable energy provision across all transport providers and private cars?</li> <li>Provide infrastructure to make a better use of renewable energy sources?</li> <li>Contribute to the provision of smart and affordable energy system for all?</li> </ul>
Flood risk	5. To manage the risk of flooding from all sources and improve the resilience of people, property, and infrastructure to flooding.	<ul style="list-style-type: none"> <li>Manage existing flood risks appropriately and avoid new flood risks?</li> <li>Avoid new development in areas prone to flood risk or mitigate the potential for such risk?</li> <li>Make provision for the review of strategic flood risks to assets and operations and undertake appropriate risk management?</li> <li>Reduce risk to critical infrastructure?</li> </ul>
Geology and soils	6. To conserve London's geodiversity and protect soils from development and over intensive use.	<ul style="list-style-type: none"> <li>Promote the use of brownfield land?</li> </ul>

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, EBIA, CSIA</i>
Historic Environment	7. To conserve and enhance the existing historic environment including sites, features, landscapes, and areas of historical, architectural, archaeological, and cultural value in relation to their significance and their settings.	<ul style="list-style-type: none"> <li>• Protect and enhance the built environment around key transport facilities, including removing barriers to use?</li> <li>• Protect and enhance valued/important built environment and streetscape settings through inclusive design and management?</li> <li>• Promote improved accessibility for all within existing historic/cultural/archaeological environments and their landscapes through inclusive design and management?</li> <li>• Have an adverse impact on local historic assets, historic buildings and archaeological deposits?</li> </ul>
Materials and waste	8. To keep materials at their highest value and use for as long as possible. To significantly reduce waste generated and achieve high reuse and recycling rates.	<ul style="list-style-type: none"> <li>• Promote materials efficiency in all construction and operational practices?</li> <li>• Promote sustainable waste management in all construction and operational activity?</li> <li>• Promote the principles of circular economy when aiming for waste reduction, reuse, re-manufacturing, and recycling?</li> <li>• Increase the use of recycled materials in all construction and operational activity?</li> <li>• Maximise use of innovative waste management techniques including smart technology.</li> <li>• Encourage the movement of waste movements to more sustainable methods such as rail and river transport?</li> <li>• Increase opportunities to move materials up the waste hierarchy?</li> </ul>
Natural Capital and Natural Environment	9. To protect, connect and enhance London's natural capital (including important habitats, species, and landscapes) and the services and benefits it provides, delivering a net positive outcome for biodiversity.	<ul style="list-style-type: none"> <li>• Protect and enhance the character of local greenspaces?</li> <li>• Enhance the ecological function and carrying capacity of the greenspace network?</li> <li>• Will it bring nature closer to people, particularly in most urbanised parts of the city?</li> </ul>



Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, EBIA, CSIA</i>
		<ul style="list-style-type: none"> <li>• Help to acknowledge monetary value to natural capital of London?</li> <li>• Conserve, enhance or create natural and semi-natural habitats of recognised ecological value and/or the green corridors that link them?</li> <li>• Enable the utilisation and management of green space and corridors associated with transport operations conserve, enhance, and create natural and semi-natural habits?</li> <li>• Avoid damage to sites, protected species, and habitats, especially where there is a designation of international, national, regional, or local importance?</li> </ul>
Noise and vibration	10. To minimise noise and vibration levels and disruption to people and communities across London and reduce inequalities in exposure.	<ul style="list-style-type: none"> <li>▪ Reduce the number of people exposed to high levels of noise from roads and railways?</li> <li>▪ Contribute to effective traffic management to reduce noise levels?</li> <li>▪ To minimise and reduce road, rail, and aviation noise and vibration levels and disruption to all people and communities across London.</li> </ul>
Water resources and quality	11. To protect and enhance London's water bodies by ensuring that London has a sustainable water supply, drainage, and sewerage system.	<ul style="list-style-type: none"> <li>• Contribute to the sustainable use of waterways for passenger and freight transport?</li> <li>• Protect and enhance the character and use of London's riverscapes and waterways?</li> <li>• Protect and enhance the regions waterbodies to achieve a good ecological status?</li> </ul>
<b><u>Economic:</u></b> <b><i>Transport system's role in supporting a strong, sustainable, and competitive economy, new homes, and jobs by providing transport infrastructure for all Londoners</i></b>		
Connectivity	12. To enhance and improve connectivity for all to and from and within and around London and increase the proportion of journeys made by sustainable and active transport modes.	<ul style="list-style-type: none"> <li>▪ Improve connectivity by public transport in outer London?</li> <li>▪ Improve connectivity across the River Thames by all modes of transport, particularly in east London?</li> <li>▪ Reduce congestion on train and bus services?</li> <li>▪ Reduce congestion on roads across all parts of London?</li> </ul>

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, EBIA, CSIA</i>
		<ul style="list-style-type: none"> <li>▪ Reduce congestion on public pavements and footpaths, especially in central London?</li> <li>▪ Reduce overcrowding at stations and stops and on platforms?</li> <li>▪ Reduce severance and consequent inequalities for those groups who are more greatly affected by severance (e.g., people on low incomes, disabled people, children and young people, older people, and people dependent on walking and using public transport for travel)?</li> <li>▪ Increase accessibility to employment, training and up-skilling opportunities for all people living in London by public transport, walking and cycling?               <ul style="list-style-type: none"> <li>• Will there be additional noise impacts on designated habitats?</li> <li>• Promote green infrastructure, value of ecosystem services and multifunctional land use and connectivity.</li> </ul> </li> </ul>
Infrastructure	13. To ensure that provision of environmental, social, and physical infrastructure is managed and delivered to meet population and demographic change in line with sustainable development and to support economic competitiveness.	<ul style="list-style-type: none"> <li>▪ Unlock land that has capacity for housing development?</li> <li>▪ Provide infrastructure to connect new housing developments to key services?</li> <li>▪ Enhance access for individuals with key skills to the right employment opportunities?</li> </ul>
Economic competitiveness and employment	14. To maintain and strengthen London's position as a leading, connected, knowledge based global city and to support a strong, diverse, and resilient economic economy structure providing opportunities for all.	<ul style="list-style-type: none"> <li>▪ Improve interchange between international and domestic networks?</li> <li>▪ Reduce crowding on the public transport network?</li> <li>▪ Increase capacity to accommodate increased demand arising from employment growth in the CAZ and other key growth areas across London e.g., Opportunity Areas and Intensification Areas</li> <li>▪ Increase accessibility to employment, training, and up-skilling opportunities for all?</li> <li>▪ Contribute to the alleviation of poverty by providing affordable/discounted travel for disadvantaged sections of the community?</li> <li>▪ Improve network resilience and service reliability?</li> <li>▪ Ensure that provision of environmental, social, and physical infrastructure is managed and delivered to meet population and demographic change in line with sustainable development and to support economic competitiveness?</li> </ul>

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, EBIA, CSIA</i>
Sustainable Land Use	15. Make the best and most efficient use of land so as to support sustainable patterns and forms of development?	<ul style="list-style-type: none"> <li>Make the best use of land through appropriate development on brownfield sites and use of existing transport network?</li> <li>Support delivery of a net positive outcome for biodiversity?</li> </ul>
Housing Supply, Quality, Choice and Affordability	16. To provide a quantum, type, quality, and tenure of housing (including specialist and affordable provision) to better meet demographic change and household demand.	<ul style="list-style-type: none"> <li>Improve transport connectivity to areas with the greatest capacity for development?</li> <li>Unlock land that has capacity for housing development?</li> <li>Contributes to the provision of affordable housing?</li> </ul>
Culture	17. To safeguard and enhance the Capital's rich cultural offer, infrastructure, heritage, natural environment, and talent to benefit all Londoners while delivering new activities that strengthen London's global position.	<ul style="list-style-type: none"> <li>Improve accessibility for all to historic and cultural environments?</li> </ul>
<b><u>Social:</u></b> <b><i>Transport systems role in supporting strong, vibrant, and healthy communities, by delivering good public transport experience; safe and pleasant places; and by creating a high-quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being for all Londoners.</i></b>		
Accessibility	18. To maximise accessibility for all in and around London.	<ul style="list-style-type: none"> <li>Improve accessibility to all public transport modes?</li> <li>Reduce travel times for mobility impaired people?</li> <li>Improve legibility and ease of use of the transport network for people with sensory or cognitive impairments?</li> <li>Help enable mobility impaired people to access the services they require?</li> <li>Increase accessibility to key services and facilities for all?</li> <li>Improve access to areas of biodiversity interests?</li> <li>Encourage a modal shift to more sustainable forms of travel?</li> <li>Address areas with deficiencies of access to open space?</li> </ul>

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, EBIA, CSIA</i>
		<ul style="list-style-type: none"> <li>Reduce levels of crime on the transport network, in particular violent assaults and sexual offences?</li> </ul>
Crime, safety, and security	19. To contribute to safety and security and the perceptions of safety.	<ul style="list-style-type: none"> <li>Reduce levels of crime on the transport network, in particular violent assaults and sexual offences?</li> <li>Reduce anti-social behaviour on the transport network?</li> <li>Create a travel environment that feels safe to all users during the daytime and nighttime?</li> <li>Reduce inequalities for those groups who have a greater fear of crime (e.g., groups such as girls, women, older people, and people living in low-income areas)?</li> <li>Reduce the proportion of people feeling unsafe and as a result not using the public transport network?</li> <li>Increase security and resilience to major incidents on the network?</li> </ul>
Health and health Inequalities	20. To improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the city and between communities.	<ul style="list-style-type: none"> <li>Help to reduce health inequalities and key contributory factors to this?</li> <li>Support the physical and mental health and wellbeing of communities, particularly those disproportionately affected by inequality?</li> <li>Reduce annoyance caused by transport noise?</li> <li>Reduce exposure to air pollution by most vulnerable groups?</li> <li>Encourage modal shift, especially for those groups who own a car, or for older people who are less likely to walk or cycle?</li> <li>Reduce levels of physical inactivity?</li> <li>Improve connectivity to key services by promoting active modes of transport?</li> </ul>
Equality and Inclusion	21. To make London a fair and inclusive city where every person is able to participate, reducing inequality and disadvantage and addressing the diverse needs of the population.	<ul style="list-style-type: none"> <li>Encourage all groups to travel actively?</li> <li>Reduce inequalities for those groups who experience more barriers to using public transport than others (e.g., those from lower socio-economic groups)</li> </ul>

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, EBIA, CSIA</i>
Social integration	22. To ensure London has socially integrated communities which are strong, resilient, and free of prejudice.	<p>and deprived areas, some ethnic minorities, disabled people, and older people)?</p> <ul style="list-style-type: none"> <li>▪ Make the transport system legible, safe, and easy to use by all?</li> <li>▪ Plan to provide for a changing population into the future (in particular a more diverse and aging population)?</li> </ul>
Design	23. To create attractive, mixed-use neighbourhoods, ensuring new buildings and spaces are appropriately designed that promote and enhance existing a sense of place and distinctiveness, reducing the need to travel by motorized transport.	<ul style="list-style-type: none"> <li>• Protect and enhance the character, integrity, and liveability of key streetscapes, including removing barriers to use?</li> <li>• Improve the use of the urban public realm by improving its attractiveness and access for all?</li> <li>▪ Create and maintain a safe and attractive public realm which encourages people to walk and cycle?</li> <li>▪ Reduce injury and collisions, particularly for vulnerable road users such as cyclists and pedestrians?</li> <li>▪ Improve poor quality public realm in some parts of London which can discourage active travel?</li> <li>▪ Deficiencies in open spaces in some parts of the city</li> <li>• Risk of poor design, lack of legible neighbourhoods and sense of place</li> </ul>

## 4.2 Assessment Criteria

The assessment identifies, describes and evaluates the likely significant effects of implementing the MTS revision against the IIA objectives using the assessment guide questions. The geographical scope of this assessment extends beyond the 2018 MTS IIA which considered the area within the Greater London boundary to include potential impacts in areas adjacent to London.

The previous assessment considered any likely effects as a result of implementing the 2018 MTS Strategy in accordance with the criteria presented within the SEA Regulations including a description of the probability, duration, frequency, and reversibility of impacts.

As the MTS covers a period up to 2041, the temporal scope of both the previous IIA and this IIA is:

- Short term effects – those effects that occur within the first five years of implementation of the revised MTS.
- Medium term effects – those effects that occur between six and fifteen years following the adoption of the revised MTS.
- Long term effects – those effects that will occur beyond fifteen years.

The impacts identified were considered relative to their significance as per Table 4-2. Significance takes into account the magnitude, duration, and permanency of the impact, along with consideration of potential secondary and intra-strategy cumulative impacts. For the purposes of this assessment major effects (positive or negative) have been considered significant.

Table 4-2: Significance Ratings and Definitions

Scale of effect		Definition
++	Major positive effect	Revised MTS contributes greatly towards achieving the IIA objective.
+	Minor positive effect	Revised MTS contributes to achieving the IIA objective.
0	Neutral or no effect	Revised MTS does not impact upon the achievement of the IIA objective.
-	Minor negative effect	Revised MTS conflicts with the IIA objective.
--	Major negative effect	Revised MTS greatly hinders or prevents the achievement of the IIA objective.
?	Uncertain	Revised MTS can have positive or negative effects but the level of information available at a time of assessment does not allow to make a clear judgement.

## 4.3 MTS IIA (2018) Preferred Option

The preparation of the Preferred Option (now known as the 2018 MTS IIA) was subject to a process of ongoing evaluation and refinement of the set of policy interventions and accompanying proposals, with the IIA influencing its development. The complete assessment is presented in Section 8 of the MTS 2018 IIA. These assessment findings are also presented in Table 5-1 to enable the consideration of change in the assessment as a result of the proposed MTS revision and its Alternatives.

#### 4.4 Assumptions and limitations

The purpose of this assessment is to determine whether the findings of the 2018 MTS IIA of the preferred option, identified using the criteria presented above, would change as a result of the Proposed Revision and reasonable Alternatives. As the 2018 MTS IIA looked at the potential impacts of **implementing the MTS in its entirety and this assessment focuses only on the impacts of revising one proposal within that strategy it is considered that the magnitude of change will be limited and a significant change in scale of effect or score is unlikely.**

The modelling outputs for the Proposed MTS Revision and the two Alternatives (Table 5-1) do not neatly align with the IIA assessment criteria or the three challenges underpinning the need for the Proposed Revision: toxic air pollution; the climate emergency; and traffic congestion. As such, the majority of the assessment is based upon professional judgement, drawing upon the findings of the London-wide ULEZ IIA where appropriate at a strategic level.

Furthermore, the modelling outputs which are available demonstrate that there are minimal differences between the options across the four criteria. As a result, there has been limited opportunity to differentiate the scale of impact on the assessment objectives across the Proposed MTS Revision and the Alternatives. Where there is a difference, this has been identified in the summaries in Table 5-1.

Detailed modelling has been undertaken to inform the Preferred Scheme and is presented in the London-wide ULEZ IIA.

## 5. IIA Assessment of MTS Revision

### 5.1 Overview

The assessment matrix (Table 5-1) below presents our assessment of the Proposed MTS Revision and its Alternatives in line with the approach section out section 5 of this report. Table 5-1 presents findings and scores from the 2018 MTS IIA for each of the assessment objectives to enable this IIA assessment to consider the scale of change in the assessment as a result of the Proposed Revision and the two Alternatives. The findings from the 2018 MTS IIA have been greyed out in the table below as these are taken directly from the 2018 MTS IIA report and remain unchanged. The findings from this IIA assessment are presented in the relevant columns within the table. Summaries of the findings are presented in section 5.3 including consideration of cumulative effects.



Table 5-1: Assessment Matrix

IIA Topics	IIA Objective	Scale of effects	MTS IIA (2018) Findings	ULEZ expansion to outer London (Proposed MTS Revision)	ULEZ expansion with a tighter standard (Alternative A)	Low Level Emissions Charge (Alternative B)
Environment						
Air quality	1. To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality and reduce exposure	++ Moderate to Major positive effect	<p>TfL Modelling indicates that the Preferred Option could achieve an 80% sustainable mode share. Reduced traffic congestion as a result of the implementation of road pricing policies, could lead to fewer cars on the roads reducing harmful air pollution which negatively affects human health and the environment. Because the most vulnerable tend to be the most exposed, reduced air pollution would also reduce health inequalities, in general. These traffic management measures would lead to a reduction in vehicle kilometres with consequential reductions in the economic costs of poor air quality. TfL modelling suggests that the additional demand management and road pricing proposals included in the Consultation Draft MTS3 are able to significantly reduce PM<sub>2.5</sub> or PM<sub>10</sub> emissions from traffic. TfL modelling also indicates that large reductions in NO<sub>x</sub> emissions are possible, with NO<sub>x</sub> emissions reductions achieving compliance across 70% of the road network by the early 2020s could achieve 99% compliance with further action implemented by the government and will be determined by the implementation of other measures (as set out in LES but not fully within the control of the Mayor).</p> <p>The LES will show the distributional impact of the policies and proposals within the MTS combined with other non-transport policies. This will give more clarity as to whether the overall level of pollution across London will continue to be higher in the poorest communities, indicating that the disparity ratio/pattern across the city in exposure to harmful pollution will continue to persist. This is where the London Plan can play a role in the siting of new affordable housing. Measures to specifically address short-term effects of the exposure to harmful emissions around sensitive receptors such as schools and hospitals across the whole of London are expected within the London Environment Strategy.</p>	<p>Overall levels of NO<sub>x</sub> are lower in outer London than inner London but have not reduced as quickly as elsewhere. Furthermore, emissions levels in both inner and outer London are largely at or below the lower legal limit for emissions. Estimated 2019 road transport related NO<sub>x</sub> emission within central, inner, outer and Greater London are approx 31,000 tonnes per annum.</p> <p>The ULEZ expansion to outer London would support and improve the anticipated NO<sub>x</sub> emission reduction identified in the previous findings, with strategic modelling indicating a reduction of 285 to 330 tonnes of NO<sub>x</sub>. This is the equivalent of up to 5 per cent of Greater London NO<sub>x</sub> emissions (in a without-scheme scenario) in 2023.</p> <p>A London-wide ULEZ would help address the areas of NO<sub>2</sub> exceedance in outer London and may facilitate a reduction in traffic emissions beyond the Greater London boundary at certain locations. This would have a disproportionate positive impact for older people and young people who make up a larger share of the population here than in inner and central London and are more vulnerable to the impacts of air pollution because lung function declines with age and older people are more likely to have comorbidities.</p> <p>It was identified in the previous assessment that the overall level of pollution was higher in some of the poorest communities in London. Baseline data indicates that, on average households in outer London are comparably better off financially than those in inner London. However, there are many deprived communities in outer London that experience poor air quality which the expansion of the ULEZ would help to alleviate.</p>	<p>Overall levels of NO<sub>x</sub> are lower in outer London than inner London but have not reduced as quickly as elsewhere. Furthermore, emissions levels in both inner and outer London are largely at or below the lower legal limit for emissions. Estimated 2019 road transport related NO<sub>x</sub> emission within central, inner, outer and Greater London are 31,000 tonnes per annum.</p> <p>The implementation of this Alternative would result in a greater reduction in NO<sub>x</sub> emissions than the Proposed Revision with an anticipated reduction of 330 to 390 tonnes NO<sub>x</sub>. This is the equivalent of up to 5.8 per cent of Greater London NO<sub>x</sub> emissions (in a without-scheme scenario) in 2023.</p> <p>A London-wide ULEZ and tighter standard would help address the areas of NO<sub>2</sub> exceedance in both outer and inner London and would facilitate a reduction in traffic emissions beyond the Greater London boundary at certain locations. This would have a disproportionate positive impact for older people and young people who make up a larger share of the population here than in inner and central London and are more vulnerable to the impacts of air pollution because lung function declines with age and older people are more likely to have comorbidities.</p> <p>It was identified in the previous assessment that the overall level of pollution was higher in some of the poorest communities in London. Baseline indicates that households in outer London are, on average, comparably better off financially than those in inner London. However, there are many deprived communities in outer London that experience</p>	<p>Overall levels of NO<sub>x</sub> are lower in outer London than inner London but have not reduced as quickly as elsewhere. Furthermore, emissions levels in both inner and outer London are largely at or below the lower legal limit for emissions. Estimated 2019 road transport related NO<sub>x</sub> emission within central, inner, outer and Greater London are 31,000 tonnes per annum.</p> <p>The implementation of this Alternative continues to support the overall anticipated reduction in NO<sub>x</sub> however would result in a much lower scheme reduction of 28 to 35 tonnes NO<sub>x</sub>. This is the equivalent of up to 0.5 per cent of Greater London NO<sub>x</sub> emissions (in a without-scheme scenario) in 2023.</p> <p>While the anticipated positive impacts remain the same as for the Proposed Revision and the expansion with a tighter standard the magnitude of the impact would be less than Alternative A and the Proposed Revision</p> <p><b>The implementation of this revision would have a positive impact however at this strategic level it would not change the Moderate to Major positive score identified in the previous assessment.</b></p>

IIA Topics	IIA Objective	Scale of effects	MTS IIA (2018) Findings	ULEZ expansion to outer London (Proposed MTS Revision)	ULEZ expansion with a tighter standard (Alternative A)	Low Level Emissions Charge (Alternative B)
				<p>The implementation of this revision would have a positive impact however at this strategic level it would not change the Moderate to Major positive score identified in the previous assessment.</p>	<p>poor air quality which the expansion of the ULEZ would help to alleviate.</p> <p>The implementation of this revision would have a positive impact however at this strategic level it would not change the Moderate to Major positive score identified in the previous assessment.</p>	
Climate change adaptation and mitigation	2. To ensure London adapts and becomes more resilient to the impacts of climate change and extreme weather events such as flood, drought and heat risks	0/+ Neutral/ Minor to Moderate positive effect	<p>The Consultation Draft MTS3 acknowledges key revised MTS issues relevant to health impacts and the effects of climate change, notably the issue of heat on the underground and the unequal effects that climate change will have on vulnerable populations. However, it does not contain proposals to address directly these impacts and effects but commits to undertaking research into the issues and implementing ameliorative measures based on the research. Such measures are likely to take time to implement. Whilst there are proposals to undertake research to understand and prioritise the risk of severe weather and climate change on London's transport network, until these are fully understood there are no concrete proposals to address the issue. However, it is reasonably assumed that new transport infrastructure brought forward in accordance with the revised strategy will have resilience to climate change effects built in.</p> <p>While demand management measures included in the Consultation Draft MTS3 will reduce some of the causes of climate change by increasing mode shift – greater dependence on public transport increases the risk of London becoming less resilient to climate change; that is, if a network fails a higher number of Londoners may be adversely affected unless action is taken to improve the resilience of existing public transport infrastructure in London.</p> <p>Proposed provision of new green infrastructure can play a positive role in absorbing carbon dioxide, reducing 'urban</p>	<p>The ULEZ expansion to outer London would not result in any change to the effects of climate change identified in 2018 assessment.</p> <p>The implementation of this revision would have a neutral impact and as a result would not change the neutral/ minor to moderate positive score identified in the previous assessment.</p>	<p>The implementation of this Alternative would not result in any change to the effects of climate change identified in 2018 assessment.</p> <p>The implementation of this revision would have a neutral impact and as a result would not change the neutral/ minor to moderate positive score identified in the previous assessment.</p>	<p>The implementation of this Alternative would not result in any change to the effects of climate change identified in 2018 assessment.</p> <p>The implementation of this revision would have a neutral impact and as a result would not change the neutral/ minor to moderate positive score identified in the previous assessment.</p>

IIA Topics	IIA Objective	Scale of effects	MTS IIA (2018) Findings	ULEZ expansion to outer London (Proposed MTS Revision)	ULEZ expansion with a tighter standard (Alternative A)	Low Level Emissions Charge (Alternative B)
			heat island' effects, and providing opportunities for increasing habitats and connections to help enable wildlife to adapt to a changing climate. Policy 8 and Proposals 44 and 45 seek to ensure that London's transport is more resilient to the impacts of severe weather and climate change, producing benefits in the long-term. However, there are not specific concrete proposals in the short-term to deal with the flood risk on London Underground; for example, currently there are 85 sites (57 no. Stations, 16 no. Shafts and 10 no. Tunnel Portals and 2 no. others) on London Underground which are at high and rising risk of flooding. Promotion of green infrastructure can be one of the most effective tools available to us in managing environmental risks such as flooding and heatwaves.			
	3. To help tackle climate change through reducing greenhouse gas emissions and moving towards a zero carbon London by 2050	+ Minor to Moderate positive effect	<p>TfL modelling indicates that the Consultation Draft MTS 3 policies could reduce CO<sub>2</sub> emissions from transport from approximately 6.4 million to two million tonnes per annum by 2041, by reducing reliance on petrol and diesel products / fossil fuels.</p> <p>Modal shift policies are usually weak in terms of achieving change in CO<sub>2</sub> production. However, modal shift measures can be effective when targeted, particularly when integrated with demand management measures.</p> <p>They cannot, however, form the corner-stone of effective CO<sub>2</sub> abatement policy and the prominence given to modal shift policies is at odds with indications that most modal shift policies achieve much lower abatement levels than measures focusing on fuel efficiency.</p> <p>The largest CO<sub>2</sub> abatement opportunities in the transport sector lie in initiatives to improve energy efficiency: improving the rated fuel efficiency of new vehicles as measured by vehicle certification testing; improving the efficiency of components and accessories not covered in current test procedures; and improving on-road vehicle performance.</p> <p>The most cost -effective options include promoting fuel-efficient driving through training and feedback instrumentation, incentives for car buyers to choose lower</p>	<p>In absence of the Proposed Revision approximately 5.1 million tonnes of CO<sub>2</sub> emissions will be attributable to road transport in London in 2023.</p> <p>The ULEZ expansion to outer London would support the anticipated CO<sub>2</sub> emission reduction identified in the previous findings, with strategic modelling indicating a reduction of 135,00 to 150,000 tonnes of CO<sub>2</sub>. This is the equivalent of up to circa 3 per cent of Greater London CO<sub>2</sub> emissions (in a without-scheme scenario) in 2023.</p> <p>It is forecast that it would have a negligible impact on modal shift – less than one per cent reduction in daily car trips into or within the expanded zone. A larger impact would be to encourage the uptake of ULEZ compliant private vehicles.</p> <p>The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</p>	<p>In absence of this Alternative approximately 5.1 million tonnes of CO<sub>2</sub> emissions will be attributable to road transport in London in 2023.</p> <p>The implementation of this Alternative would result in a greater reduction in CO<sub>2</sub> with an anticipated 173,000 to 193,000 tonnes CO<sub>2</sub> reduction. This is the equivalent of up to circa 3.8 per cent of Greater London CO<sub>2</sub> emissions (in a without-scheme scenario) in 2023.</p> <p>It is considered that this Alternative would result in marginal 0.5 per cent shift to more sustainable transport modes, predominately walking trips, however this is negligible at this strategic level and unlikely to affect the resilience of the transport network.</p> <p>The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</p>	<p>In absence of this Alternative approximately 5.1 million tonnes of CO<sub>2</sub> emissions will be attributable to road transport in London in 2023.</p> <p>The implementation of this Alternative continues to support the overall reduction in CO<sub>2</sub> however would see a lower scheme reduction of 21,000 to 24,000 tonnes CO<sub>2</sub> than the Proposed Revision and Alternative A. This is the equivalent of up to circa 0.5 per cent of Greater London CO<sub>2</sub> emissions (in without-scheme scenario) in 2023.</p> <p>It is considered that this Alternative would have a similar modal shift to Alternative A of 0.5 per cent to more sustainable transport modes including both walking and bus trips however this is negligible at this strategic level and is unlikely to affect the resilience of the transport network.</p> <p>The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</p>

IIA Topics	IIA Objective	Scale of effects	MTS IIA (2018) Findings	ULEZ expansion to outer London (Proposed MTS Revision)	ULEZ expansion with a tighter standard (Alternative A)	Low Level Emissions Charge (Alternative B)
			emissions vehicles were stringent but voluntary emissions targets have been agreed with car manufacturers, and regulations for some currently unregulated vehicle components.			
Energy use and supply	4. To manage and reduce demand for energy, achieve greater energy efficiency, utilise new and existing energy sources effectively, and ensure a resilient smart and affordable energy system	+ Minor to Moderate positive effect	<p>Mode shift from the car towards more sustainable modes of transport will lead to large energy savings. Reduced congestion on the road network will improve energy efficiency for those that continue to use it. However, considerable investment in new infrastructure is energy intensive.</p> <p>TfL modelling indicates that the Consultation Draft MTS 3 policies and proposals could reduce CO<sub>2</sub> emissions from approximately 6.4 million to two million tonnes per annum by 2041 reducing existing reliance on fossil fuels and encouraging uptake of the use of green/cleaner fuels and renewable energy.</p> <p>The Greenwich Power Station project would install additional generation alongside the existing equipment and deliver significant electricity and carbon savings. There is also a proposal to reuse waste heat from the Tube to support new heat networks such as the planned Bunhill project, which will use excess energy from Northern line tunnels to warm 454 homes. TfL plans to build on this by introducing further schemes that exploit Tube waste heat, using its land and assets for new low-carbon energy generation, and working alongside TfL's other business areas to make use of energy storage technology to save costs and encourage the growth of electrified transport in London.</p> <p>Proposed provision of new green infrastructure such as green roofs can reduce the amount of energy needed to keep the temperature of a building comfortable year-round by insulating against extensive heat loss in the winter and heat absorption in the summer. Proposed new planting of trees and vegetative cover can lower ambient air temperatures in urban areas through shading,</p>	<p>The ULEZ expansion to outer London would result in an anticipated 20,000 to 40,000 fewer cars on London's roads every day. While this reduction would improve energy efficiency for those that continue to use the road network the improvement would be marginal.</p> <p><b>The implementation of this revision would have a negligible impact however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>	<p>The implementation of this Alternative would result in 100,000 fewer cars on London's roads every day. While this reduction would improve energy efficiency for those that continue to use the road network the improvement would be marginal.</p> <p><b>The implementation of this revision would have a negligible impact however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>	<p>The implementation of this Alternative would result in an anticipated 60,000 to 80,000 fewer cars on London's roads every day. While this reduction would improve energy efficiency for those that continue to use the road network the improvement would be marginal.</p> <p><b>The implementation of this revision would have a negligible impact however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>



IIA Topics	IIA Objective	Scale of effects	MTS IIA (2018) Findings	ULEZ expansion to outer London (Proposed MTS Revision)	ULEZ expansion with a tighter standard (Alternative A)	Low Level Emissions Charge (Alternative B)
			windbreak, and evapotranspiration. The result is lower demand for the energy needed to provide air conditioning in summer months.			
Flood risk	5. To manage the risk of flooding from all sources and improve the resilience of people, property and infrastructure to flooding	+ Minor to Moderate positive effect	<p>The Consultation Draft MTS3 acknowledges the key issues relevant to health impacts and the effects of climate change, and the unequal effects that climate change will have on vulnerable populations. However, it does not contain proposals to address these issues but commits to undertaking research into the issues and implementing measures based on the research. Such measures are likely to take time to design and implement. The adverse impacts of climate change such as flooding and episodes of extreme heat are already experienced and as such, significant health impacts are likely to manifest themselves prior to the implementation of these measures.</p> <p>There are proposals to undertake research to understand and prioritise the risk of severe weather and climate changes on London's transport network. Until these potential changes are understood there are no concrete proposals to address the issue at present. However, it is reasonably assumed that new infrastructure brought forward as part of the revised strategy will have necessary resilience built in.</p> <p>While demand management measures included in the Consultation Draft MTS3 will reduce some of the causes of climate change by increasing mode shift, greater dependence on public transport increases the risk of London becoming less resilient to climate change; that is, if a network fails, a higher number of Londoners will be adversely impacted unless further action is taken to improve the resilience of existing public transport infrastructure to climate change effects.</p> <p>Proposed provision of new green infrastructure can play a positive role in absorbing carbon dioxide, reducing 'urban heat island' effects, and providing opportunities for increasing habitats and connections to help enable wildlife to adapt to a changing climate.</p>	<p>The ULEZ expansion to outer London would not result in any change to the effects on flood risk identified in 2018 assessment. The anticipated modal shift is not significant enough to affect the resilience of the public transport network as described in the previous assessment.</p> <p>The implementation of this revision would have a neutral impact and as a result would not change the minor to moderate positive score identified in the previous assessment.</p>	<p>The implementation of this Alternative would not result in any change to the effects on flood risk identified in 2018 assessment. The anticipated modal shift is not significant enough to affect the resilience of the public transport network as described in the previous assessment.</p> <p>The implementation of this revision would have a neutral impact and as a result would not change the minor to moderate positive score identified in the previous assessment.</p>	<p>The implementation of this Alternative would not result in any change to the effects on flood risk identified in 2018 assessment. The anticipated modal shift is not significant enough to affect the resilience of the public transport network as described in the previous assessment.</p> <p>The implementation of this revision would have a neutral impact and as a result would not change the minor to moderate positive score identified in the previous assessment.</p>

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			Policy 8 and Proposals 44 and 45 seek to ensure that London's transport is more resilient to the impacts of severe weather and climate change, which can provide benefits in the long-term. However, there are no specific concrete proposals in the short-term to deal with the flood risk on the London Underground; for example, currently there are 85 sites (57 no. Stations, 16 no. Shafts and 10 no. Tunnel Portals and 2 no. others) on London Underground which are at high and rising risk of flooding. Promotion of green Infrastructure can be one of the most effective tools available to TfL in managing environmental risks to transport infrastructure such as flooding and heatwaves.			
<b>Geology and soils</b>	6. To conserve London's geodiversity and protect soils from development and over intensive use	<b>0 Neutral</b>	The Consultation Draft MTS3 does not contain specific proposals to further the attainment of this objective. However, proposed measures to increase tree canopies can reduce soil erosion by diminishing the impact of raindrops on barren surfaces and by improving soil strength and stability through encouraging the build-up of soil organic matter and the action of tree roots. Also, trees have the potential to remove and immobilise contaminants through the processes of phytoremediation and phyto-stabilisation; and these processes are an inexpensive in situ practical option for remediation of damaged soils. The establishment of vegetation on previously contaminated developed land can break the pollutant linkage pathways, for example, through prevention of soil erosion which minimises dust production and reduces the risk to humans.	The ULEZ expansion to outer London would not result in any change to the effects on geology and soils identified in 2018 assessment.  <b>The implementation of this revision would have a neutral impact and as a result would not change the neutral score identified in the previous assessment.</b>	The implementation of this Alternative would not result in any change to the effects on geology and soils identified in 2018 assessment.  <b>The implementation of this revision would have a neutral impact and as a result would not change the neutral score identified in the previous assessment.</b>	The implementation of this Alternative would not result in any change to the effects on geology and soils identified in 2018 assessment.  <b>The implementation of this revision would have a neutral impact and as a result would not change the neutral score identified in the previous assessment.</b>
<b>Historic Environment</b>	7. To conserve and enhance the existing historic environment, including sites, features, landscapes and areas of historical, architectural, archaeological and cultural value in relation	<b>+/? Minor to Moderate positive effect /Uncertain</b>	The Consultation Draft MTS3 introduces the 'Healthy Streets Approach' which involves a package of measures that will ultimately enhance key transport facilities, making them more accessible to all. There are proposals such as implementing step-free access that will increase access to the historic environment and will remove barriers of use of the transport network to those with disabilities, prams and people carrying luggage. Additionally, it will	The ULEZ expansion to outer London would result in a reduction of harmful acidified air pollutants including NO <sub>x</sub> emissions which can cause degradation of valuable buildings.  This reduction in NO <sub>x</sub> emissions from traffic in London would be a minor contributor to the overall total NO <sub>x</sub> emissions that have an influence on the risk of acid rain within Greater London.	The implementation of this Alternative would result in a greater reduction of harmful acidified air pollutants including NO <sub>x</sub> emissions which can cause degradation of valuable buildings.  This reduction in NO <sub>x</sub> emissions from traffic in London would be a minor contributor to the overall total NO <sub>x</sub> emissions that have an influence on the risk of acid rain within Greater London.	The implementation of this Alternative would result in a minor reduction of harmful acidified air pollutants including NO <sub>x</sub> emissions which can cause degradation of valuable buildings.  This reduction in NO <sub>x</sub> emissions from traffic in London would be a minor contributor to the overall total NO <sub>x</sub> emissions that have an influence on the risk of acid rain within Greater London.

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	to their significance and their settings.		provide an opportunity to design transport hubs with an increased focus on the surrounding historic environment. The Consultation Draft MTS3 contains a number of measures to reduce harmful acidified air pollutants that cause degradation of valuable buildings, especially cultural monuments such as older sandstone and limestone buildings. Other cultural monuments such as rune stones and rock carvings also display evidence of serious damage as a result of acidifying air pollutants. Therefore the reduction in air pollutants will have positive effects on this IIA objective. At the same time major infrastructure improvements, for example Crossrail 2, may have heritage implications, including demolition of old buildings of historic value, whilst proposed upgrades to improve capacity of Underground stations may contribute to London's heritage value. Transport infrastructure schemes that would require land take and may have the potential to affect the historic environment, would be subject to full environmental appraisal and an Environmental Impact Assessment, as appropriate, to ensure protection of cultural heritage and in some cases may offer opportunities for enhancement. On the assumption that these schemes are developed and implemented with these controls, the overall effects at a strategic level on the historic, archaeological and cultural environment of London as a whole is not expected to be significant.	The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive/uncertain score identified in the previous assessment.	The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive/uncertain score identified in the previous assessment.	The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive/uncertain score identified in the previous assessment.
Materials and waste	8. To keep materials at their highest value and use for as long as possible. To significantly reduce waste generated and achieve high reuse and recycling rates	+ Minor to Moderate positive effect	The Consultation Draft MTS3 would bring forward significant new transport infrastructure, and therefore waste will be generated as a result of the implementation of these large schemes. Potential waste impacts due to the large amount of excavated waste from these schemes would be addressed at the design stage to minimise the risks to public safety, as well as traffic congestion and pollution impacts. The Consultation Draft MTS3 will embrace measures encouraging productive reuse of excavated material in design and construction phases on such projects. The Consultation Draft MTS3 includes proposals to achieve the reduction of adverse	The ULEZ expansion to outer London is likely to encourage a shift to more ULEZ compliant private vehicles. A shift towards plug-in hybrid and electric (ZEC) vehicles would lead to an increase in demand for rare earth metals, and especially Lithium, as a key component of hybrid electric vehicle batteries. This would need to be monitored in line with the UK Government's policy towards electric vehicles on a national scale and the increasing demand for these materials as battery storage increases worldwide.	The implementation of this Alternative is likely to encourage a greater shift to ULEZ compliant private vehicles. As all non-ZEC vehicles would be subject to a small daily charge this Alternative would encourage a greater shift to plug-in hybrid and electric (ZEC) vehicles which is likely to have some impacts on resource use due to their differing material demands compared to petrol and diesel engines. There would be an increase in demand for rare earth metals, and especially Lithium, as a key component of hybrid electric vehicle batteries. This would need to be monitored in line with the UK Government's policy towards electric vehicles on a national scale and the	The implementation of this Alternative may result in a slight shift to ULEZ compliant private vehicles. To the extent that the proposal encourages a shift to compliant vehicles there would be some impacts on resource use due to the differing material demands of ZEC vehicles, but as under this Alternative the ULEZ (with its significantly higher charge level) would not be expanded to Outer London, there is likely to be less of a financial incentive to upgrade vehicles. This Alternative is likely to bring about some shift to these vehicles but not as high as Alternative A.

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			waste impacts on the wider natural environment associated with supply chains and waste disposal. Transport providers will adopt the latest GLA responsible procurement guidance, to maximise re-use and recycling of waste materials.	<p>However, a switch to ZEC vehicles is not required for compliance with this Proposed Revision .</p> <p><b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>	<p>increasing demand for these materials as battery storage increases worldwide.</p> <p><b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>	<p>There would be an increase in demand for rare earth metals, and especially Lithium, as a key component of hybrid electric vehicle batteries. This would need to be monitored in line with the UK Government's policy towards electric vehicles on a national scale and the increasing demand for these materials as battery storage increases worldwide.</p> <p><b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>
<b>Natural Capital and Natural Environment</b>	9.To protect, connect and enhance London's natural capital (including important habitats, species and landscapes) and the services and benefits it provides, delivering a net positive outcome for biodiversity	<b>+ Minor to Moderate positive effect</b>	<p>The Consultation Draft MTS3 includes a number of new transport schemes, which can put pressure to use areas of green space for construction purposes, possibly severing corridors and reducing the quality and quantity of the natural environment and connectivity between areas of green space. The Consultation Draft MTS 3 has a number of policies and proposals to improve the natural environment in London:</p> <ul style="list-style-type: none"> <li>• Transport maintenance schemes (of existing green space) and improvements should protect existing and provide new green infrastructure in order to result in a net positive impact on biodiversity.</li> <li>• In order to reduce their impacts on the wider natural environment associated with supply chains and waste, transport providers should adopt the latest GLA responsible procurement guidance (transitioning to the circular economy).</li> <li>• TfL will establish a baseline of ecological data and monitor / report regularly to demonstrate positive changes in biodiversity.</li> </ul> <p>Provision of new green infrastructure creates opportunities for longer-distance movement for some species. This allows species to move around within and between urban areas, improving biodiversity. Well planned, designed and managed green infrastructure can provide for natural features and ecosystem</p>	<p>As the previous findings identified changes in air quality can impact on biodiversity receptors. These impacts can vary from habitat to habitat.</p> <p>The ULEZ expansion to outer London would result in a reduction of harmful acidified air pollutants including NOx emissions.</p> <p>This reduction in NO<sub>x</sub> emissions from traffic in London would be a minor contributor to the overall total NO<sub>x</sub> emissions that have an influence on the risk of acid rain within Greater London.</p> <p><b>The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>	<p>As the previous findings identified changes in air quality can impact on biodiversity receptors. These impacts can vary from habitat to habitat.</p> <p>The implementation of this Alternative would have a greater reduction of harmful acidified air pollutants including NOx emissions.</p> <p>This reduction in NO<sub>x</sub> emissions from traffic in London would be a minor contributor to the overall total NO<sub>x</sub> emissions that have an influence on the risk of acid rain within Greater London.</p> <p><b>The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>	<p>As the previous findings identified changes in air quality can impact on biodiversity receptors. These impacts can vary from habitat to habitat.</p> <p>The implementation of this Alternative would have a minor reduction of harmful acidified air pollutants including NOx emissions.</p> <p>This reduction in NO<sub>x</sub> emissions from traffic in London would be a minor contributor to the overall total NO<sub>x</sub> emissions that have an influence on the risk of acid rain within Greater London.</p> <p><b>The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>



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			<p>services, (i.e. green roofs are used by birds and a wide range of invertebrates, including beetles, ants, bugs, flies, bees, spiders and leafhoppers, as well as large numbers of collembolans, which is an important group of invertebrates for soil carbon cycling). Promotion of sustainable urban drainage systems which in turn can improve water quality and thereby improve the diversity of species such as dragonflies and molluscs downstream of the water quality enhancement site. The proposed transport infrastructure schemes, which will potentially require land take and may have the potential to affect the natural environment, would each be subject to full environmental appraisal and an Environmental Impact Assessment, as appropriate, to ensure protection and enhancement of natural environment.</p> <p>On the reasonable assumption that these schemes are developed and implemented with these controls, the overall effects at a strategic level on the natural environment of London as a whole is not expected to be significant.</p> <p>Appropriate indicators for ecological data monitoring would need to be included in the TfL monitoring framework to monitor / report regularly to demonstrate positive changes in biodiversity.</p> <p>The Consultation Draft MTS3 proposes to develop housing and business spaces on TfL-owned land. As a result of this increased development and the potential for a further decline in the amount of open spaces available within the city, people may feel less connected to London’s natural capital. This, however, would depend largely on the design of the development and development plans should promote mixed land use, higher density developments that are designed to facilitate active travel within the ‘Health Streets approach’. Existing evidence shows that ‘green streets’ promote active travel and green spaces are associated with greater physical activity, so the delivery of the beneficial health impacts of this policy will</p>			

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			<p>depend largely on the detail of the developments and their design.</p> <p>Policies and proposals relating to air quality, natural environment, water resources and quality, connectivity, infrastructure, housing supply and accessibility could impact on European sites (in most cases indirectly); albeit</p> <p>policies and proposals are not specific to any sensitive European sites, so any major effects (positive or negative) are unlikely. These sites include Epping Forest SAC and Wimbledon Common SAC.</p> <p>Policies and proposals for further optimising the network, incremental expansion and new connections should reduce emissions from road transport and improve air quality and so will mitigate effects on European sites sensitive to effects of nitrogen deposition and acidification.</p> <p>Protecting and enhancing London's green infrastructure (e.g. Policy 7 and associated proposals) may enhance individual European sites or a network of sites and/or mobile qualifying features of these sites (including by improvements to water quality). Albeit major positive effects are unlikely specifically for European sites.</p> <p>Additional packages for further optimising the network, incremental expansion and new connections, could increase visitor pressure on European sites (a negative effect) by improving connectivity and accessibility.</p> <p>Further infrastructure improvements could also unlock land that has capacity for housing. The development of new housing and infrastructure may pose a threat to European sites dependent on its location, extent and design.</p> <p>Any transport projects would be subject to a project specific Habitat Regulations Assessment to ensure no adverse effects on the integrity of European sites.</p>			
Noise and vibration	10.To minimise noise and vibration levels and disruption to people and communities across London	+/? Minor to Moderate positive	<p>The Consultation Draft MTS3 includes policies and proposals to reduce noise and vibration from roads and rail services in London where reasonably practicable.</p> <p>TfL modelling predicts that the proposals included in the Consultation Draft MTS3 will</p>	The ULEZ expansion to outer London would result in an anticipated 20,000 to 40,000 fewer cars on London's roads every day. A marginal reduction in congestion is anticipated so it is unlikely to significantly	The implementation of this Alternative would result in an anticipated 100,000 fewer cars on London's roads every day. A marginal reduction in congestion is anticipated so it is unlikely to significantly reduce the level of noise people are exposed to from road traffic	The implementation of this Alternative would result in an anticipated 60,000 to 80,000 fewer cars on London's roads every day. A marginal reduction in congestion is anticipated so it is unlikely to significantly

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	and reduce inequalities in exposure	effect /Uncertain	<p>result in reduced congestion and a significant decrease in car share across London. This reduced level of congestion is likely to reduce the level of noise people are exposed to from road traffic.</p> <p>There could be impacts associated with additional noise, vibration and construction spoils especially for large schemes away from the river (Bakerloo line extension) that are likely to add construction traffic on the roads that may increase noise and vibration effects.</p> <p>TfL does not currently measure the impacts of noise levels as a result of transport infrastructure, so it is impossible for TfL to set a target to reduce the number of people exposed to noise above a threshold.</p> <p>Proposals for new transport infrastructure which will be likely to contribute to the increasing proportion of people exposed to noise above a certain threshold, as well as Heathrow's plans for the expansion of the airport will need to address this issue.</p> <p>There are potential impacts on the environment due to some of the Consultation Draft MTS3 proposals affecting Natura 2000 sites.</p> <p>As a result of major infrastructure development, such as Crossrail 2, there could potentially be noise and vibration effects on sites such as the Lee Valley, which includes a number of sites of national and international nature conservation importance. This includes the Walthamstow reservoirs, a series of 10 reservoirs that include designated Sites of Special Scientific Interest, and which together form the Lee Valley Special Protection Area (SPA) and Ramsar site due mostly to their importance for wintering ducks.</p> <p>The Consultation Draft MTS3 contains proposals for greener and more resilient streets, with less noise and vibration and improved public realm and mitigation for noise and vibration from rail services in London where reasonably practicable.</p> <p>Additional demand management and road pricing policies will significantly reduce the number of vehicles, particularly in central</p>	<p>reduce the level of noise people are exposed to from road traffic.</p> <p>However, the extent of noise reduction would be related to the extent to which owners replace non-compliant vehicles with newer compliant diesel or petrol models or with quieter electric vehicles.</p> <p>The implementation of this revision would have a positive impact, however at this strategic level it would not change the minor to moderate positive/uncertain score identified in the previous assessment.</p>	<p>however the magnitude of impact would be higher than the Proposed Revision and Alternative B</p> <p>This Alternative should provide a financial incentive for petrol or diesel vehicle owners to upgrade vehicles to quieter hybrid or fully electric models to avoid the ULEZ charge.</p> <p>The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive/uncertain score identified in the previous assessment.</p>	<p>reduce the level of noise people are exposed to from road traffic.</p> <p>This Alternative should provide a small financial incentive for petrol or diesel vehicle owners to upgrade vehicles to quieter hybrid or fully electric models to avoid the clean air charge.</p> <p>The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive/uncertain score identified in the previous assessment.</p>

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			<p>London. This will have a positive impact on reducing noise and vibrations from road traffic.</p> <p>However, it is important to note that this will not reduce these impacts coming from rail and aviation. The Consultation Draft MTS3 will still have some negative impacts due to the disruption that will result from the construction of new transport infrastructure as these projects are likely to increase the proportion of people exposed to noise exceeding the threshold. Noise and vibration from airports, busy roads and the railway generally affects those on lower incomes that cannot afford to relocate. Although the construction period will only be temporary, these groups of people are likely to be disproportionately affected by new noise levels during this time.</p> <p>It is therefore important that these new infrastructure schemes adhere to environmental standards and practices required by the relevant consenting process which will ensure that significant adverse environmental effects are eliminated or appropriately mitigated.</p> <p>In the long term, the switch to electric vehicles is likely to have significant beneficial effects on the reduction of noise caused by road transport due to electric vehicles being quieter.</p>			
<b>Water resources and quality</b>	11.To protect and enhance London's water bodies by ensuring that London has a sustainable water supply, drainage and sewerage system	<b>0 Neutral</b>	<p>Main effects in London in respect of water resources quality are caused physical modifications to water bodies and pollution from wastewater and water pollution from road run off on water bodies. Increased economic growth his likely to cause an increase in run-off and potential contamination and disruption of flows for surface water and groundwater, there is also likely to be an increase in demand for water.</p> <p>It is reasonably assumed that TfL when undertaking project planning and delivery will adhere to applicable legislation and environmental standards including environmental appraisal and Environmental Impact Assessment, as appropriate, to ensure protection of the water resources and quality.</p> <p>The revised MTS (March 2017) includes Proposal 42 "...Other non-road transport</p>	<p>The ULEZ expansion to outer London would not result in any change to the effects on water resources and quality identified in 2018 assessment. The anticipated reduction in road traffic as result of this Proposed Revision would not significantly reduce water pollution from road run off.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would not change the neutral score identified in the previous assessment.</b></p>	<p>The implementation of this Alternative would not result in any change to the effects on water resources and quality identified in 2018 assessment. The anticipated reduction in road traffic as result of this Alternative would not significantly reduce water pollution from road run off.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would not change the neutral score identified in the previous assessment.</b></p>	<p>The implementation of this Alternative would not result in any change to the effects on flood risk identified in 2018 assessment. The anticipated reduction in road traffic as result of this Alternative would not significantly reduce water pollution from road run off.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would not change the neutral score identified in the previous assessment.</b></p>

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			projects should be designed to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible (in accordance with the drainage hierarchy set out in the London Plan). In all cases drainage should be designed and implemented in ways that deliver other Mayoral priorities, including water quality, biodiversity and amenity". Projects would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects to the integrity of European sites.			
Economy						
Connectivity	12.To enhance and improve connectivity for all to and from and within and around London and increase the proportion of journeys made by sustainable and active transport modes	+ Minor to Moderate positive effect	<p>The Consultation Draft MTS3 contains a number of additional proposals to improve connectivity, as well as improvements to bus services. It improves access to employment opportunities in areas less well served by rail, thereby enabling the delivery of much needed housing, supporting economic growth in these areas and across London as a whole. It also improves access to employment opportunities for lower income groups who are more dependent on bus links.</p> <p>Demand management and road pricing provides a significant mode shift leading to substantial reductions in road congestion and vehicle speeds, particularly buses which should provide a significant economic boost to London's economy.</p> <p>However these measures are likely to lead to increased congestion at bus stops and stations due to mode shift, which will lengthen times by rail and bus which result in a cost to the economy unless station capacity at bottle necks is increased where practicable.</p> <p>The Consultation Draft MTS3 contains a number of proposals to increase accessibility to transport, services and employment; this would benefit those within outer London communities who are disproportionately impacted by lack of access and whose health and wellbeing consequently is negatively impacted. The regenerative potential for enhanced transport provision within outer</p>	<p>The ULEZ expansion to outer London would marginally reduce the volume of road traffic on the transport network and reduce congestion.</p> <p>A small reduction in congestion would result in better journey times and travel experience for bus and active travel options however in outer London this would be balanced with relatively low public transport accessibility in some areas</p> <p>In line with the previous assessment findings this would beneficially impact communities including the vulnerable who previously were proportionally affected by severance due to busy roads acting as a barrier, however the benefits are unlikely to be significant.</p> <p>The introduction of ULEZ in outer London may have disproportionate adverse impacts on some disabled people who are reliant on non-compliant private vehicles to access employment and services and may have less capacity or opportunity to upgrade their vehicle, change to public transport or active modes of travel. and .</p> <p>There is also the potential for negative impacts on people on low incomes travelling by private vehicle in outer London to access employment or opportunities and for parents with young children due to their lesser capacity to switch to a compliant vehicle and/or to change mode.</p>	<p>The implementation of this Alternative would also reduce the volume of road traffic on the transport network with a small modal shift anticipated to walking trips This would support a small reduction a in congestion.</p> <p>A small reduction in congestion would result in better journey times and travel experience for bus and active travel options however in outer London this would be balanced with relatively low public transport accessibility in some areas.</p> <p>In line with the previous assessment findings this would beneficially impact communities including the vulnerable who previously were proportionally affected by severance due to busy roads, however the benefits are unlikely to be significant.</p> <p>The introduction of ULEZ in outer London along with a clean air charge would have a larger disproportionate impact on disabled people who are reliant on non-compliant private vehicles to access employment and services and may have less capacity or opportunity to change to upgrade their vehicle, change to public transport or active modes of travel..</p> <p>There is also the potential for greater negative impacts on people on low incomes</p>	<p>The implementation of this Alternative would result in a minor reduction in road traffic with a small modal shift anticipated to walking and bus trips. It is unlikely that this would significantly reduce congestion.</p> <p>The introduction of clean air charge in outer London would have disproportionate impacts on disabled people who are reliant on private vehicles to access employment and leisure opportunities in areas with low levels of accessible public transport.</p> <p>There is also the potential for negative impacts on people on low incomes travelling by private vehicle in outer London to access employment or opportunities and for parents with young children due to their lesser capacity to switch to a ZEC vehicle and/or to change mode.</p> <p>For those with ULEZ non-compliant vehicles the impact would be lower than Alternative A as only the low-level charge would be payable.</p> <p><b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>



IIA Topics	IIA Objective	Scale of effects	MTS IIA (2018) Findings	ULEZ expansion to outer London (Proposed MTS Revision)	ULEZ expansion with a tighter standard (Alternative A)	Low Level Emissions Charge (Alternative B)
			<p>London areas will broadly enhance health and wellbeing and again serve to reduce inequalities.</p> <p>Whilst there may be more passengers on the public transport networks as a result of a modal shift from car driving to public transport, this change and its potential crowding effects would be mitigated by the proposals to increase public transport capacity and connectivity across London which would reduce congestion and overcrowding on services particularly at peak times with consequential reduced safety risks.</p> <p>The strategy addresses the issue of how social needs transport (e.g. dial-a-ride) could be better integrated with other public transport services. This will ensure that the needs of the most vulnerable who face barriers to the use of public transport are addressed.</p> <p>The additional packages in the Consultation Draft MTS3 relating to demand management and road pricing will reduce the volume of road traffic on the transport network. This will beneficially impact communities including the vulnerable who previously were proportionally affected by severance due to busy roads.</p> <p>However, the introduction of demand management and road pricing measures may have disproportionate impacts on disabled people who are reliant on private vehicles to access employment and leisure opportunities, particularly those who live in areas of outer London with low levels of accessible public transport, unless suitable mitigation measures are put in place.</p>	<p>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</p>	<p>travelling by private vehicle in outer London to access employment or opportunities and for parents with young children due to their lesser capacity to switch to a compliant vehicle and/or to change mode. Full compliance (i.e. the avoidance of a charge) under this Alternative would require use of a ZEC vehicle.</p> <p>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</p>	
Infrastructure	13.To ensure that provision of environmental, social and physical infrastructure is managed and delivered to meet forecast population and demographic change in line with sustainable development	++ Moderate to Major positive effect	<p>Proposals in the Consultation Draft MTS will support substantial new housing development. Crossrail 2 alone aims to facilitate the delivery of around 200,000 homes while the Bakerloo Line extension aims to deliver a further 25,000 homes.</p> <p>Extending bus services to open up housing sites not on the rail network is also proposed.</p> <p>Improved public transport connectivity will increase access to employment and opportunities across London.</p>	<p>The ULEZ expansion to outer London would not result in any change to the effects on infrastructure identified in 2018 assessment.</p> <p>The implementation of this revision would have a neutral impact and as a result would not change to moderate to major positive score identified in the previous assessment.</p>	<p>The implementation of this Alternative would not result in any change to the effects on infrastructure identified in 2018 assessment.</p> <p>The implementation of this revision would have a neutral impact and as a result would not change to moderate to major positive score identified in the previous assessment.</p>	<p>The implementation of this Alternative would not result in any change to the effects on infrastructure identified in 2018 assessment.</p> <p>The implementation of this revision would have a neutral impact and as a result would not change to moderate to major positive score identified in the previous assessment.</p>

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	and to support economic competitiveness		Reduced car demand potentially frees up more space for housing as less space is needed for car parking.			
<b>Economic competitiveness and employment</b>	14.To maintain and strengthen London's position as a leading, connected, knowledge based global city and to support a strong, diverse and resilient economy providing opportunities for all	<b>+ Minor to Moderate positive effect</b>	<p>The Consultation Draft MTS3 contains policies and proposals which will provide significant economic benefits to businesses through substantial increases in transport capacity. Crossrail 2 could directly support thousands of jobs (60,000 across the UK while it is being built and a further 200,000 when services start).</p> <p>Supporting infrastructure to HS2 will radically improve access between London and the UK's key economic centres.</p> <p>Although the strategy provides for significant additional public transport capacity forecast increases in passenger demand and crowding means there will be limited spare capacity available to provide any material improvement in network resilience.</p> <p>Demand management will radically reduce congestion on the road network and should lead to significant improvements in bus service reliability and journey times.</p> <p>The Consultation Draft MTS3 includes proposals that will increase accessibility to employment, training and upskilling opportunities for all. This is achieved through providing accessibility for all and increasing connectivity (particularly in East London via additional river crossings).</p> <p>It also includes a proposed fares freeze as well as protection of concessions for older and disabled people, children, those in receipt of Jobseekers Allowance, and other socially disadvantaged groups.</p> <p>There are important health consequences of employment reducing the adverse effects on mental and physical health of unemployment caused by among other things, lack of income and lack of self-esteem.</p> <p>The transport packages in the revised MTS related to demand management and pricing may have a slight negative impact on accessibility to jobs that are only accessible by</p>	<p>The ULEZ expansion to outer London would have a negative impact on employers in outer London due to the potential loss of individuals from outside Greater London who are commuting to work in outer London.</p> <p>Businesses that operate outside standard working hours and in locations less accessible by public transport would be the most impacted especially those in the transport and distribution sectors and a range of building support services.</p> <p>As one of the biggest employers in outer London it is anticipated that a small percentage of the employees at Heathrow would be impacted by the Proposed Revision with half of these living outside Greater London. This latter group may be more likely to switch jobs to avoid having to enter Greater London.</p> <p>There would also be negative impacts on outer London town centres retail activity due to the potential loss of spend from non-Greater London residents.</p> <p><b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>	<p>The implementation of this Alternative may result in a greater negative impact on employers in outer London due to the higher costs of travel to work for a greater number of employees from outside Greater London. The increase in the impact on the labour market would be directly related to the scale of the low-level charge. At a very low-level charge the impacts of this Alternative would be similar to the Proposed Revision.</p> <p>Businesses that operate outside standard working hours and in locations less accessible by public transport would be the most impacted especially those in the transport and distribution sectors and a range of building support services.</p> <p>As one of the biggest employers in outer London it is anticipated that a larger percentage of the employees at Heathrow would be impacted by this Alternative with half of these living outside Greater London. This latter group may be more likely to switch jobs to avoid having to enter Greater London.</p> <p>There would also be negative impacts on outer London town centres retail activity due to the potential loss of spend from non-Greater London residents.</p> <p><b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>	<p>The economic impacts of this Alternative would be entirely related to the scale of the charge and the extent to which it acts as a disincentive for people who live outside London to seek employment in outer London.</p> <p>Businesses that operate outside standard working hours and in locations less accessible by public transport are likely to be the most sensitive to these impacts especially those in the transport and distribution sectors and a range of building support services.</p> <p>There would also be negative impacts on outer London town centres retail activity due to the potential loss of spend from non-Greater London residents, but only where the level of charge provides a disincentive to travel by car.</p> <p><b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>

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			<p>car. However, this would be mitigated by plans to ensure greater connectivity across London with more bus routes and Alternative modes of public transport to serve the areas which are less accessible. Overall impacts are likely to depend on the type of pricing mechanisms introduced, their duration and geographical extent.</p> <p>It is likely that the costs to business of demand management will be offset by faster journey times. However, there are likely to be negative distributional economic impacts arising from the additional costs to business. For sectors where road transport represents a high proportion of their operating costs, they are likely to experience significant short-term adverse effects where they are unable to pass these costs onto their customers.</p>			
<b>Sustainable Land Use</b>	15. Make the best and most efficient use of land so as to support sustainable patterns and forms of development?	<p><b>++</b> <b>Moderate to Major positive effect</b></p>	<p>The Consultation Draft MTS3 is predicated on an integrated approach to land use planning and the provision of transport services based on the principle that new residential and commercial development should be as close as possible to high quality public transport. This will be pursued through:</p> <ul style="list-style-type: none"> <li>- The alignment of transport investment with the growth strategy set out in the London Plan, including the prioritisation of investment in Opportunity Areas and transport growth corridors.</li> <li>- Making the most efficient use of land by promoting higher density development around stations and interchanges.</li> <li>- Targeting bus service investment in areas with low accessibility to facilitate development opportunities</li> <li>- Investing in new bus rapid transit where it can unlock housing development.</li> <li>- Investment in tube upgrades and extensions to facilitate the growth of identified Opportunity Areas in the London Plan.</li> </ul> <p>In the short to medium term the revised strategy also commits TfL to delivering homes and commercial developments on its own land within or around transport hubs to increase densities in the most accessible</p>	<p>The ULEZ expansion to outer London would not result in any change to the effects on sustainable land use identified in 2018 assessment.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would not change the moderate to major positive score identified in the previous assessment.</b></p>	<p>The implementation of this Alternative would not result in any change to the effects on sustainable land use identified in 2018 assessment.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would not change the moderate to major positive score identified in the previous assessment.</b></p>	<p>The implementation of this Alternative would not result in any change to the effects on sustainable land use identified in 2018 assessment.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would not change the moderate to major positive score identified in the previous assessment.</b></p>



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			<p>locations. This will be supported by the healthy streets approach, including that adopted in new developments.</p> <p>There are a number of policies and proposals to improve the natural environment in London:</p> <ul style="list-style-type: none"> <li>• Transport maintenance schemes (of existing green space) and improvements should protect existing and provide new green infrastructure in order to result in a net positive impact on biodiversity.</li> <li>• In order to reduce their impacts on the wider natural environment associated with supply chains and waste, transport providers will adopt the latest GLA responsible procurement guidance (transitioning to the circular economy).</li> </ul>			
<b>Housing Supply, Quality, Choice and Affordability</b>	16.To provide a quantum, type, quality and tenure of housing (including specialist and affordable provision) to better meet demographic change and household demand	<p>++</p> <p><b>Moderate to Major positive effect</b></p>	<p>The Consultation Draft MTS3 contains proposals to build 10,000 new homes being built on 300 acres of TfL owned land, with 50% of them to be affordable.</p> <p>The proposals set out will indirectly support substantial housing development, Crossrail 2 alone aims to facilitate the delivery of around 200,000 homes In addition, extension of Overground (to Bakerloo Riverside) and Bakerloo Line (to Lewisham) will support the delivery of 11,000 and 25,000 new homes respectively.</p> <p>Extending bus services to open up sites not on the rail network is also proposed.</p> <p>Reduced car use potentially frees up more space for housing if less space is needed for workplace / town centre parking. Further reductions in congestion will also improve accessibility.</p> <p>High quality housing has beneficial consequences for health; and the provision of affordable housing reduces housing inequalities.</p> <p>The Consultation Draft MTS3 would have an indirect positive impact of the provision of affordable housing by facilitating the ability of 'essential workers' – emergency services, teachers, nurses, etc.- to live and work in London.</p>	<p>The ULEZ expansion to outer London would not result in any change to the effects on Housing Supply, Quality, Choice and Affordability identified in 2018 assessment.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would not change the moderate to major positive score identified in the previous assessment.</b></p>	<p>The implementation of this Alternative would not result in any change to the effects on Housing Supply, Quality, Choice and Affordability identified in 2018 assessment.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would not change the moderate to major positive score identified in the previous assessment.</b></p>	<p>The implementation of this Alternative would not result in any change to the effects on Housing Supply, Quality, Choice and Affordability identified in 2018 assessment.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would not change the moderate to major positive score identified in the previous assessment.</b></p>

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Culture	17.To safeguard and enhance the Capital’s rich cultural offer, infrastructure, heritage, natural environment and talent to benefit all Londoners while delivering new activities that strengthen London’s global position	+/? Minor to Moderate positive effect /Uncertain	<p>The Consultation Draft MTS3 includes a package of measures that are likely to improve accessibility for all to historic and cultural environments including embedding accessibility and inclusivity in planning and design.</p> <p>However, the Consultation Draft MTS3 does not contain concrete proposals to address non-physical barriers for people with sensory or cognitive impairments.</p>	<p>The ULEZ expansion to outer London would not result in any change to the effects on culture identified in 2018 assessment.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would not change the minor to positive/uncertain score identified in the previous assessment.</b></p>	<p>The implementation of this Alternative would not result in any change to the effects on culture use identified in 2018 assessment.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would not change the minor to positive/uncertain score identified in the previous assessment.</b></p>	<p>The implementation of this Alternative would not result in any change to the effects on culture identified in 2018 assessment.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would not change the minor to positive/uncertain score identified in the previous assessment.</b></p>
Social						
Accessibility	18. To maximise accessibility for all in and around London	+ Minor to Moderate positive effect	<p>The Consultation Draft MTS3 proposals contain a number of measures to increase accessibility to all public transport modes, including:</p> <ul style="list-style-type: none"><li>• Increase in step-free access (100+ by 2022);</li><li>• Upgrade National Rail stations to step-free, 15 stations delivered every 5 years;</li><li>• Cutting congestion will involve working with business to help meet freight needs in the safest, cleanest and most efficient way possible, providing better road information and improved coordination of planned roadworks;</li><li>• 95% of bus stops will be accessible by 2017.</li><li>• Taxi rank accessibility.</li></ul> <p>Many people with sensory or cognitive impairments experience non-physical barriers to use of the transport network. The Consultation Draft MTS3 does not contain proposals to address non-physical barriers for people with sensory or cognitive impairments. However, it will prioritise issues that disproportionately affect some customers more than others. This includes new approaches to dealing with unwanted sexual behaviour and hate crime, improving the confidence of customers to report issues.</p>	<p>The ULEZ expansion to outer London would marginally reduce the volume of road traffic on the transport network and reduce congestion.</p> <p>In line with the previous assessment findings this would beneficially impact communities including the vulnerable who previously were proportionally affected by severance due to busy roads being a barrier, however the benefits are unlikely to be significant.</p> <p>There is potential for communities which straddle the GLA boundary to be disproportionately impacted by , as the charge could create a barrier between residents on either side of the GLA between their homes and the facilities that they regularly access.</p> <p>The introduction of ULEZ in outer London may result in disproportionate negative impacts on low-income disabled people who are not eligible for disabled tax vehicle exemption but are reliant on private vehicles to access employment and leisure opportunities in areas with low levels of accessible public transport as well as older people, and people with underlying health conditions, who require access to healthcare more frequently and to attend appointments in person.</p>	<p>The implementation of this Alternative would also reduce the volume of road traffic on the transport network with a small modal shift anticipated to walking trips.</p> <p>This Alternative is likely to have a greater impact that the Proposed Revision, particularly on low-income Londoners who are less likely to have ZEC vehicles.</p> <p>In line with the previous assessment findings this would beneficially impact communities including the vulnerable who previously were proportionally affected by severance due to busy roads being a barrier, however the benefits are unlikely to be significant.</p> <p>There is potential for communities which straddle the GLA boundary to be disproportionately impacted by the Alternative, as the charge could create a barrier between residents on either side of the GLA between their homes and the facilities that they regularly access.</p> <p>The introduction of ULEZ and the clean air charge in outer London would result in a greater differential negative impact on low-income disabled people who are reliant on private vehicles (on the assumption that it would apply to all without exemption for</p>	<p>The implementation of this Alternative would result in a minor reduction in road traffic with a small modal shift anticipated to walking and bus trips. It is unlikely that this would significantly reduce congestion compared to the Proposed Revision and Alternative A</p> <p>Depending on the level of the charge, there is potential for communities which straddle the GLA boundary to be disproportionately impacted by the Alternative as the charge could create a barrier between residents on either side of the GLA between their homes and the facilities that they regularly access.</p> <p>The introduction of a clean air charge in outer London would result in differential negative impacts on low-income disabled people who are reliant on private vehicles to access employment and leisure opportunities in areas with low levels of accessible public transport. The magnitude of impact would be lower than the Proposed Revision and Alternative A for those without a ULEZ compliant vehicle who do not have a disabled vehicle tax licence, but greater for those that do.</p>

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			<p>In addition to this, the barrier of high fares has been addressed by ensuring that fares are frozen and all concessions for older and disabled people are protected for the Mayor's 4 year term. Extension of bus hopper fares to include unlimited transfer will also benefit those groups who are more reliant upon this mode of travel but not entitled to free bus travel (e.g., women and BAME, job seekers).</p> <p>Implementation of the Consultation Draft MTS3 policies and proposals would result in more accessible and better integrated public transport and an increase in active transport facilities. This would encourage a modal shift away from private vehicles, with people having more active lifestyles.</p>	<p>There is also the potential for negative impacts on for people on low incomes travelling by private vehicle in outer London to access employment or opportunities due to their lesser capacity to switch to a compliant vehicle and/or, depending on their location of employment or working hours, to change mode.</p> <p>The overall scale of negative impacts would be less for the Proposed Revision as the ULEZcharge would be applicable to fewer people than Alternative A and B.</p> <p><b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate score positive identified in the previous assessment.</b></p>	<p>those holding a disabled vehicle tax) to access employment and leisure opportunities in areas with low levels of accessible public transport as well as older people, and people with underlying health conditions, who require access to healthcare more frequently and to attend appointments in person.</p> <p>There is also the potential for negative impacts on for people on low incomes travelling by private vehicle in outer London to access employment or opportunities due to their lesser capacity to switch to a compliant vehicle and/or, depending on their location of employment or working hours, to change mode.</p> <p><b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>	<p>There is also the potential for negative impacts on for people on low incomes travelling by private vehicle in outer London to access employment or opportunities due to their lesser capacity to switch to a compliant vehicle and/or, depending on their location of employment or working hours, to change mode. The magnitude of impacts on individuals is less than the Proposed Revision and Alternative A for those with ULEZ non-compliant vehicles.</p> <p><b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b></p>
Crime, safety and security	19 .To contribute to safety and security and the perceptions of safety	+ Minor to Moderate positive effect	<p>Safety concerns are a barrier to active travel and contribute to inactivity which, in turn, has impacts on health and wellbeing.</p> <p>The Consultation Draft MTS3 includes a goal to create an environment where people are safe and feel safe, however they choose to travel. To achieve this outcome, TfL plans to continue to work with the Capital's police authorities, including the British Transport Police (BTP), to make sure customers feel confident about using its services at all times. This goal implies addressing safety issues during day and night times.</p> <p>Policies and proposals in the Consultation Draft MTS directly address the issues of crime on the transport network and aim to reduce both crime and the perception of crime. The TfL business plan prioritises action on issues that disproportionately affect some customers more than others. This includes approaches to dealing with unwanted sexual behaviour and hate crime, improving the confidence of customers to report issues and know that action will be taken.</p> <p>Additionally, the Consultation Draft MTS3 proposes increased levels of security provided on PT, which would contribute to reducing</p>	<p>The ULEZ expansion to outer London would be enforced by a network of cameras situated at entry and exit points to the scheme boundary and at key locations within outer London. There is unlikely to be any change in the level of surveillance that could deter illegal driving and other antisocial behaviour, nor would the implementation of the Proposed Revision be likely to cause any increase in levels of crime</p> <p>Some people would not feel safe travelling by public transport in outer London and the adjacent areas, where they have previously travelled by non-compliant vehicle and are unable to upgrade for financial or other reasons.</p> <p>However, it is not anticipated to result in a significant mode shift towards public transport, meaning that the scale of the impact would be low. Additionally, there are existing TfL campaigns aimed at targeting hate crime and sexual harassment, which should help to alleviate fears regarding personal safety.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would</b></p>	<p>The implementation of this Alternative would also be enforced by a network of cameras situated at entry and exit points to the scheme boundary and at key locations within outer London. There is unlikely to be any change in the level of surveillance that could deter illegal driving and other antisocial behaviour, nor would the implementation of this Alternative be likely to cause any increase in levels of crime</p> <p>Some people would not feel safe travelling by public transport in outer London and the adjacent areas, where they have previously travelled by non-compliant vehicle and are unable to upgrade for financial or other reasons.</p> <p>However, it is not anticipated to result in a significant mode shift towards public transport, meaning that the scale of the impact would be low. Additionally, there are existing TfL campaigns aimed at targeting hate crime and sexual harassment, which should help to alleviate fears regarding personal safety.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would</b></p>	<p>The implementation of this Alternative would also be enforced by a network of cameras situated at entry and exit points to the scheme boundary and at key locations within outer London. There is unlikely to be any change in the level of surveillance that could deter illegal driving and other antisocial behaviour, nor would the implementation of this Alternative be likely to cause any increase in levels of crime</p> <p>Some people would not feel safe travelling by public transport in outer London and the adjacent areas, where they have previously travelled by non-compliant vehicle and are unable to upgrade for financial or other reasons.</p> <p>However, it is not anticipated to result in a significant mode shift towards public transport, meaning that the scale of the impact would be low. Additionally, there are existing TfL campaigns aimed at targeting hate crime and sexual harassment, which should help to alleviate fears regarding personal safety.</p> <p><b>The implementation of this revision would have a neutral impact and as a result would</b></p>

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			<p>anxiety and stress through an increased perception of safety. This would result in a positive health impact, particularly for those who view safety concerns as a barrier to public transport. The Consultation Draft MTS contains policies and proposals to increase the safety of cyclists. An increase level of safety for cyclists will encourage further uptake of active travel, resulting in health benefits. The Consultation</p> <p>Draft MTS also includes policies and proposals that are designed to reduce car use and consequently increase safety and the perception of safety for cyclists and pedestrians.</p> <p>The Preferred Option contains proposals to fund and work alongside the Metropolitan Police Service (MPS) Roads and Transport Policing Command to prevent crime, antisocial behaviour and fare evasion. Safer Transport</p> <p>Teams, operating across London, will carry on providing local and accessible policing for bus passengers, employees and communities. It also adopts the new 'Vision Zero' approach to reducing death and serious injury on our roads, as well as improving the safety of London's Taxi and private industry. The connection between the emerging priorities of the</p> <p>London Transport Community Safety Partnership and the MTS has not been identified.</p> <p>The planned new Direct Vision Standard will be likely to have indirect positive effects on air quality due to replacement of old vehicles with cleaner ones thus improving the air quality in the capital, as well as having direct positive effects on human health and safety due to mode shift to cycling increasing physical activity as well as improving the safety of cyclists on the roads. There are likely to be positive transboundary effects from introducing the Direct Vision Standards as the new standards are likely to be not limited to vehicles operating only in the Greater London area but stretching further outside the geographical scope of the capital.</p>	<p>not change the minor to positive score identified in the previous assessment.</p>	<p>not change the minor to positive score identified in the previous assessment.</p>	<p>not change the minor to positive score identified in the previous assessment.</p>



IIA Topics	IIA Objective	Scale of effects	MTS IIA (2018) Findings	ULEZ expansion to outer London (Proposed MTS Revision)	ULEZ expansion with a tighter standard (Alternative A)	Low Level Emissions Charge (Alternative B)
Health and health Inequalities	20.To improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the City and between communities	+ Minor to Moderate positive effect	<p>The healthy streets approach promoted by the Consultation Draft MTS will reduce the dominance of cars on the streets and promote active travel, enhancing accessibility.</p> <p>The Consultation Draft MTS is the likely to improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the City and between communities. The proposals included within this Option will reduce the level of air pollutants significantly. Additionally, TfL modelling indicates that the proposals contained within the Preferred Option would have the greatest shift to active modes of transport. This would result in significant improvements to health due to the increase in physical activity for people, the decreased level</p> <p>of air pollutants and noise caused by road transport, and the decreased level of injuries and deaths caused by road collisions.</p> <p>Whilst London meets air quality limits for particulate matter, London will continue to breach the WHO standards in the short-term before achieving a 47% reduction in PM<sub>2.5</sub> emissions by 2041 compared in 2013. Therefore, significant health impacts will occur across London with the number of air quality related diseases and deaths likely to rise with an aging population. However, the London Environment Strategy is expected to set specific targets for PM<sub>2.5</sub> which are aligned with the WHO standards.</p>	<p>The ULEZ expansion to outer London would support and improve the anticipated NO<sub>x</sub> emission reduction identified in the previous findings, with a forecast reduction of 285 to 330 tonnes of NO<sub>x</sub>. This would have corresponding health benefits due to the decreased level of air pollutants. Within outer London there is a disproportionately high number of older people and young people who are typically more susceptible to health effects associated with poor air quality.The ULEZ expansion to outer London would also encourage people who have previously opted to travel by non-compliant vehicles into outer London to adopt walking or cycling or public transport to their destination instead of upgrading to a compliant vehicle or paying the charge, however modal shift is anticipated to be marginal.</p> <p>The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</p>	<p>The implementation of this Alternative would result in a greater reduction in NO<sub>x</sub> emissions with an anticipated reduction of 330 to 390 tonnes NO<sub>x</sub>.This would have corresponding health benefits due to the decreased level of air pollutants. Within outer London there is a disproportionately high number of older people and young people who are typically more susceptible to health effects associated with poor air quality.</p> <p>The ULEZ expansion to outer London with a low-level clean air charge may also encourage people who have previously opted to travel by non-compliant vehicle into outer London to adopt walking or cycling to their destination instead of upgrading to a compliant vehicle or paying the charge, however modal shift is anticipated to be minor.</p> <p>The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</p>	<p>The implementation of this Alternative continues to support the overall anticipated reduction in NO<sub>x</sub> however would see a much lower forecast reduction of 28 to 35 tonnes NO<sub>x</sub></p> <p>This would have corresponding health benefits due to the decreased level of air pollutants however the scale of benefits would be lower than the Proposed Revision and Alternative A.</p> <p>The low-level clean air charge would encourage people who have previously opted to travel by non-compliant vehicle into outer London to adopt walking or cycling to their destination instead of upgrading to a compliant vehicle or paying the charge, however modal shift is anticipated to be minor.</p> <p>The implementation of this revision would have a positive impact however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</p>
Equality and Inclusion	21.To make London a fair and inclusive city where every person is able to participate , reducing inequality and disadvantage and addressing the diverse needs of the population	+ Minor to Moderate positive effect	<p>Implementation of the policies and proposals of the Consultation Draft MTS would result in more accessible and better integrated public transport and an increase in active transport facilities for all groups.</p> <p>TfL supplied modelling shows that this Consultation Draft MTS is able to achieve 80% sustainable mode share. It will increase the mode share of walking to 27% (2% higher than Option 1 and 2) and the level accessibility for</p> <p>people across London, including those who are disproportionately impacted by lack of access. The proposals to encourage walking and cycling are likely to lead to the 4%</p>	<p>The ULEZ expansion to outer London would have a disproportionate negative impact on older people, disabled people, and people with underlying health conditions who require vehicle access to healthcare more frequently and to attend appointments in person, if they do not qualify for the ULEZ NHS reimbursement.</p> <p>It would also negatively impact on low income workers who rely on their own private vehicles to carry out their jobs in outer London area as a result of the additional cost associated with this Proposed Revision - where employers do not reimburse staff for upgrading their vehicle or paying the charge.</p>	<p>The implementation of this Alternative would have a minor disproportionate negative impact on older people, disabled people, and people with underlying health conditions who require vehicle access to healthcare more frequently and to attend appointments in person if they do not qualify for the ULEZ NHS reimbursement. Impacts on those who do qualify for the reimbursement would depend on the scale of the clean air charge but this is likely to be very low.</p> <p>It may would also negatively impact on care low income workers who rely on their own private vehicles currently to serving carry out their jobs their outer London area as a result of the additional cost associated with this</p>	<p>The implementation of this Alternative have a disproportionate negative impact on older people, disabled people, and people with underlying health conditions who require access to healthcare more frequently and to attend appointments in person.</p> <p>It would also negatively impact on low income workers who rely on their own private vehicles to carry out their jobs in outer London area as a result of the additional cost associated with this Proposed Revision - where employers do not reimburse staff for upgrading their vehicle or paying the charge. This is likely to include, for example, self-employed delivery drivers and some domiciliary carers. BAME people and women make up a higher percentage of</p>

IIA Topics	IIA Objective	Scale of effects	MTS IIA (2018) Findings	ULEZ expansion to outer London (Proposed MTS Revision)	ULEZ expansion with a tighter standard (Alternative A)	Low Level Emissions Charge (Alternative B)
			growth in cycling by 2041 as Option 1 and 2, and a further 11.6% decline in car mode share and a 9% increase in PT use.  TfL is offering customer information in even more languages and Easy Read formats and looking at whether additional ways to help commuters better plan their journeys. As part of the Consultation Draft MTS3, there are plans to ensure that the provision of information and payment platforms are fit for the future. The strong focus on accessibility and inclusivity is also an indication that the plans laid out are future proofed for a more diverse and aging population.	This is likely to include, for example, self-employed delivery drivers and some domiciliary carers. BAME people and women make up a higher percentage of the care workforce than white people and men, respectively, and would therefore experience a disproportionate impact.  <b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b>	Proposed Revision - where employers do not reimburse staff for upgrading their vehicle or paying the charge. This is likely to include, for example, self-employed delivery drivers and some domiciliary carers. BAME people and women make up a higher percentage of the care workforce than white people and men, respectively, and would therefore experience a disproportionate impact.  <b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b>	the care workforce than white people and men, respectively, and would therefore experience a disproportionate impact.  <b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b>
Social integration	22.To ensure London has socially integrated communities which are strong, resilient and free of prejudice	+ Minor to Moderate positive effect	The Consultation draft MTS contains additional policies and proposals to improve accessibility of the transport network for all Londoners with specific plans to cater to people with accessibility need and the aging population which will positively impact social integration.  The draft strategy commits to ongoing support for other services available to help alleviate obstacles to physical accessibility including Dial-a-Ride which is a free door-to-door service for disabled and older passengers.  Furthermore, all black cabs and some private hire vehicles are wheelchair accessible.  The barrier of high fares has been addressed by ensuring that the fares are frozen and all concessions for older and disabled people are protected for the Mayor's 4 year term.  Increased number of river crossings will also remove physical barriers to movement for groups of people living in some of the most deprived areas in East London to be better connected to jobs and services thus improving integration.	The ULEZ expansion to outer London has the potential to cause and/or exacerbate social exclusion for people who rely on private vehicles to travel in outer London. Many people rely on private vehicle to participate in society - to access employment and opportunities, and for leisure purposes - and it may not be feasible for them to switch to public transport or active travel, bear the cost of upgrading their vehicle or pay the daily charge.  Being excluded from society due to a lack of available transport could mean that people have fewer opportunities to access education and employment opportunities, thereby confounding their susceptibility to poverty.  <b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b>	The implementation of this Alternative has a greater potential to cause and/or exacerbate social exclusion for people who rely on private vehicle to travel in outer London. Many people rely on private vehicle to participate in society - to access employment and opportunities, and for leisure purposes - and it may not be feasible for them to switch to public transport or active travel, bear the cost of upgrading their vehicle, or pay the daily charge.  Being excluded from society due to a lack of available transport could mean that people have fewer opportunities to access education and employment opportunities, thereby confounding their susceptibility to poverty.  <b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b>	The implementation of this Alternative the potential to cause and/or exacerbate social exclusion for people who rely on private vehicles to travel in outer London. However, this would be to a far lesser degree on the basis that a clean air charge would be set at a low level.  The impacts are therefore likely to be confined to people on very low incomes, who do not have the ability to switch to public transport. This may have a differential impact on low-income disabled people.  Many people rely on private vehicle to participate in society - to access employment and opportunities, and for leisure purposes - and it may not be feasible for them to switch to public transport or active travel, or bear the cost of upgrading their vehicle.  Being excluded from society due to a lack of available transport could mean that people have fewer opportunities to access education and employment opportunities, thereby confounding their susceptibility to poverty.  <b>The implementation of this revision would have some negative impacts however at this strategic level it would not change the minor to moderate positive score identified in the previous assessment.</b>

IIA Topics	IIA Objective	Scale of effects	MTS IIA (2018) Findings	ULEZ expansion to outer London (Proposed MTS Revision)	ULEZ expansion with a tighter standard (Alternative A)	Low Level Emissions Charge (Alternative B)
Design	23.To create attractive, mixed use neighbourhoods, ensuring new buildings and spaces are appropriately designed that promote and enhance existing sense of place and distinctiveness, reducing the need to travel by motorized transport	+ Minor to Moderate positive effect	<p>The proposals, such as the 'Healthy Streets Approach' and a number of the infrastructure projects, will make the city a more attractive and accessible place in which to live, work and travel.</p> <p>Additional measures that should reduce or remove the obstacles that prevent London from achieving this objective; namely, those of congestion, noise, poor air quality, perceptions of poor safety, and high car mode share. It is able to effectively address these issues and lead to better health outcomes.</p> <p>The Consultation Draft MTS includes policies to improve the design and layout of street space and the areas near transport gateways such that they are attractive and accessible for all.</p> <p>It also includes enhancing and extending bus priorities. The new and existing bus corridors along with the role of demand responsive bus services, will provide those in less connected deprived areas with greater accessibility.</p> <p>The policy to make better use of street space for people rather than vehicles should have a disproportionate benefit for vulnerable road users (such as children, disabled and elderly) and will improve accessibility of these places for all. Demand management and pricing will further reduce number of vehicles in London which will have a disproportionate benefit to vulnerable road users.</p> <p>However, no specific proposals to address deficiencies of access to open space anywhere in the strategy. It does not give enough focus in improving access to natural environment which is likely to improve the wider built environment and sense of space, appreciate the natural environment and connect people with nature.</p>	<p>The ULEZ expansion to outer London would enable a reduction in congestion, noise, poor air quality supporting the objective to make the city a more attractiveand accessible place to live work and travel. However, the positive impact is likely to be minor.</p> <p>The implementation of this revision would have a neutral impact and as a result would not change the minor to moderate positive score identified in the previous assessment.</p>	<p>The implantation of this Alternative would enable a reduction in congestion, noise, poor air quality supporting the objective to make the city a more attractive and accessible place to live work and travel. However, the positive impact is likely to be minor.</p> <p>The implementation of this revision would have a neutral impact and as a result would not change the minor to moderate positive score identified in the previous assessment.</p>	<p>The implantation of this Alternative would enable a reduction in congestion, noise, poor air quality supporting the objective to make the city a more attractive and accessible place to live work and travel. However, the positive impact is likely to be minor.</p> <p>The implementation of this revision would have a neutral impact and as a result would not change the minor to moderate positive score identified in the previous assessment.</p>

## 5.2 Summary of Findings

Overall, due to the scale of the Proposed MTS Revision (i.e. the addition of one Proposal to the MTS), there are no impacts identified across all of the objectives that are significant enough at this strategic level to change the MTS 2018 scoring. The assessment did identify some minor differences in the magnitude of the impacts identified as a result of implementing the Proposed MTS Revision and Alternative A (ULEZ expansion with a tighter standard) and Alternative B (Low level emission charge). However, given the extent of Proposed MTS Revision within the context of the wider MTS the differences are minimal. Where there are differences, these have been identified in the assessment table above. Summaries of the assessment findings against the IIA Objectives are presented below.

### Environmental IIA Objectives

The IIA has 11 assessment objectives that relate to environmental aspects of sustainability. The TfL modelling identifies that the Proposed MTS Revision and two Alternatives will see a reduction in NO<sub>x</sub> and carbon emissions and will help reduce volumes of road traffic and traffic congestion to a small degree. The ULEZ expansion with a tighter standard (Alternative A) would have the greatest reduction, however it **should be noted the differences in reduction between the Proposed MTS Revision and two Alternatives** are minimal in relation to the baseline. Limited modal shift is anticipated across the three options; however, Alternative A and Alternative B would provide the biggest shift due to the additional clean air charge. Positive impacts are identified on the historic environment, natural capital and noise and vibration as a result of reduced road traffic and the anticipated shift to low emissions vehicles. A shift to low emissions vehicles would result in a small negative impact on materials and waste as a result of the increased number of non-compliant vehicles that would be scrapped, and the increase in demand for minerals resources in new replacement vehicles.

**The assessment concluded that there are no impacts identified across the Proposed MTS Revision and two Alternatives that are significant enough at this strategic level to change the existing scoring on the environmental objectives identified in the original 2018 MTS assessment.**

### Economic IIA Objectives

The IIA has six assessment objectives that relate to the economy. The assessment identify that the Proposed MTS Revision and Alternative A would result in negative impacts on employers in outer London due to the potential loss of individuals from outside Greater London who are willing to work in outer London. Businesses that operate outside standard working hours and in locations less accessible by public transport will be the most impacted especially those in the transport and distribution sectors and a range of building support services. Alternative B (Clean Air Charge) is likely to have the least impact on the economy.

As one of the biggest employers in outer London, it is anticipated that some employees at Heathrow Airport will be impacted by all the options as half of the airport's employees live outside Greater London. Some of this latter group may be more likely to switch jobs to avoid having to enter Greater London. There may also be minor negative impacts on outer London town centres retail activity due to the potential loss of spend from non-Greater London residents. Again, Alternative B would have the least adverse impact.

Under the Proposed MTS Revision and the two Alternatives there is also the potential for negative impacts on for people on low incomes who travel by private vehicle in outer London to access employment or opportunities due to their lesser capacity to switch to a compliant vehicle and/or to change mode – especially those who are self employed and rely on their vehicle to carry out their work, those who work in locations poorly served by public transport, or those who work out-of-hours.



**The assessment concluded that there are no impacts identified across the Proposed MTS Revision and two Alternatives that are significant enough at this strategic level to change the existing scoring on the economic objectives identified in the original 2018 MTS assessment.**

### **Social and Health IIA Objectives**

The IIA included six assessment objectives that relate to the social and health objectives. The anticipated NO<sub>x</sub> emissions and carbon reductions would have corresponding health benefits due to the decreased level of air pollutants and may also encourage some people who have previously opted to travel by non-compliant vehicle into outer London to adopt walking or cycling to their destination instead of upgrading to a compliant vehicle or paying the charge.

The Proposed MTS Revision and two Alternatives would reduce the volume of road traffic on the transport network and reduce congestion to a limited degree. In line with the previous assessment findings this may beneficially impact communities including the vulnerable who previously were disproportionately affected by traffic severance due to busy roads. However, there is also potential for communities which straddle the ULEZ boundary to be disproportionately impacted by the Proposed MTS Revision and the two Alternatives, as the charge(s) proposed could create a barrier between residents on either side of the boundary and between their homes and the facilities that they access on a regular basis (e.g. schools or other local facilities). It is considered though that the scale of impact would be less with the Proposed MTS Revision as the ULEZ would impact significantly fewer people than Alternatives A and B.

The Proposed MTS Revision and two Alternatives would result in disproportionate impacts on disabled people who are reliant on private vehicles to access employment and leisure opportunities and on older people. But far fewer are likely to be impacted by the Proposed MTS Revision given the relatively high levels of vehicle compliance and the grace period for disabled or disabled passenger vehicle tax class vehicles.

Under the Proposed MTS Revision and Alternative A some people with underlying health conditions who require access to healthcare more frequently and to attend appointments in person, would be eligible for the ULEZ NHS patient reimbursement scheme. However, under Alternatives A and B all drivers would be required to pay the low level charge.

**The assessment concluded that there are no impacts identified across the Proposed MTS Revision and two Alternatives that are significant enough at this strategic level to change the existing scoring on the social and health objectives identified in the original 2018 MTS assessment.**

### **5.3 Cumulative effects**

The SEA Regulations 2004 requires that the assessment of effects on sustainability include secondary and cumulative effects where practicable.

The 2018 MTS IIA sets out the anticipated significant cumulative impacts from the wider strategic delivery across the MTS, the previous London Plan (March 2016) and the Consultation Draft London Environment Strategy (2017). It identified positive cumulative effects across the environmental, economic and social and health objectives. It also anticipated positive cumulative effects from the wider strategic delivery of proposals to improve air quality across the different strategies, with the LES specifically including short-term proposals to tackle hot spots of pollution near to schools, hospitals and other sensitive receptors.

It is not considered that the cumulative effects of the Proposed MTS Revision with the LES identified in the 2018 MTS IIA would change.

A new London Plan was adopted in 2021. This includes Policy SI 1 Improving Air Quality which requires Development Plans, through relevant strategic, site-specific and area-based policies, to seek opportunities to

identify and deliver further improvements to air quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality. An air quality neutral or air quality positive approach is sought for all forthcoming developments. As the new London Plan takes a more proactive approach to air quality, it is anticipated that there will be additional positive cumulative effects across the environmental and social and health objectives with the implementation of this Proposed MTS Revision.

#### **5.4 Relationship to the London-wide ULEZ IIA**

A separate IIA of a London-wide ULEZ has been undertaken in parallel with this assessment of the Proposed MTS Revision. The findings of the London-wide ULEZ IIA have informed at a strategic level the assessment presented in this section, where relevant. However, the assessment of the London-wide ULEZ scheme also provides a more detailed assessment than is possible or appropriate for strategic alternatives such as those presented in this IIA. Both documents are subject to public consultation and will be published on 20 May 2022.

## **6. Updates to Monitoring Framework**

The SEA Regulations state that monitoring must be undertaken on the likely significant environmental effects of the implementation of plans and programmes in order to identify, at an early stage, unforeseen effects and be able to undertake appropriate remedial measures. In line with the integrated approach to impact assessment, monitoring these indicators is a way of demonstrating success in delivering the MTS targets and reducing its environmental, social and economic impacts.

TfL's Travel in London reports, published annually, provide the framework for monitoring progress towards implementing the MTS. As this assessment concluded that no changes to the 2018 MTS IIA scoring were required there are no updates proposed for the current MTS monitoring framework.

## 7. Next Steps

This IIA Report is open for a consultation period alongside the Proposed MTS Revision. The ten-week statutory consultation period on the MTS Revision and this IIA Report commences on 20 May 2022.

Upon completion of this period, the consultation responses will be collated and analysed in a consultation report. The findings will be used to inform any recommended modifications to the Proposed MTS Revision. The consultation report will be submitted to the Mayor together with this IIA and ULEZ Scheme IIA and other relevant information which the Mayor will be asked to take into account when deciding whether or not to approve the Proposed MTS Revision, with or without modifications. The Mayor is then required to submit the final proposed text for publication to the London Assembly, which may choose to hold a meeting within 21 days to consider the revision and may reject it, by a two thirds majority of Assembly members present and voting. Following this process, the final version of the MTS revision will be published.

The way in which consultation responses have been addressed in finalising the Proposed MTS Revision will be set out in a IIA Post Adoption Statement. It is a requirement under the SEA Regulations that a Post Adoption Statement is produced. The purpose of this statement is to demonstrate how the SEA, or in this case the IIA, has served to influence the drafting of the adopted MTS Revision.

Any comments relating to the findings of the IIA presented in this report, or the MTS Revision, would be welcomed. Please send all correspondence either to the postal address below or by e-mail to [cleanairyourview@tfl.gov.uk](mailto:cleanairyourview@tfl.gov.uk)

The postal address is:

FREEPOST TFL **Have Your Say**

To find out more about the proposals and have your say on the consultation, visit [www.tfl.gov.uk/clean-air](http://www.tfl.gov.uk/clean-air).

## Proposed Mayor's Transport Strategy Revision and London-wide ULEZ: Habitats Regulations Assessment Screening

Revision no: 04

Transport for London  
RUC MTS Revision and London-wide ULEZ  
14 October 2022



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# 1. Introduction

## 1.1 Background

The Mayor's Transport Strategy (MTS) (Transport for London (TfL), 2018) is the principal policy tool through which the Mayor and TfL exercise their responsibilities for the planning, management, and development of transport in London. The MTS is key to the delivery of the London Environment Strategy (Greater London Authority, 2018), which commits the Mayor to accelerating the attainment of legal limits for air quality in Greater London as quickly and as effectively as possible, including through the reduction of emissions from London's transport network by enabling Londoners to switch to more sustainable forms of travel.

In 2019 the Mayor introduced the Ultra Low Emissions Zone (ULEZ). It is a road user charging scheme which imposes a daily charge (currently £12.50) for use of a vehicle within the zone which does not meet the prescribed emissions standards. The zone originally covered only central London but was expanded to inner London in October 2021.

On 4 March 2022, the Mayor announced that he intended to consult on proposals to extend the ULEZ from the existing boundary (along the inner boundaries of the North and South Circular roads) to cover almost all of Greater London (London-wide).

To facilitate the ULEZ expansion and comply with requirements set out in Schedule 23 to the Greater London Authority Act 1999, the Mayor considers that the current MTS needs to be revised.

TfL consulted upon this Proposed Revision to the MTS alongside a consultation on the proposed expansion of ULEZ London-wide (and other road user charging scheme proposals) between 20 May and 29 July 2022.

TfL commissioned Jacobs to undertake an Integrated Impact Assessment (IIA) (Jacobs, 2022a), incorporating a Strategic Environmental Assessment (SEA) of the Proposed MTS Revision. A separate IIA was also undertaken in relation to the proposed expansion of ULEZ London-wide. The IIA process is a tool for identifying potential key economic, equality, health and environmental impacts associated with plans or projects, including ways to avoid and mitigate adverse impacts and enhance beneficial impacts.

In March 2022, a scoping report for the MTS IIA was sent to statutory environmental bodies in accordance with regulation 12(5) of the Environmental Assessment of Plans and Programmes Regulations 2004 (SEA Regulations). This report proposed that a Habitats Regulations Assessment (HRA) would not need to be undertaken to inform the IIA as the Proposed MTS Revision would not increase visitor/recreational pressure on designated habitats. In April, Natural England responded to TfL that it had 'no specific comments to make on the MTS IIA Scoping Request'.

Subsequently, in its response to the public consultation on the Proposed MTS Revision and on the proposed ULEZ expansion, Natural England advised that a HRA is required to rule out any impacts from the proposed expansion on Epping Forest SAC, and apologised for not having raised this earlier in the process.

Consequently, Jacobs were commissioned to undertake a HRA of the Proposed MTS Revision and the proposed ULEZ expansion.

This document presents the results of a screening exercise for likely significant effects, as the first stage (Stage One) of the HRA for the Proposed MTS Revision and proposed ULEZ expansion.

## 1.2 Purpose of this screening report

Under the requirements of the Habitats Regulations (as discussed in Sections 2.1 and 2.2), it has been established that an initial HRA Screening Assessment (Stage One) is required to assess the impacts of the Proposed MTS Revision and proposed ULEZ expansion on European Sites and Ramsar sites (under Government policy, Ramsar sites have the same protection as European sites and are required to be assessed in the same way (UK Government, 2021, 2022)).

This report fulfils the requirements of regulation 63 of the Habitats Regulations and covers the first stage of the HRA process: Stage One (Screening), which will be used to establish whether a Stage Two (Appropriate Assessment) will be required due to the likelihood of significant effects on any European Sites/Ramsar sites.

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## 2. Context

### 2.1 Current Situation and Background

TfL has operated a London-wide Low Emission Zone (LEZ) which applies to the most polluting heavy diesel vehicles since 2008. This was followed in October 2017 by the Toxicity Charge (T-charge), which was an emissions surcharge in the Congestion Charge Zone (CCZ) for cars and vans which did not meet Euro 4 standards and lorries, buses and coaches which did not meet Euro IV. This applied until the introduction of Central London ULEZ in April 2019 which tightened emissions standards to Euro 6 for diesel cars, vans and minibuses and Euro VI for lorries, buses and coaches within the ULEZ.

From when it was first introduced until October 2021, the ULEZ also had the same central London boundary as the CCZ (which had been in place since 2003).

TfL's own analysis of the impacts of the central London ULEZ demonstrates the change in air quality over the first 10 months following its introduction (i.e. prior to the pandemic) which included the following changes in the zone (Transport for London, 2020):

- 44% reduction in nitrogen dioxide (NO<sub>2</sub>) concentrations
- 27% reduction in fine particulate matter (PM<sub>2.5</sub>) concentrations
- 6% reduction in carbon dioxide (CO<sub>2</sub>) emissions

Between February 2017 and January 2020, on an average day there was a 71 per cent reduction in the number of older more polluting vehicles detected in the zone.

From 1 March 2021 the London-wide LEZ standard was tightened to Euro VI<sup>1</sup> for HGVs, buses, coaches and other specialist vehicles to bring it into line with ULEZ emissions standards.

In October 2021 ULEZ was extended to inner London to cover all areas within, but not including the North Circular (A406) and South Circular (A205) roads (Figure 1). The ULEZ operates 24 hours a day, 7 days a week, every day of the year, except Christmas Day.

After the first six months of operation of the extended ULEZ there was 94% compliance with vehicle standards, and the nitrogen dioxide (NO<sub>2</sub>) concentrations in inner London are estimated to be 20% lower than they would have been without ULEZ and its extension<sup>2</sup>. As a result, Greater London is now on track to meet legal air quality limits for NO<sub>2</sub> by 2025 at the latest. However, the Mayor has stated there remains more that can and should be done to lower exposure to poor air quality as quickly and effectively as possible to protect human health, including potentially going beyond achieving existing UK air quality requirements.

Levels of air pollution are lower in outer London than in inner London. However, traffic volumes have grown in outer London over the past two years and the greatest number of life years lost to air pollution in 2019 were in outer London boroughs. This reflects, at least in part, the higher proportion of older people, who are more vulnerable in outer London. Compared with inner London, outer London also has a higher proportion of children who are also more vulnerable to the effects of poor air quality.

The GLA commissioned Imperial College London to assess the impact on health of the mayoral air quality policies, and air pollution in London, based on 2019 and future levels of air pollution up to 2050.<sup>3</sup> The boroughs with the highest number of air pollution related deaths in 2019 were Bromley, Barnet, Croydon and Havering.

TfL have stated that if no additional action is taken to reduce air pollution beyond the existing policies committed to by the Mayor, around 550,000 Londoners would develop diseases attributable to air pollution over the next 30 years and the cumulative cost to the NHS and social care system is estimated to be £10.4 billion. Furthermore, the benefit of improving air quality to the UK and local economies has been analysed by

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<sup>1</sup> Euro VI (6) is a set of limits for harmful exhaust emissions produced by light-duty vehicles powered by petrol or diesel engines. [https://theicct.org/sites/default/files/publications/ICCT\\_Euro6-VI\\_briefing\\_jun2016.pdf](https://theicct.org/sites/default/files/publications/ICCT_Euro6-VI_briefing_jun2016.pdf)

<sup>2</sup> <https://www.london.gov.uk/press-releases/mayoral/londoners-breathing-cleaner-air-thanks-to-ulez>

<sup>3</sup> <https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/health-burden-air-pollution-london>

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CBI Economics who found the UK economy could benefit to the tune of £1.6 billion each year if it were to achieve the guidelines set by the WHO for air quality<sup>4</sup>.

In December 2021, TfL presented the Mayor with a range of road user charging approaches that could be developed in the next few years to tackle emissions and resulting air pollution. The Mayor has considered the range of alternatives, presented to him by TfL, that could be taken forward to consultation and a preliminary assessment of the potential of the approaches was undertaken to understand their impacts, including impacts on air quality, traffic volumes and CO<sub>2</sub> emissions.

The alternatives presented to the Mayor were:

- Extending the ULEZ to cover almost all of Greater London (i.e. "London-wide ULEZ")
- Implementing a low-level daily Clean Air Charge for all but the cleanest vehicles
- A combined ULEZ expansion and Clean Air Charge
- Introducing a Greater London Boundary Charge for vehicles driving into London

A preliminary assessment of the potential of the four approaches was undertaken to understand their impacts, including impacts on air quality, traffic volumes and CO<sub>2</sub> emissions.

The Mayor considered the benefits and drawbacks of each of the four approaches and concluded that the proposal for a London-wide ULEZ from August 2023 was the optimal approach to develop further and take to public and stakeholder consultation due to its higher impact on emissions whilst limiting the number of people impacted by the charge.

In May 2022, TfL consulted on proposals (TfL, 2022a), to help improve air quality, tackle climate change and reduce congestion, including:

- Expanding the Ultra Low Emission Zone (ULEZ) scheme London-wide
- Making changes to Auto Pay for the Congestion Charge, ULEZ and Low Emission Zone (LEZ)
- Making changes to the Penalty Charge Notice (PCN) level for the Congestion Charge and ULEZ

To facilitate the ULEZ expansion and comply with requirements set out in Schedule 23 to the Greater London Authority Act 1999, the Mayor considers that the current MTS needs to be supplemented with the following new proposal and accompanying narrative:

*The Mayor, through TfL and the boroughs, will seek to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion through road user charging schemes including by expanding the Ultra-Low Emission Zone London-wide.*

## 2.2 Impact Assessment of the Proposals

As noted above, two IIAs were undertaken and consulted upon alongside the proposals<sup>5</sup>:

- MTS Revision Integrated Impact Assessment (Jacobs, 2022a), which includes a Strategic Environmental Assessment (SEA)
- London-wide ULEZ Integrated Impact Assessment (ULEZ Scheme IIA) (Jacobs, 2022b)

A HRA screening was not undertaken in relation to either proposal, on the basis that they would be unlikely to increase visitor or recreational pressure on designated habitats. This position was not questioned by Natural England in its response to the MTS Revision IIA Scoping Report. However, in its response to the subsequent consultation on the proposals, Natural England requested that a HRA be carried out in respect of Epping Forest SAC. TfL has subsequently decided to undertake a HRA screening exercise in relation to all relevant designated habitats within and adjacent to the proposed boundary of the London-wide ULEZ. This HRA screening report is directly informed by and further develops the air quality and biodiversity assessments

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<sup>4</sup> Next steps for reducing road transport emissions (TfL, January 2022) <https://content.tfl.gov.uk/next-steps-for-reducing-emissions-from-road-transport.pdf>

<sup>5</sup> TfL also undertook an Equalities Impact Assessment specifically in relation to the proposed changes to Autopay and Fleet Pay (for Congestion Charge and LEZ) and to PCNs (Congestion Charge) (TfL, 2022a).

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undertaken for the London-wide ULEZ IIA and the results of the HRA are summarised in the MTS Revision IIA Post Adoption Statement (TfL, 2022b).

Traffic modelling was undertaken by TfL to compare the situation in 2023 (the proposed year of implementation) with and without the proposed extension of ULEZ, which subsequently informed TfL emissions estimates and dispersion modelling undertaken by Imperial College London. The model outputs comprise traffic demand (by mode of travel and journey purpose), road traffic emissions and air pollutant concentrations. This information was used to assess the contribution of the proposed ULEZ expansion to a reduction in emissions of air pollutants and exposure to pollution (and the associated benefits to human health) as well its contribution to achieving compliance with legal limits for air pollution within Greater London (Jacobs, 2022b).

These model outputs were also used to inform a high level assessment of the potential impacts of changes in emissions of air pollutants on designated sites which were reported in the London-wide ULEZ IIA (Jacobs, 2022b). This included an assessment of the areas of designated habitats which would be above the applicable annual mean NO<sub>x</sub> Air Quality Objective (AQO) with and without the ULEZ expansion. The change in the area forecast to experience AQO exceedances was reported as an aggregate figure in hectares (and as a % of total area) for the following types of designation:

- Ancient woodland
- Local Nature Reserves
- National Nature Reserves
- Ramsar sites
- Sites of Special Scientific Interest
- Special Areas of Conservation
- Special Protection Areas

The London-wide ULEZ IIA identified marginal reductions in the total area of each type of habitat designation which would experience exceedances of the annual mean NO<sub>x</sub> AQO.

This HRA Screening Report uses the same modelling data to assess in more detail potential effects on those European/Ramsar sites which have been designated for habitats which are known to be sensitive to poor air quality, or where the supporting habitats of the designated species are also sensitive to poor air quality.

Air pollution that typically affects habitats will include dust and particulate matter (PM), nitrogen oxides (NO<sub>x</sub>), ammonia (NH<sub>3</sub>) and sulphur dioxide (SO<sub>2</sub>) (Natural England, 2018a). All are potentially emitted from road vehicles. All combustion processes produce oxides of nitrogen, for which NO<sub>x</sub> is the collective term. Oxides of nitrogen comprise nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>), with the former readily converted to the latter by oxidation. NO<sub>x</sub> is produced in combustion processes, partly from nitrogen compounds in fuel, but mostly by direct combination of atmospheric oxygen and nitrogen in flames; the road transport sector provides a significant contribution (APIS, 2022). The main sources of SO<sub>2</sub> emissions are electricity generation, industrial and domestic fuel combustion. Total SO<sub>2</sub> emissions have decreased substantially, in line with changes in fuel use and commitments to international agreements (APIS, 2022). Emissions still show a steady decline. Whilst emissions of NH<sub>3</sub> are dominated by those from agriculture, ammonia can also be emitted in small quantities by catalyst-equipped petrol vehicles and light and heavy-duty diesel vehicles fitted with Selective Catalytic Reduction (SCR) emissions abatement equipment.

PM is formed of tiny particles and is classified according to size, either as PM<sub>10</sub> (particles of ≤10µm in diameter) or PM<sub>2.5</sub> (particles of ≤2.5µm diameter, which are 200 times smaller than a grain of sand).

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## 3. The HRA Process

### 3.1 Summary

The Habitats Regulations transposed the European Union Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive') into UK legislation to protect sites that are internationally important for threatened habitats and species, and to create a legal framework for species requiring strict protection.

The Habitats Regulations require that an Appropriate Assessment be undertaken by a Competent Authority where any plan or project not directly connected with or necessary to the management of the European Site (i.e. a Special Area of Conservation (SAC) or Special Protection Area (SPA), or candidate or potential SAC/SPA), is likely to have a significant effect either individually or in combination with other plans or projects on a SAC or SPA. Whilst not a European Site designation, wetland sites designated under the Convention on Wetlands of International Importance, known as Ramsar sites, are also relevant. They are afforded the same level of protection and treated in the same way as the European Sites in Government policy and guidance (UK Government, 2021, 2022).

A HRA is the process, which includes an Appropriate Assessment, whereby a Competent Authority comes to a conclusion as to whether there are any adverse effects on site integrity from a plan or project in view of the site's conservation objectives. If the Appropriate Assessment ascertains that the plan or project would adversely affect site integrity and yet the Competent Authority still wishes to consent, permit or otherwise authorise the plan or project, a consideration of alternative solutions is required. If no alternative solutions are available, a proposal may be carried forward for Imperative Reasons of Overriding Public Interest (IROPI). With respect to this HRA, the Competent Authority is the Mayor of London.

If no likely significant effects have been identified in respect of a plan or project, the HRA process is concluded. However, if likely significant effects are identified either alone or where there are 'in-combination effects' with other plans and projects, the plan or project will be subject to a subsequent Stage Two assessment to ascertain the implications of the plan or project for a site in view of that site's conservation objectives and whether there will be any adverse effects on the integrity of the relevant sites and their qualifying interests (an Appropriate Assessment).

### 3.2 Stages of HRA

The four stages of the HRA process are as follows:

- Stage One – Screening (should be undertaken in all cases)
- Stage Two – Appropriate Assessment
- Stage Three – Alternative Solutions
- Stage Four – Imperative Reasons of Overriding Public Importance (IROPI) and including, in certain circumstances, compensatory measures

It should be noted that not all stages may be necessary in the HRA process. If the screening stage determines that a plan or project is unlikely to have significant effects on a European Site (or Ramsar sites), subsequent stages are not required. The four stages of the HRA process are described in more detail below.

#### Stage One: Screening

Screening identifies the potential likely significant effects on a European Site/Ramsar site from a project or plan, either alone or in combination with other projects or plans.

The screening assessment is a test of the 'likelihood' of effects occurring rather than a 'certainty' of effects occurring. In accordance with the Waddenzee Judgement (ECJ case C-127/02), a likely significant effect is one that cannot be ruled out on the basis of objective information. This is underpinned by the precautionary principle which is enshrined in law in the Habitats Directive, and the test of something as being "*beyond reasonable scientific doubt*", as presented in the Waddenzee Judgement. Paragraph 49 of the same judgement adds "*...where a plan or project... is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site. The assessment of that risk must be made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a*

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*plan or project". The Sweetman case (ECJ case C-258/ 11) reinforced and further refined the Waddenzee Judgement ruling that "the question is simply whether the plan or project concerned is capable of having an effect. It is in that sense that the English 'likely to' should be understood."*

The People Over Wind Judgement (ECJ case C-323/17) clarifies the stage in the HRA process when mitigation measures can be taken into account when assessing impacts on a European site. The ruling is that: *"...in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site."*

With respect to this HRA report, the Wealden District Council v Secretary of State for Communities and Local Government, Lewes District Council and South Downs National Park Authority ([2017] EWHC 351 (Admin)) is also of relevance. This relates to a challenge brought by Wealden District Council regarding the assessment of air quality effects on Ashdown Forest SAC and the application of a threshold for expected increases in traffic (1,000 Annual Average Daily Traffic (AADT)) below which there would be no likely significant effects and no Appropriate Assessment would be required. The judge held that *"Competent authorities are quite entitled to use threshold levels and values to eliminate from further consideration de minimis environmental impacts which, on scientific evidence, fall short of engendering any relevant risk"*. He also ruled that traffic impacts of all plans should be combined when applying the 1,000 AADT screening threshold.

## **Stage Two: Appropriate Assessment**

If the Stage One Screening process determines that the project or plan (either solely or in combination) is associated with impacts which are likely to have a significant effect (upon a European Site/Ramsar site), or there is uncertainty, the HRA proceeds to Stage Two.

An Appropriate Assessment considers the effect of the project or plan, either alone or in combination with other projects or plans, on the integrity of the European Site/Ramsar site, with respect to the site's structure and function, and its conservation objectives. Under the provisions of regulation 63 of the Habitats Regulations the objective is to ascertain whether the integrity of the site will be adversely affected.

## **Stage Three: Alternative Solutions**

Stage Three is when an adverse effect on site integrity (AESI) cannot be ruled out. It examines alternative ways of achieving the objectives of the project or plan, that may avoid an AESI on the European/Ramsar site. Guidance (European Commission, 2007) indicates that all alternatives have to be analysed.

## **Stage Four: Imperative Reasons of Overriding Public Importance (IROPI)**

Where no alternative solutions exist and where adverse effects remain, an assessment is undertaken of the IROPI to determine whether a project or plan should proceed.

This document covers only Stage One (Screening) of the HRA process.

## **3.3 Guidance**

In undertaking this HRA the following guidance was referred to:

- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/ 43/ EEC (European Commission, 2001)
- Communication from the Commission on the Precautionary Principle (European Commission, 2000)
- Guidelines on the Implementation of the Birds and Habitats Directives in Estuaries and Coastal Zones with particular attention port development and dredging (European Commission, 2011)
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/ 43/ EEC (European Commission, 2018)
- NE Internal Guidance – Approach to Advising Competent Authorities on Road Traffic Emissions and HRAs (Natural England, 2018a)



## 4. Consultation

A scoping report for the development of the Proposed MTS Revision IIA was issued to statutory environmental bodies for consultation. This did not generate any responses relevant to the Habitats Regulations and the requirement to undertake a HRA was scoped out at that stage.

Subsequently, feedback on the proposals for the MTS Revision and the London-wide ULEZ (and their respective IIAs) was received during public consultation between May and July 2022. Responses relevant to the HRA were received from Natural England (Natural England, 2022a), Epping Forest District Council (EFDC) (EFDC, 2022) and Spelthorne Borough Council (Spelthorne Borough Council, 2022a). Those parts of the responses relevant to the HRA are presented in Table 4.1.

In summary, Natural England stated that a HRA should be carried out specifically in relation to potential impacts on the Epping Forest SAC. Natural England also stated that it considered that the expanded ULEZ would be unlikely to have any adverse effects on the SAC, but that this needed to be demonstrated. EFDC stated that the Epping Forest SAC was sensitive to nitrogen (NO<sub>x</sub>) and ammonia (NH<sub>3</sub>), and that the council had a duty to ensure that plans and projects could only be permitted where there will be no adverse effect on the Forest.

Spelthorne Borough Council raised a concern about 'sensitivities' at two sites: Staines Moor Site of Special Scientific Interest (SSSI) and the Southwest London Waterbodies SPA, as a result of possible increases in traffic flows and the potential resultant changes in air quality. It should be noted that potential air quality impacts on SSSIs are considered within the London-wide ULEZ IIA (Jacobs, 2022b).

Table 4.1: Consultation Responses

Consultee	Relevant Text
Natural England July 2022	<p>We note that the proposed expansion to the London Boundary cuts through Epping Forest Special Area of Conservation (SAC) and would advise that a Habitats Regulations Assessment is required to rule out any impacts from the proposed expansion on Epping Forest SAC. We apologise for not having raised this earlier in the process.</p> <p>Epping Forest SAC is designated for Atlantic acidophilous beech forests, Northern wet heaths and European dry heaths and contains habitats which are sensitive to air quality impacts. Having reviewed Chapter 5 of the Integrated Impact Assessment, it appears that the expanded ULEZ will lead to a drop in traffic both within the proposed zone, as well as in the areas of non-greater London that were also included in the study area. Noting this, it suggests that the proposals are unlikely to have any adverse impact on Epping Forest. However due to the nature of the plan, and the potential for impacts, this plan should follow the process of the Habitats Regulations. A Habitats Regulations Assessment could be informed by the information that is provided within the IIA.</p> <p>Natural England guidance provides a simple step by step approach to assessing road traffic emissions under the Habitats Regulations. All designated sites that may be impacted by the affected road network within a reasonable buffer zone should be screened in for consideration under your authority's appropriate assessment. Please note that the method for assessing in combination effects has changed in the past few years due to a number of high-profile appeal decisions. They include the following: The Wealden Judgement; The People Over Wind Case; and CJEU Ruling in The Netherlands Nitrogen and Agriculture Cases C-293/17 and C-294/17. Please note that ammonia (NH<sub>3</sub>) from traffic emissions should also be assessed as the impact from this source on designated sites is currently unclear</p>
Epping Forest District Council July 2022	<p>The District, together with the London Boroughs of Waltham Forest and Redbridge, also has a Special Area of Conservation (SAC) which is an international designation applied to sites whose habitats and species have significant ecological importance. The Epping Forest SAC (EFSAC) is sensitive to pollutants which include oxides of nitrogen (NO<sub>x</sub>) and ammonia (NH<sub>3</sub>) and because of this, there are pollutant critical levels set for these pollutants. With respect to the EFSAC, vehicle tailpipe emissions are the main source of pollution (with catalytic convertors being the primary source of NH<sub>3</sub>). It is known that much of the EFSAC is in an unfavourable condition. Under the UK legislation the Council</p>

Consultee	Relevant Text
	<p>is a competent authority with a duty to ensure that plans and projects can only be permitted where there will be no adverse effect either alone or in combination with other plans and projects on the Forest. This is a matter which has been the subject of considerable and ongoing discussion as part of the examination into the Council's emerging Local Plan in order to shape an appropriate policy framework to mitigate the effect of new development on the EFSAC.</p> <p>In addition, to support the delivery of new development Epping Forest District Council has produced an Air Pollution Mitigation Strategy (which is currently an Interim Strategy), which provides a list of measures to be implemented in order to mitigate any effects on the EFSAC. One such measure, should it be demonstrated to be necessary through on-site monitoring and subsequent air quality modelling, is the creation of an EFSAC specific Clean Air Zone.</p> <p>As part of the work to assess air pollution impacts on the EFSAC, ANPR data was obtained to assess fleet composition. It found that in terms of euro class split, the 2019 ANPR data showed that the car and LGV fleet using the roads through the EFSAC is for the main part newer than that in the EFT outer London fleet, but older than the EFT UK average outside of London. Older vehicles with less rigorous euro standards are typically more prevalent in the local vehicle fleet for both 2017 and 2019 ANPR surveys.</p>
<p>Spelthorne Borough Council July 2022</p>	<p>2.6. A further issue to consider which is associated with this is the volume of existing HGV vehicle movements around Stanwell Moor, to the north of Staines, due to the waste and recycling plant located there at Oakleaf Farm. The capacity of this plant is expected to increase to continue to meet increasing waste management and recycling targets. This will likely lead to increased HGV movements and, when coupled with similar movements associated with Heathrow Airport directly to the north of Stanwell Moor, presents significant air quality and noise impacts which negatively affect the north of Spelthorne.</p> <p>2.7. There are sensitivities at these locations, namely the proximity of Sites of Special Scientific Interest (Staines Moor) and the Southwest London Waterbodies Special Protection Area to Staines upon Thames, along with the already high levels of pollution at Sunbury Cross. Given the significance of the Local Plan setting of the Council's approach to meeting development needs over the next 15 years and, the requirement to mitigate any impacts of this as far as possible, it is a concern that there has been a lack of consultation with the Borough.</p> <p>This is particularly concerning given the sensitive sites and the potential impacts of increased traffic flows on these, that there has been such limited, or no, clear consultation with Natural England and National Highways. The Council is developing its Habitats Regulation [sic.] Assessment to support the Local Plan in conjunction with Natural England to ensure any identified air quality impacts on sensitive sites are fully scoped and mitigated where possible. If external factors are likely to influence this work, such as changing and increased traffic flows because of the ULEZ, then TfL should be liaising with NE and the Council to share modelling and to ensure there is a fully considered assessment and mitigation strategy in place</p>



## 5. European/Ramsar Sites

### 5.1 Identification of Sites Potentially Affected

The geographical scope of this assessment (the “air quality study area”) is the area covered by the London Atmospheric Emissions Inventory (LAEI), which includes Greater London (the 32 London boroughs and the City of London), as well as areas outside Greater London up to the M25 motorway (Figure 1).

All European/Ramsar sites (or parts thereof) within the air quality study area were identified for inclusion in the screening assessment (Figure 1). Natural England guidance indicates that all sites that might be impacted by the affected road network of a scheme should be included in an assessment. Furthermore, Natural England and Highways England agree that protected sites falling within 200m of the edge of a road affected by a plan or project should be considered further (Natural England, 2018a). Additional sites may be included where there is a credible risk of air quality impacts extending further than 200m.

Seven sites were identified for inclusion at the screening stage; a list of these sites with their qualifying interests (in simplified form) can be found in Table 5.1. Further details of the sites can be found in Sections 5.2 to 5.4; full details are provided in Table 5.2.

Table 5.1: European/Ramsar sites to be included in the assessment.

Site and Code	Qualifying Interests	Commentary
<b>Special Areas of Conservation</b>		
Epping Forest UK0012720	Beech forests Wet heaths Dry heaths Stag beetle	Approximately 16% (230ha) of the SAC lies within the London-wide ULEZ (Figure 1). In addition, the proposed boundary cuts through the SAC in the vicinity of Buckhurst Hill. Requested by Natural England and EFDC to be included in the HRA.
Richmond Park UK0030246	Stag beetle	Lies within extended ULEZ (Figure 1). The SAC is approximately 3.6km from the proposed boundary and also 460m from the Wimbledon Common SAC.
Wimbledon Common UK0030301	Wet heaths Dry heaths Stag beetle	Lies within extended ULEZ (Figure 1). The SAC is approximately 5.3km from the proposed boundary and also 460m from the Richmond Park SAC.
<b>Special Protection Areas</b>		
Lee Valley UK9012111	Shoveler Gadwall Bittern	The southern part of the SPA (approximately 180ha) lies within the existing ULEZ (Figure 1). The remainder of the site lies outside the air quality study area and 1.1km outside the proposed London-wide ULEZ boundary, and therefore has not been considered within this assessment.
South West London Waterbodies UK9012171	Shoveler Gadwall	Most of the SPA lies outside the London-wide ULEZ boundary, only 20ha (2.4%), the Kempton Park East Reservoir, lies with the scheme area (Figure 1). It is approximately 100m from the proposed boundary. Redhouse Reservoir (5.2ha) lies approximately 30m outside the proposed boundary.
<b>Ramsar Sites</b>		
Lee Valley UK11034	Whorled water-milfoil A water-boatman species	The southern part of the Ramsar (approximately 180ha) lies within the existing ULEZ (Figure 1). The remainder of the site lies outside the air quality study

Site and Code	Qualifying Interests	Commentary
	Shoveler Gadwall	area and 1.1km outside the proposed London-wide ULEZ boundary, and therefore has not been considered within this assessment.
South West London Waterbodies UK11065	Shoveler Gadwall	Most of the Ramsar lies outside the London-wide ULEZ boundary, only 20ha (2.4%), the Kempton Park East Reservoir, lies with the proposed boundary (Figure 1). It is approximately 100m from the proposed boundary. Redhouse Reservoir (5.2ha) lies approximately 30m outside the proposed boundary.

## 5.2 Special Areas of Conservation

### Epping Forest SAC

Epping Forest SAC (Figure 1) is a large ancient wood-pasture with habitats of high nature conservation value including ancient semi-natural woodland, old grassland plains, wet and dry heathland and scattered wetland (English Nature, 2005a). The SAC falls partly within the proposed ULEZ expansion area.

The entire forest land is 2,400 ha approximately 19 km long (north-south) situated between Epping in the north and Wanstead in the south. It occupies a long and relatively narrow area of higher ground between the river valleys of the Lea and Roding, straddling the border between Greater London and Essex (Natural England, 2019). Over two-thirds of the Forest area is classified as an SAC.

The semi-natural woodlands of Epping Forest include important beech *Fagus sylvatica* forests on acid soils and the long history of pollarding, and resultant large number of veteran trees, ensures that the site is also rich in fungi and invertebrates associated with decaying timber. Records of stag beetle *Lucanus cervus* are widespread and frequent.

The site is designated for woodland and heath habitat types and for stag beetle (see below and Table 5.2).

Priorities and issues for the site include (1) Air Pollution: impact of atmospheric nitrogen deposition and (6) Water Pollution.

#### **H9120. Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*); Beech forests on acid soils**

This qualifying habitat comprises beech forests with holly *Ilex aquifolium*, growing on acid soils, in a humid Atlantic climate (Natural England, 2019). The vegetation which comprises this habitat falls within three UK National Vegetation Classification (NVC) community types:

- W14 *Fagus sylvatica* – *Rubus fruticosus* woodland
- W15 *Fagus sylvatica* – *Deschampsia flexuosa* woodland
- W10 *Quercus robur* – *Pteridium aquilinum* – *Rubus fruticosus* woodland

Although the epiphytes at the site have declined, largely as a result of air pollution (Natural England, 2019). it remains important for a range of rare species.

#### **H4010. Northern Atlantic wet heaths with *Erica tetralix*; Wet heathland with cross-leaved heath**

Wet heath usually occurs on acidic, nutrient-poor substrates, such as shallow peats or sandy soils with impeded drainage. The vegetation is typically dominated by mixtures of cross-leaved heath *Erica tetralix*, heather *Calluna vulgaris*, grasses, sedges and *Sphagnum* bog-mosses. At the site, this habitat feature is known to predominantly comprise the following NVC community; M16 *Erica tetralix* - *Sphagnum compactum* wet heath.

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## H4030. European dry heaths

European dry heaths typically occur on freely-draining, acidic to circumneutral soils with generally low nutrient content. Nearly all dry heath is semi-natural, being derived from woodland through a long history of grazing and burning. At this site, this habitat feature is known to predominantly comprise the NVC community; H1 *Calluna vulgaris* - *Festuca ovina* heathland.

### S1083. *Lucanus cervus*; Stag beetle

The stag beetle is the UK's largest terrestrial beetle and requires decaying wood to complete its lifecycle and the decaying timber in the large woodland area of Epping Forest supports a large population of the species. The site has a large number of ancient trees with decaying timber and a diversity of tree species, habitat structure and canopy conditions. The SAC straddles the Essex and East London stag beetle population centres and records are widespread and frequent in the SAC. Epping Forest is a site of national importance for the conservation of the fauna of invertebrates associated with the decaying timber of ancient trees (Natural England, 2019).

The beetle's eggs are laid underground in the soil next to logs or the stumps of dead trees (typically apple *Malus* spp., elm *Ulmus* spp., lime *Tilia* spp., beech *Fagus sylvatica* and oak *Quercus* spp.). The beetle larva (or grub) will spend up to seven years in the wood, slowly growing in size. Adult stag beetles emerge from mid-May until late July. Males emerge earlier to actively search for females to mate and can often be seen flying on summer evenings an hour or two before dusk. As adults they are short-lived and generally die after mating, although occasionally some may over-winter in places such as compost heaps.

## Richmond Park SAC

Richmond Park has been managed as a royal deer park since the seventeenth century, producing a range of habitats of value to wildlife (English Nature, 2005b). It is situated in south-west London (Figure 1) enclosed by densely settled suburbs including Kingston, Putney, Richmond and Wimbledon and is one of the largest open spaces in Greater London (Natural England, 2016b). In particular, Richmond Park is of importance for its diverse deadwood beetle fauna associated with the ancient trees found throughout the parkland. The SAC is at the heart of the south London centre of distribution for stag beetle; it a large number of ancient trees with decaying timber (Natural England, 2016b).

The site is designated for stag beetle (see Table 5.2).

The site improvement plan did not identify any issues affecting the designated feature (Natural England, 2014).

## Wimbledon Common SAC

Wimbledon Common is one of the largest areas of uncultivated land in the conurbation of London (Natural England, 2016c).

Wimbledon Common supports an extensive area of open, wet heath on acidic soil and also contains a variety of other acidic heath and grassland communities (English Nature, 2005c). The acidic soils and poor drainage give rise to a mosaic of wet heath and unimproved acidic grassland. Semi-natural broadleaved woodland covers the deeper, clay soils of the western slope. A significant cover of heather distinguishes areas of dry and wet heath.

Wimbledon Common has a large number of old trees and much fallen decaying timber, and the site supports a number of other scarce invertebrate species associated with decaying timber, including stag beetle.

The site is designated for heath habitat types and for stag beetle (see below and Table 5.2). Richmond Park and Wimbledon Common SACs are approximately 450m apart (Figure 1).

### S1083 Stag beetle *Lucanus cervus*

The SAC is a particular stronghold for the stag beetle in the south-east of England and is at the heart of the local centre of distribution of the species and there are a relatively large number of records from this site (Natural England, 2016c).

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#### H4030 European dry heaths

The SAC includes examples of dry heath vegetation typical of the south-east of England. It is mostly present as part of a habitat mosaic which includes acid grassland, gorse scrub, bracken, birch woodland and transitions to wet or 'humid' heath (Natural England, 2016c).

#### H4010 Northern Atlantic wet heaths with *Erica tetralix*

The SAC supports small but important areas of 'humid' heath as part of a complex mosaic of habitats. This type of heath vegetation is a very rare feature in the London area.

### 5.3 Special Protection Areas

#### Lee Valley SPA

The Lee Valley SPA (Figure 1) comprises a series of embanked water supply reservoirs, sewage treatment lagoons and former gravel pits that display a range of man-made and semi-natural wetland and valley bottom habitats. The site stretches over a distance of 16 miles northward along the River Lea to the north of London (Natural England, 2018b). Lee Valley SPA lies roughly parallel and to the east of the A10 between Finsbury Park, London and Ware in Hertfordshire. Walthamstow Reservoirs are situated to the south of the M25 motorway which cuts across the site.

All the habitats within the SPA are man-made and provide valuable habitat for birds.

During the non-breeding season, the SPA regularly supports:

- A021. *Botaurus stellaris* – great bittern
- A051. *Anas strepera* – gadwall
- A056. *Anas clypeata* – shoveler

This site supports nationally important numbers of great bittern during the winter months representing 6% of the total British wintering population (in 2000). Reed-bed habitat is vital to the species.

The site also supports internationally important numbers of gadwall and shoveler during the wintering period representing 1.5% and 1.0% respectively of the total North West European wintering populations (in 2000). Gadwall favour gravel pits and reservoirs during the winter period where they feed on seeds, leaves and stems of water plants. Shoveler are found throughout the site and in winter they frequent shallow water areas on marshes, flooded pasture, reservoirs and lakes with plentiful, marginal reeds or emergent vegetation.

A target for the site is to maintain concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for supporting habitat both within and outside the SPA. Exceeding critical values for air pollutants may result in changes to the chemical status of habitat substrate, accelerating or damaging plant growth, altering vegetation structure and composition and thereby affecting the quality and availability of nesting, feeding or roosting habitats (Natural England, 2018b).

Priorities and issues for the site include (8) Air Pollution: impact of atmospheric nitrogen deposition. However, this related to supporting habitat for bittern (i.e. primarily reed bed).

#### South West London Waterbodies SPA

The South West London Waterbodies SPA (Figure 1) comprises a series of embanked water supply reservoirs and former gravel pits which support a range of man-made and semi-natural still, open-water habitats. The complex is situated to the west of London on the broad floodplain of the River Thames (Natural England, 2018c). The waterbodies vary in character from highly artificial, concrete-lined reservoirs used for public water supply to long-established lakes derived from former sand and gravel pits surrounded by mature habitats including scrub, grassland and woodland. All of the waterbodies are fed by water derived from the River Thames, either directly via groundwater flowing through alluvial sands and gravels or via pumped supply.

The SPA is part of a much larger complex of water bodies with a range of different characteristics, and ducks utilising the waterbodies in the SPA also use some of these alternative sites.

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During the non-breeding season, the SPA regularly supports:

- A051. *Anas strepera* – gadwall
- A056. *Anas clypeata* – shoveler

When classified, the SPA supported 710 individuals of gadwall which represented 2.4% of the North-West European population. Gadwall favour shallow water bodies which are naturally eutrophic (nutrient-rich) with low levels of human disturbance. The species is a 'dabbling' duck feeding primarily on aquatic vegetation, including macrophytes and filamentous algae. Invertebrates may also be eaten as a minor part of the diet.

When classified, the SPA supported 853 individuals of shoveler which represented 2.1% of the NW and central European population. Like gadwall, shoveler favour similar types of inland waterbodies such as lakes and reservoirs with extensive shallows including beds of silt and submerged macrophytes. They feed by filtering invertebrates and zooplankton from surface and shallow water, and from the lake bed/silt using their broad bill. They typically feed in areas with beds of macrophytes at shallow depth as these areas are often particularly rich in invertebrate food.

A target for the site is to maintain concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for supporting habitat both within and outside the SPA. Exceeding critical values for air pollutants may result in changes to the chemical status of habitat substrate, accelerating or damaging plant growth, altering vegetation structure and composition and thereby affecting the quality and availability of nesting, feeding or roosting habitats (Natural England, 2018b).

Priorities and issues for the site did not identify air pollution as a pressure or threat.

## 5.4 Ramsar Sites

### Lee Valley Ramsar

The Lee Valley Ramsar site is coincident with the Lee Valley SPA (Figure 1). The site is designated for gadwall and shoveler, and also for whorled water-milfoil (*Myriophyllum verticillatum*) and a species of water-boatman (*Micronecta minutissima*, an invertebrate).

No priorities and issues for the site have been identified but is assumed that those identified for the SPA would be relevant.

### South West London Waterbodies Ramsar

The South West London Waterbodies Ramsar site is coincident with the South West London Waterbodies SPA (Figure 1). The site is designated for gadwall and shoveler.

No priorities and issues for the site have been identified but it is assumed that those identified for the SPA would be relevant.

Table 5.2: European/Ramsar Sites; their qualifying interests and conservation objectives

Site and Code	Area (ha)	Qualifying Interests	Conservation Objectives
<b>Special Areas of Conservation</b>			
Epping Forest UK0012720	1630.74 (1604.95 in citation)	Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer ( <i>Quercion robori-petraeae</i> or <i>Ilici-Fagenion</i> ).  Northern Atlantic wet heaths with <i>Erica tetralix</i> .  European dry heaths.  Stag beetle <i>Lucanus cervus</i> .	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; <ul style="list-style-type: none"> <li>▪ The extent and distribution of qualifying natural habitats and habitats of qualifying species</li> <li>▪ The structure and function (including typical species) of qualifying natural habitats</li> <li>▪ The structure and function of the habitats of qualifying species</li> <li>▪ The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely</li> <li>▪ The populations of qualifying species, and,</li> <li>▪ The distribution of qualifying species within the site</li> </ul>
Richmond Park UK0030246	846.27 [846.68]	Stag beetle <i>Lucanus cervus</i> .	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; <ul style="list-style-type: none"> <li>▪ The extent and distribution of the habitats of qualifying species</li> <li>▪ The structure and function of the habitats of qualifying species</li> <li>▪ The supporting processes on which the habitats of qualifying species rely</li> <li>▪ The populations of qualifying species, and,</li> <li>▪ The distribution of qualifying species within the site</li> </ul>
Wimbledon Common UK0030301	351.38	Northern Atlantic wet heaths with <i>Erica tetralix</i> .  European dry heaths.  Stag beetle <i>Lucanus cervus</i> .	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; <ul style="list-style-type: none"> <li>▪ The extent and distribution of qualifying natural habitats and habitats of qualifying species</li> <li>▪ The structure and function (including typical species) of qualifying natural habitats</li> <li>▪ The structure and function of the habitats of qualifying species</li> <li>▪ The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely</li> <li>▪ The populations of qualifying species, and,</li> <li>▪ The distribution of qualifying species within the site</li> </ul>
<b>Special Protection Areas</b>			
Lee Valley UK9012111	447.87	Bittern <i>Botaurus stellaris</i> (wintering)  Shoveler <i>Anas clypeata</i> (wintering)	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; <ul style="list-style-type: none"> <li>▪ The extent and distribution of the habitats of the qualifying features</li> <li>▪ The structure and function of the habitats of the qualifying features</li> </ul>

Site and Code	Area (ha)	Qualifying Interests	Conservation Objectives
		Gadwall <i>Anas strepera</i> (wintering)	<ul style="list-style-type: none"> <li>The supporting processes on which the habitats of the qualifying features rely</li> <li>The population of each of the qualifying features, and,</li> <li>The distribution of the qualifying features within the site.</li> </ul>
South West London Waterbodies UK9012171	828.14	Shoveler <i>Anas clypeata</i> (wintering) Gadwall <i>Anas strepera</i> (wintering)	<p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;</p> <ul style="list-style-type: none"> <li>The extent and distribution of the habitats of the qualifying features</li> <li>The structure and function of the habitats of the qualifying features</li> <li>The supporting processes on which the habitats of the qualifying features rely</li> <li>The population of each of the qualifying features, and,</li> <li>The distribution of the qualifying features within the site</li> </ul>

#### Ramsar Sites

Lee Valley UK11034	447.87	Whorled water-milfoil <i>Myriophyllum verticillatum</i> A water-boatman <i>Micronecta minutissima</i> Shoveler <i>Anas clypeata</i> (wintering) Gadwall <i>Anas strepera</i> (wintering)	<p>The Ramsar Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".</p> <p>For the purposes of this HRA screening, it is assumed that the conservation objectives for the related SPA are appropriate to the relevant Ramsar site.</p>
South West London Waterbodies UK11065	828.14	Shoveler <i>Anas clypeata</i> (wintering) Gadwall <i>Anas strepera</i> (wintering)	

## 5.5 Nitrogen Baseline Conditions

Site relevant critical loads for nitrogen deposition and baseline rates of nitrogen deposition within each of the designated sites under consideration are summarised in Table 5.3. These data indicate that lower site relevant critical loads for nitrogen deposition are exceeded in all of the designated sites under consideration apart from the South West London Waterbodies SPA.

Dry heaths typically occur on freely-draining, acidic to circumneutral soils with generally low nutrient content (APIS, 2022). They may therefore be sensitive to additional atmospheric nitrogen inputs which may lead to changes in species composition. A decline in heather cover may occur with an increased dominance of grasses.

Nitrogen deposition can have adverse effects on broadleaved, mixed and yew woodland, on growth, photosynthesis and nitrogen assimilation/metabolism (APIS, 2022). Deposition can result in direct damage to mosses, liverworts and lichens leading to a reduction in species diversity, but also an increase in nitrogen-loving species. There can be loss of sensitive ground flora and nitrogen accumulation may also lead to increased sensitivity to abiotic and biotic stress. Increased nitrogen may also result in an increase in tree growth.

In standing open water and canals, nitrogen deposition could be an important nutrient source in mesotrophic standing waters, but of limited impact in eutrophic (nutrient-rich) waters (APIS, 2022). The vegetation associated with these, such as reedbeds and swamps may have a wide range of responses to nitrogen deposition as, in some situations, it may be the main source of nutrient input. An increase in nitrogen may result in increased growth in reedbeds, which may result in a decline in species composition.

Table 5.3: Site relevant critical loads and baseline rates of Nitrogen deposition

Designated Site	Relevant Broad Habitat	Site Relevant Critical Load (kgN/ha/yr)	Baseline Deposition Rate (kgN/ha/yr)		
			Max.	Min.	Avg.
Wimbledon Common SAC	Dwarf shrub heath	10-20	17.0	15.9	16.4
	Broadleaved, mixed and yew woodland	10-20	31.0	28.8	29.8
Richmond Park SAC	Broadleaved, mixed and yew woodland	10-20	31.4	28.7	29.7
Epping Forest SAC	Dwarf shrub heath	10-20	24.1	20.6	22.9
	Broadleaved, mixed and yew woodland	10-20	43.1	37.3	41.2
Lee Valley SPA	Fen, marsh and swamp	15-30	23.3	19.0	21.9
	Low and medium altitude hay meadows	20-30	23.3	19.0	21.9
South West London Waterbodies SPA	Low and medium altitude hay meadows	20-30	16.6	14.7	15.9

SOURCE: Air Pollution Information System ([www.apis.ac.uk](http://www.apis.ac.uk))



## 6. Screening

Typically, the potential for changes in road traffic emissions associated with a plan or project to affect designated sites (and the subsequent requirement for further assessment) is screened by comparing estimated changes in road traffic flows with relevant screening thresholds. However, it should be noted that not only is the proposed expansion of ULEZ estimated to affect traffic flows (which is typically the primary driver for changes in road traffic emissions) but also the composition of the local vehicle fleet (which also affects road traffic emissions). For example, in response to the proposed ULEZ expansion, some vehicle owners will seek alternative routes, cancel their journeys or travel by different modes (thereby affecting traffic flows), whilst other vehicle owners will 'upgrade' their vehicle to a compliant vehicle (with lower NO<sub>x</sub> emissions).

This HRA Screening has therefore been informed by the traffic, emissions and air dispersion modelling undertaken as part of the London-wide ULEZ IIA. Outputs from the traffic and emissions modelling for all modelled road links within 200m of each of the European/Ramsar sites under consideration can be seen in Figure 2a-e and Figure 3a-e, respectively, whilst estimated changes in rates of nitrogen deposition associated with changes in annual mean NO<sub>2</sub> concentrations are shown in Figure 4a-e.

Natural England advice (Natural England, 2018a) indicates that a guidance threshold of 1% of the site relevant critical load or level (where model predictions are available) or 1,000 AADT (if not) should be used for determining whether a predicted increase in road traffic emissions has the potential to be significant. In this instance, site specific modelling of critical loads and levels has not been undertaken (meaning the 1% criterion cannot be used). Furthermore, whilst the proposed expansion of the ULEZ will affect road traffic flows, it will also affect the composition of the local vehicle fleet, therefore it is not considered appropriate to solely use the AADT criterion within this screening exercise to understand the potential for significant effects to occur. As such, information on modelled changes in traffic flows presented in Section 6.1), is supported by additional information on modelled changes in road NO<sub>x</sub> emissions and rates of nitrogen deposition in Sections 6.2 and 6.3, respectively.

Natural England's consultation response shown in Table 4.1 indicates that as well as road traffic NO<sub>x</sub> emissions, "*ammonia (NH<sub>3</sub>) from road traffic emissions should also be assessed as the impact from this source on designated sites is currently unclear*". However, changes in emissions of NH<sub>3</sub> as a result of the proposed ULEZ expansion have not been estimated as there is currently no industry recognised tool (such as Defra's Emissions Factors Toolkit for NO<sub>x</sub>) which can be used for this purpose. Instead, and to facilitate understanding, potential changes in emissions of NH<sub>3</sub> as a result of the proposed ULEZ expansion have been assessed qualitatively based on other existing sources of information in Section 6.4.

### 6.1 Changes in Modelled Traffic Flows

Changes in modelled AADT flows on roads within 200m of each the sensitive European/Ramsar sites are presented in Appendix C. For context, Highways England *et al.* Design Manual for Roads and Bridges (DMRB) LA105: Air Quality and Natural England guidance (Natural England, 2018a) sets out a methodology for assessing the impact of traffic related schemes on air quality. Within this guidance traffic scoping criteria are defined to determine whether air quality impacts of a project can be scoped out or require further assessment based on changes between the Do-Something traffic compared to the Do-Minimum traffic. The key criterion is defined as a change in AADT  $\geq 1,000$ . Modelled air quality impacts are not typically seen beyond 200m of an affected road. A full summary of modelled data provided by TfL are presented in Appendix C, this shows that the  $\pm 1,000$  change in AADT is not exceeded on any road within 200m of the European/Ramsar sites under consideration. The range of changes for each site can be seen in Table 6.1; see also Figures 2a-e.

Table 6.1: Change in modelled traffic flows (AADT) on roads within 200m of European/Ramsar sites

Change in AADT				
Site	Average	Minimum	Maximum	Commentary
Epping Forest SAC	+48	-390	+898	The greatest increase within 200m of the SAC is modelled to occur just within the existing ULEZ

Change in AADT				
				boundary. This increase in vehicle movements is considered to represent vehicle movements which were previously discouraged by the existing ULEZ boundary.
Richmond Park SAC	-24	-351	+124	The greatest increase within 200m of the SAC is modelled to occur along the north-western boundary of the site.
Wimbledon Common SAC	-94	-241	+59	The greatest increases within 200m of the SAC are modelled to occur to the northern and western boundary of the site.
Lee Valley SPA./Ramsar	+237	+85	+452	All roads (18) within 200m of the SPA/Ramsar have a modelled increase in AADT, which are just within the existing ULEZ extension boundary. These increases in vehicle movements are considered to represent vehicle movements which were previously discouraged by the existing ULEZ boundary.
South West London Waterbodies SPA/Ramsar	-100	-486	+187	The greatest increases are modelled on those roads around Junction 12 of the M25 and Staines Road.

## 6.2 Changes in Modelled Road NO<sub>x</sub> Emissions

Due to the nature of the proposals, changes are expected to both total traffic flows and vehicle fleet composition (particularly in terms of fuel type and Euro emissions standard), both of which influence road traffic emissions. Changes in fleet composition to newer vehicles or cleaner fuel types (e.g. electric) has benefits for modelled NO<sub>x</sub> emissions, which largely outweigh any of the increases in AADT described in Section 6.1. The changes in estimated road NO<sub>x</sub> emissions provided by TfL (per cent change relative to the Do-Minimum) on modelled roads within 200m of the designated sites are presented in Appendix C. A full summary of modelled data provided by TfL are presented in Appendix C, which shows that only one minor road link within 200m of the designated sites is modelled to experience an increase in NO<sub>x</sub> emissions as a result of the proposed ULEZ expansion. The range of changes for each site can be seen in Table 6.2; see also Figures 3a-e.

Table 6.2: Changes in NO<sub>x</sub> emissions on roads within 200m of European/Ramsar sites

Change in NO <sub>x</sub> emissions (%)				
Site	Average	Minimum	Maximum	Commentary
Epping Forest SAC	-8.1	-81.8	+1.2	The single link with a modelled increase in NO <sub>x</sub> emissions is a very small link located on a minor roundabout. In general, modelled reductions in NO <sub>x</sub> emissions are lower within the existing ULEZ boundary relative to changes within and outside of the ULEZ expansion boundary.
Richmond Park SAC	-8.1	-13.1	0.0	None of the modelled road links within 200m of the SAC show an increase in NO <sub>x</sub> emissions. The greatest reductions occur within the SAC boundary.

Change in NO <sub>x</sub> emissions (%)				
Wimbledon Common SAC	-8.2	-15.1	-3.6	None of the modelled road links within 200m of the SAC show an increase in NO <sub>x</sub> emissions. The greatest reductions occur to the south of the SAC boundary.
Lee Valley SPA/Ramsar	-1.8	-2.5	-0.5	None of the modelled road links within 200m of the SPA/Ramsar show an increase in NO <sub>x</sub> emissions. Modelled reductions are fairly consistent, with the smallest change modelled to occur on links with the greatest change in AADT to the north-east of the boundary.
South West London Waterbodies SPA/Ramsar	-12.0	-15.0	-1.1	None of the modelled road links within 200m of the SPA/Ramsar show an increase in NO <sub>x</sub> emissions. Modelled reductions are fairly consistent, with the smallest change modelled on links with the greatest change in AADT around Junction 12 of the M25.

### 6.3 Changes in Nitrogen Deposition

The impact of estimated changes in NO<sub>x</sub> emissions described above on rates of nitrogen deposition within the designated sites under consideration has been estimated by converting estimated changes in annual mean NO<sub>2</sub> concentrations to changes in nitrogen deposition (in kgN/ha/yr) using the following conversion factor taken from DMRB LA 114:

- 1 µg/m<sup>3</sup> of NO<sub>2</sub> = 0.29 kg N/ha/yr.

It should be noted that this conversion factor is for forests and similar habitats and therefore provides an upper estimate of nitrogen deposition rates, as substantially lower rates of nitrogen deposition are estimated to occur on grassland and similar habitats.

The range of changes for each site can be seen in Table 6.3; see also Figures 4a-e. The results of this assessment indicate that modelled changes in annual mean NO<sub>2</sub> concentrations as a result of the Proposed Scheme are estimated to result in a negligible beneficial impact on rates of nitrogen deposition within all of the designated sites under consideration.

Table 6.3: Changes in rates of nitrogen deposition within European/Ramsar sites

Change in nitrogen deposition (kgN/ha/yr)				
Site	Average	Minimum	Maximum	Commentary
Epping Forest SAC	-0.05	-0.32	-0.04	None of the modelled 20m grid squares show an increase in nitrogen deposition within the SAC boundary. The smallest change occurs in the centre of the north eastern most section of the SAC. The largest decrease occurs adjacent to the North Circular just outside of the ULEZ boundary.
Richmond Park SAC	-0.07	-0.30	-0.06	None of the modelled 20m grid squares show an increase in nitrogen deposition within the SAC boundary. The smallest change occurs northeast of the centre of the SAC. The largest decrease occurs at the entry to the SAC on Priory Lane to the north east of the SAC.
Wimbledon Common SAC	-0.08	-0.52	-0.07	None of the modelled 20m grid squares show an increase in nitrogen deposition within the SAC boundary. The smallest change occurs west of the centre of the SAC. The

Change in nitrogen deposition (kgN/ha/yr)				
				largest decrease occurs at the northern boundary of the SAC adjacent to Kingston Road.
Lee Valley SPA/Ramsar	-0.06	-0.08	-0.06	None of the modelled 20m grid squares show an increase in nitrogen deposition within the SPA/Ramsar boundary. The smallest change occurs east of the centre of the southern parcel. The largest decrease occurs on the southern boundary of the northern parcel adjacent to the A503.
South West London Waterbodies SPA/Ramsar	-0.05	-0.16	-0.04	None of the modelled 20m grid squares show an increase in nitrogen deposition within the SPA/Ramsar boundary. The smallest change occurs at the northern boundary of the south western parcel. The largest decrease occurs on the southern boundary of the south western parcel adjacent to the M3.

## 6.4 Emissions of Ammonia

Whilst the proposed London-wide ULEZ is expected to reduce road traffic NO<sub>x</sub> emissions and subsequently rates of nitrogen deposition within designated sites associated with concentrations of NO<sub>2</sub>, should vehicle owners switch from diesel cars to petrol cars in response to the proposals, this could result in an increase in emissions of NH<sub>3</sub>, which can not only affect vegetation directly but also contributes to nitrogen deposition. This is because whilst petrol vehicles have much lower NO<sub>x</sub> emissions than diesel vehicles, they have substantially higher NH<sub>3</sub> emissions.

Despite there being no industry recognised tool currently available which can be used to readily estimate the impact of the proposals on emissions of NH<sub>3</sub>, the potential for adverse impacts on NH<sub>3</sub> concentrations and subsequently nitrogen deposition to occur has been assessed indirectly using work undertaken on behalf of the Joint Nature Conservation Committee (JNCC) as part of the Nitrogen Futures project (Dragosits *et al.*, 2020). The outcomes of this project are presented and discussed below in order to inform a qualitative assessment of the potential impacts of the proposed ULEZ expansion and to aid understanding. It is noted, however, that this is not a recognised approach, which is subject to uncertainty, however, it is considered appropriate and proportionate for the purposes of this assessment.

The Nitrogen Futures project considered a range of potential emissions reduction scenarios and modelled the resulting impacts on concentrations of NO<sub>2</sub> and ammonia and rates of nitrogen deposition. The scenarios of most relevance to the London-wide ULEZ are:

- the "BAU WM" scenario, 'Business As Usual' With Measures (WM) baseline (no spatial targeting); and
- the "NAPCP+DA (NECR NO<sub>x</sub>)" scenario, the *most likely* future baseline, which assumes that NECR (National Emissions Ceilings Regulations) targets will be met through implementation of the UK National Air Pollution Control Programme (NAPCP), with modifications to suit the Devolved Administrations (DA). This scenario results in lower NO<sub>x</sub> and NH<sub>3</sub> emissions than the "BAU WM" scenario above.

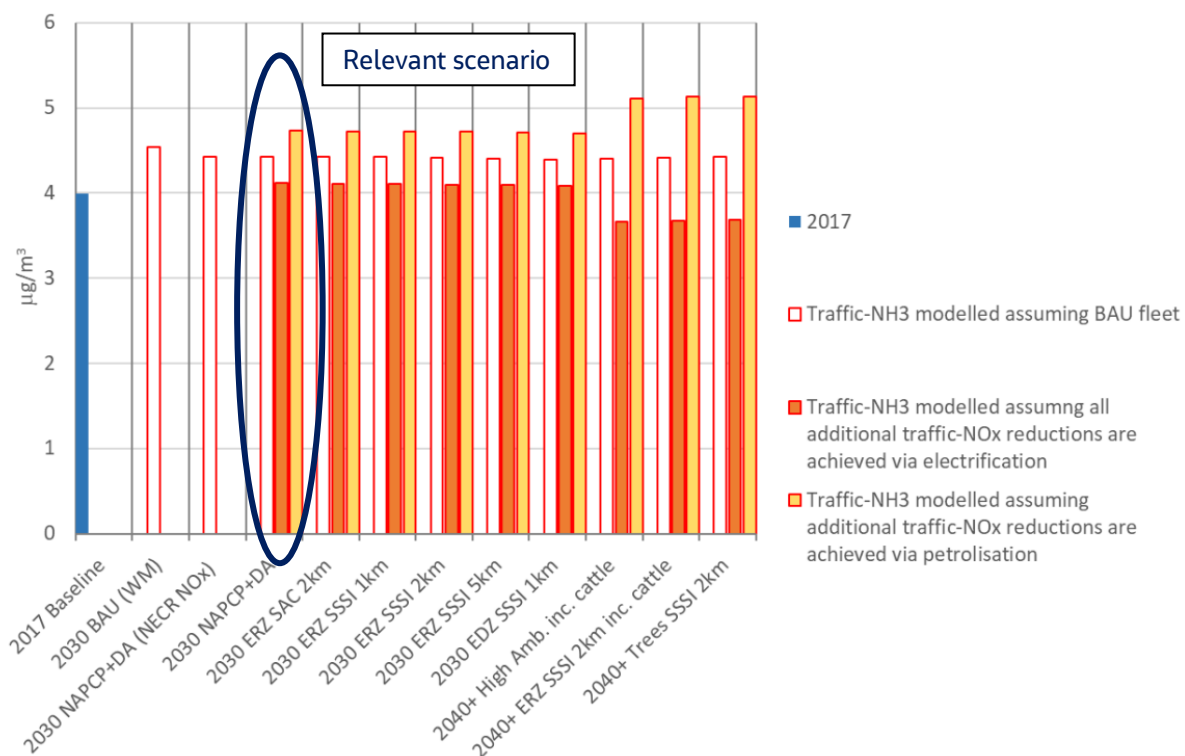
The results of the modelling for the Nitrogen Futures project was that increases in NH<sub>3</sub> concentrations were predicted in the Greater London area, but that substantial reductions in NO<sub>2</sub> concentrations were predicted alongside overall reductions in nitrogen deposition. This forecast trend is assumed to occur in the future with the proposed London-wide ULEZ, with decreases in annual mean NO<sub>2</sub> concentrations within the Greater London area resulting in reductions in nitrogen deposition, despite potential small increases in ammonia concentrations. This trend will be further enhanced as increasing proportions of electric vehicles (with zero exhaust emissions) enter the London vehicle fleet over time.

As part of the Nitrogen Futures project, a number of local case studies were also considered, including one within the Epping Forest SAC. In addition, a hypothetical mitigation scenario was also considered whereby an additional 10% reduction in road NO<sub>x</sub> emissions was assumed (the "NAPCP+DA" scenario). Coincidentally, the magnitude of this assumed reduction in NO<sub>x</sub> emissions is similar in magnitude to the reduction in road

traffic emissions in Outer London estimated to occur as a result of the proposed expansion of ULEZ (approximately 7%). Importantly, two sensitivity tests were undertaken whereby such a reduction in emissions was assumed to be achieved entirely as a result of (a) electrification (i.e. a shift from diesel vehicles to electric vehicles) and (b) petrolisation (i.e. a shift from diesel vehicles to petrol vehicles).

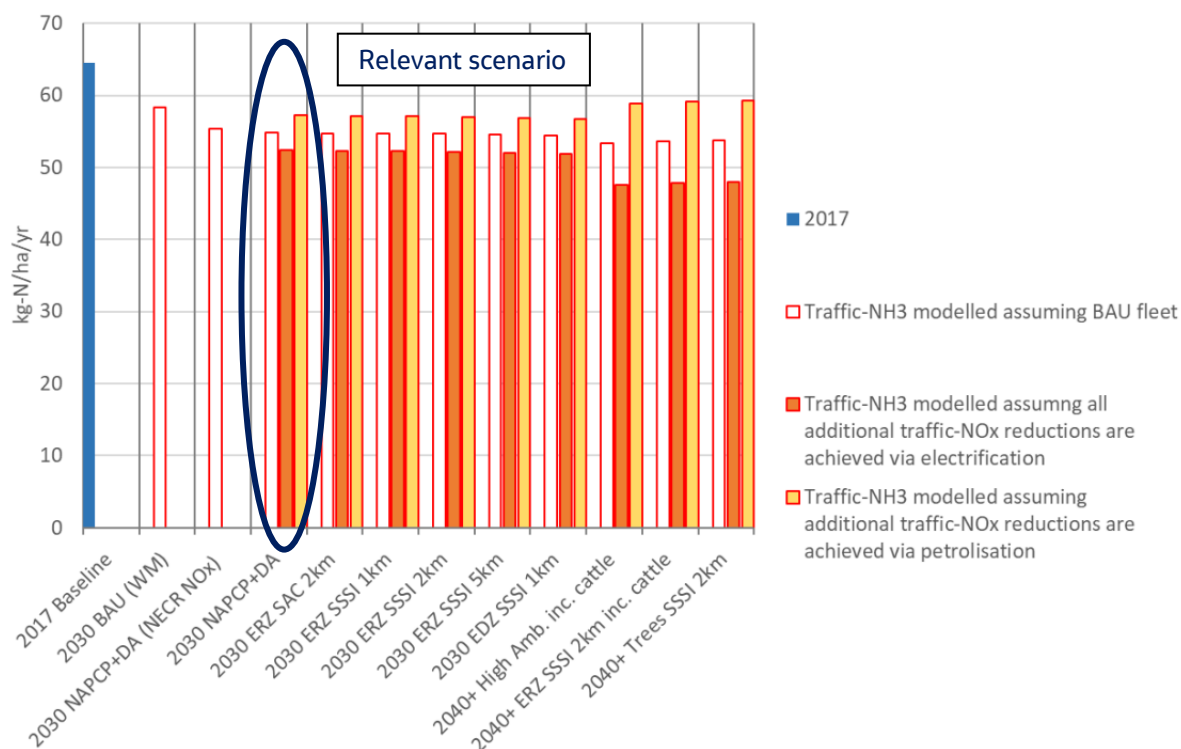
The results of this modelling are shown in Figure 5 (for NH<sub>3</sub>) and Figure 6 (for nitrogen deposition), which indicate that should this reduction in NO<sub>x</sub> emissions be achieved entirely by electrification, then concentrations of NH<sub>3</sub> and rates of nitrogen deposition would be expected to reduce. Conversely, should this reduction in NO<sub>x</sub> emissions be achieved entirely by petrolisation, then concentrations of NH<sub>3</sub> and rates of nitrogen deposition would be expected to increase. It can also be inferred from these figures that should this reduction in emissions be achieved by a combination of some petrolisation alongside increased electrification, then the net effect on concentrations of NH<sub>3</sub> and nitrogen deposition is likely to be neutral or positive.

**Figure 5: Effect of Alternative Assumptions for NH<sub>3</sub> Emissions from Local Traffic on Maximum Predicted Annual Mean NH<sub>3</sub> Concentrations within Epping Forest.**



SOURCE: Nitrogen Futures. JNCC Report No. 665. (Dragosits et al., 2020)

**Figure 6: Effect of alternative assumptions for NH<sub>3</sub> emissions from local traffic on maximum predicted nitrogen deposition to woodland within Epping Forest.**



SOURCE: Nitrogen Futures. JNCC Report No. 665. (Dragosits et al., 2020)

With regard to the potential impacts of the proposed London-wide ULEZ, the modelled reductions in road NO<sub>x</sub> emissions presented in Section 6.2 are estimated to be achieved as a result of the combined impact of reductions in traffic flows (e.g. as a result of modal shift), vehicle owners increasingly switching to electric vehicles as part of the general trend towards cleaner vehicles assumed to occur and vehicle owners switching from non-compliant vehicles to compliant diesel and petrol vehicles.

Based on the modelling undertaken as part of the Nitrogen Futures project and the likely response of vehicle owners to the proposed expansion of ULEZ, it is considered unlikely that the impact of vehicle owners switching from non-compliant diesel vehicles to compliant petrol vehicles as a result of the proposals would be of sufficient magnitude to result in an increase in NH<sub>3</sub> concentrations or associated nitrogen deposition within the ecological sites under consideration. This supposition is supported by the positive effect the London-wide ULEZ is estimated to have on road traffic NO<sub>x</sub> emissions and associated rates of nitrogen deposition.

## 6.5 Summary

The results of the screening assessment within each of the European/Ramsar sites under consideration are presented in Table 6.4, however, in summary:

- The 1,000 AADT traffic change criterion is not modelled to be exceeded on any road link within 200m of the sites under consideration
- Road traffic NO<sub>x</sub> emissions are estimated to reduce on all but one (minor) road link within 200m of the sites under consideration
- Rates of nitrogen deposition associated with concentrations of NO<sub>2</sub> are modelled to decrease within all of the sites under consideration
- Is considered unlikely that the proposed ULEZ expansion would result in an increase in NH<sub>3</sub> concentrations or associated nitrogen deposition within the ecological sites under consideration

Table 6.4: Screening of the European/Ramsar sites

European /Ramsar Site	Qualifying Interests	Commentary	Conclusion
<b>Special Areas of Conservation</b>			
Epping Forest	<p>Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer (<i>Quercion robur-petraeae</i> or <i>Ilici-Fagenion</i>).</p> <p>Northern Atlantic wet heaths with <i>Erica tetralix</i>.</p> <p>European dry heaths.</p> <p>Stag beetle.</p>	<p>The SAC lies within the existing ULEZ, the extended ULEZ and also outwith either. Natural England advised that a HRA should be undertaken to "<i>rule out any impacts ... on Epping Forest SAC</i>".</p> <p>Wet heath and dry heath habitats are sensitive to <math>\text{NH}_3</math> and <math>\text{NO}_x</math>. Beech forest habitats are sensitive to <math>\text{NO}_x</math> but site specific information is recommended to determine sensitivity to <math>\text{NH}_3</math>. The broad habitat type of stag beetle (broadleaved, mixed and yew woodland) is sensitive to <math>\text{NH}_3</math> and <math>\text{NO}_x</math> (APIS, 2022).</p> <p>One small link located on a roundabout showed an increase in <math>\text{NO}_x</math> emissions of 1.2%. All other modelled road links within 200m did not show an increase (Figure 3a).</p> <p>The small increase was at the most southerly extent of the SAC approximately 190m from the SAC boundary along a very short stretch of road (approximately 40m in length) at the Green Man Interchange (Figure 3a, Sheet 3 – see pull-out). This location is part of the Epping Forest SSSI Unit 136 (Leyton Flats &amp; Hollow Pond). The has been assessed as being in an unfavourable condition (26/01/2010) and this is believed to be due to "<i>air pollution and, in particular, the effects of excessive levels of oxides of nitrogen and other pollutants, and the related deposition of acidity and of nitrogen</i>" (Natural England, 2022b). It is also noted that recreational pressures also contribute to the 'Unfavourable' condition status. However, the <math>\text{NO}_x</math> modelling indicates that all other modelled roads surrounding this part of the SAC (Unit 136) show a decrease in <math>\text{NO}_x</math> emissions of between -0.2% and -3.4% (Figure 3a, Sheet3) and occur over a much greater length of road (around 3.71km). Therefore, the decline in emissions on roads immediately adjacent to the site is overall much greater than the small increase modelled over the 40m stretch at the Green Man Interchange which is, as stated, not immediately adjacent to the SAC being approximately 90m away.</p>	No likely significant effects identified
Richmond Park	Stag beetle	<p>The SAC lies fully within the extended ULEZ.</p> <p>The broad habitat type of stag beetle (broadleaved, mixed and yew woodland) is sensitive to <math>\text{NH}_3</math> and <math>\text{NO}_x</math> (APIS, 2022).</p> <p>None of the modelled road links within 200m of the site show an increase in <math>\text{NO}_x</math> emissions (Figure 3b).</p>	No likely significant effects identified
Wimbledon Common	<p>Northern Atlantic wet heaths with <i>Erica tetralix</i>.</p> <p>European dry heaths.</p>	<p>The SAC lies fully within the extended ULEZ.</p> <p>Wet heath and dry heath habitats are sensitive to <math>\text{NH}_3</math> and <math>\text{NO}_x</math>. The broad habitat type of stag beetle (broadleaved, mixed and yew woodland) is sensitive to <math>\text{NH}_3</math> and <math>\text{NO}_x</math> (APIS, 2022).</p>	No likely significant effects identified

European /Ramsar Site	Qualifying Interests	Commentary	Conclusion
	Stag beetle	None of the modelled road links within 200m of the site show an increase in NOx emissions (Figure 3c).	
<b>Special Protection Areas</b>			
Lee Valley	Bittern (wintering) Shoveler (wintering) Gadwall (wintering)	Air pollution has been identified as a potential issue to bittern supporting habitat (Natural England, 2018b).  The SPA lies either within the existing ULEZ or outwith the extended ULEZ, beyond the M25 (and therefore also beyond the extent of the air quality study area).  None of the modelled road links within 200m of the site show an increase in NOx emissions (Figure 3d).  The broad habitat type of bittern (fen, marsh and swamp) and of shoveler and gadwall (standing open water and canals) are sensitive to NH <sub>3</sub> and NO <sub>x</sub> (APIS, 2022).	No likely significant effects identified
South West London Waterbodies	Shoveler (wintering) Gadwall (wintering)	Air pollution has not been identified as a pressure or a threat.  The broad habitat type of shoveler and gadwall (standing open water and canals) is sensitive to NH <sub>3</sub> and NO <sub>x</sub> (APIS, 2022).  None of the modelled road links within 200m of the site show an increase in NOx emissions (Figure 3d).	No likely significant effects identified
<b>Ramsar Sites</b>			
Lee Valley	Whorled water-milfoil A water-boatman Shoveler (wintering) Gadwall (wintering)	The Ramsar site lies either within the existing ULEZ or outwith the extended ULEZ, beyond the M25 (and therefore also beyond the extent of the air quality study area).  The broad habitat type of shoveler and gadwall (standing open water and canals) is sensitive to NH <sub>3</sub> and NO <sub>x</sub> (APIS, 2022).  None of the modelled road links within 200m of the site show an increase in NOx emissions (Figure 3d).	No likely significant effects identified
South West London Waterbodies	Shoveler (wintering) Gadwall (wintering)	The broad habitat type of shoveler and gadwall (standing open water and canals) is sensitive to NH <sub>3</sub> and NO <sub>x</sub> (APIS, 2022).  None of the modelled road links within 200m of the site show an increase in NOx emissions (Figure 3d).	No likely significant effects identified



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## 7. In-combination Assessment

In accordance with Natural England guidance (Natural England, 2018a), an in-combination assessment is required to check whether the effect of an *increase* in traffic flow or modelled *increase* in loads or levels of air pollutants that would not be significant, or likely, on its own (i.e. is below the 1,000 AADT or 1% screening criteria) might become significant, likely, or both when considered in combination with the effects of *increases* associated with other proposals (which are themselves also below the relevant screening criteria).

This step is included to reflect the requirements of the Habitats Regulations and in response to the clarification provided in the Wealden Judgment 2017 on in-combination effects. It is also because projects and plans that *increase* road traffic flow (which is used as a proxy for an increase in road traffic emissions) have a high likelihood of acting together, or in-combination, with other plans or projects that would also *increase* traffic on the same roads.

The proposed ULEZ expansion is modelled to result in increases in traffic flow below the 1,000 AADT criterion, suggesting an in-combination assessment is required. However, road traffic emissions and rates of nitrogen deposition are estimated to *decrease* overall due to the impact of the proposed ULEZ expansion on vehicle fleet composition. As a result, it is not possible for the proposed ULEZ expansion to result in a significant adverse effect in-combination with other plans or projects (which themselves result in increases below the relevant screening criteria), as the proposed ULEZ expansion is estimated to have a positive impact on road traffic emissions and therefore would not undermine or have a bearing on a designated European site's conservation objectives. Although a positive in-combination effect may be possible, such an effect would also not undermine or have a bearing on a designated European site's conservation objectives and so would not be significant.

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## 8. Summary and Conclusions

Seven European/Ramsar sites were identified and included in the HRA screening.

The results of the screening assessment can be summarised as follows:

- The 1,000 AADT traffic change criterion is not modelled to be exceeded on any road link within 200m of the sites under consideration (see Section 6.1)
- Road traffic NO<sub>x</sub> emissions are estimated to reduce on all but one (very minor) road link within 200m of the sites under consideration (see Section 6.2)
- Rates of nitrogen deposition associated with concentrations of NO<sub>2</sub> are modelled to decrease within all of the sites under consideration (see Section 6.4)
- Is considered unlikely that the proposed ULEZ expansion would result in an increase in NH<sub>3</sub> concentrations or associated nitrogen deposition within the ecological sites under consideration (see Section 6.4)

As a result, no likely significant effects on any European/Ramsar sites could be identified. Indeed, as the proposed London-wide ULEZ is estimated to result in a reduction in NO<sub>x</sub> emissions and an associated reduction in nitrogen deposition, then only beneficial effects are expected albeit that these are not likely to be significant to any of the sites' conservation objectives.

The proposed London-wide ULEZ will therefore not result in any likely significant effects on any European/Ramsar site and there is no requirement to proceed to Stage Two Appropriate Assessment.

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## Appendix A: Site Improvement Plans

**Table A1: Priority issues and actions**

Site	Priority Issues	Pressure or Threat	Features Affected	Issues and Actions
Epping Forest SAC	1. Air Pollution: impact of atmospheric nitrogen deposition	Pressure	Beech forests on acid soils Wet heathland with cross-leaved heaths European dry heaths	Control, reduce and ameliorate atmospheric nitrogen impacts
	2. Undergrazing	Pressure	Wet heathland with cross-leaved heaths European dry heaths	Ensure that sufficient resources are available for appropriate grazing levels to achieve and maintain favourable conservation status for SAC features. This requires funding and stock management.
	3. Public Access/Disturbance	Pressure	Beech forests on acid soils Wet heathland with cross-leaved heaths European dry heaths	Identify key areas that are subject to recreational impacts.  Agree and implement a site-specific recreational management plan to ensure SAC features are protected and maintained.
	4. Changes in Species Distributions	Threat	Beech forests on acid soils	Investigate Beech tree health and beech sapling recruitment in core areas to establish a baseline for monitoring and consider adequacy for community sustainability.  Agree and implement a management plan to promote beech tree conservation and sapling recruitment, review conservation objectives and/or a plan for different tree species to be able to take the place of beech if necessary.
	5. Inappropriate Water Levels	Threat	Wet heathland with cross-leaved heaths	Implement a hydrological investigation for key wet heathland areas.  Agree and implement a ground water level management plan for wet heathland areas, if necessary.
	6. Water Pollution	Threat	Wet heathland with cross-leaved heaths	Investigate the impact of poor quality water run-off from roads on wet heath communities.

Site	Priority Issues	Pressure or Threat	Features Affected	Issues and Actions
				Agree and implement a surface run-off management plan for wet heathland areas, if necessary.
	7. Invasive Species	Threat	Wet heathland with cross-leaved heaths	Investigate how significant the impact of the spread of heather beetle has been on the wet and dry heathland areas of Epping Forest.
	8. Disease	Threat	Beech forests on acid soils	Investigate whether the current monitoring programme of tree diseases is adequate.  Following the study agree and implement appropriate management measures for core areas supporting Beech SAC communities.
	9. Invasive Species	Pressure/Threat	Beech forests on acid soils	Investigate what impact grey squirrels have on tree health and/or regeneration and its possible further impact on the Atlantic acidophilous beech woodland feature.  Following study, agree appropriate management measures and implement.
Richmond Park SAC	No current issues affecting the feature (stag beetle) have been identified on this site.	[none]	[none]	[none]
Wimbledon Common SAC	1. Public Access/Disturbance	Pressure	Wet heathland with cross-leaved heaths European dry heaths Stag beetle	Review the management plan to ensure that visitor pressure is addressed.  Implement measures to reduce impacts arising from public access and use of the site.
	2. Habitat Fragmentation	Threat	Stag beetle	Continuation of the existing Peoples Trust for Endangered Species project.
	3. Invasive Species	Threat	Wet heathland with cross-leaved heaths European dry heaths Stag beetle	Develop an invasive species protocol, particularly for Oak processionary moth.  Implement an invasive species monitoring programme.  Implement an invasive species control plan.

Site	Priority Issues	Pressure or Threat	Features Affected	Issues and Actions
	4. Air Pollution: impact of atmospheric nitrogen deposition	Pressure	Wet heathland with cross-leaved heaths European dry heaths	Reduce atmospheric nitrogen impact through the preparation of a Site Nitrogen Action Plan.  Implementation of the actions arising from the Site Nitrogen Action Plan.
Lee Valley SPA	1. Water Pollution	Threat	Bittern, Gadwall, Shoveler	Define the appropriate water quality standards for significant water bodies to inform management of changes in water quality.  Agree water quality management for significant water bodies with key stakeholders.  Develop and implement a Diffuse Water Pollution Plan
	2. Hydrological changes	Threat	Bittern, Gadwall, Shoveler	Define more clearly the water level requirements for the habitats supporting the SPA bird features.  As a follow up, agree the necessary water level management with key stakeholders for significant water bodies.
	3. Public Access/Disturbance	Threat	Bittern, Gadwall, Shoveler	Investigate whether there is a need for change to access management.  Agree appropriate management measures with stakeholders to align with best practice.
	4. Inappropriate scrub control	Threat	Bittern, Gadwall, Shoveler	Secure resources to target management delivery.
	5. Fisheries: Fish stocking	Threat	Bittern, Gadwall, Shoveler	Define the appropriate fish community targets for significant water bodies.  Action a plan to agree necessary fisheries management for significant water bodies.
	6. Invasive species	Threat	Bittern, Gadwall, Shoveler	Review and update management control of invasive aquatic plant species, and agree regular review process. This needs a more strategic approach that is more planned and less reactive to outbreaks.
	7. Inappropriate Cutting/Mowing	Threat	Bittern	Secure resources to target management delivery.

Site	Priority Issues	Pressure or Threat	Features Affected	Issues and Actions
	8. Air Pollution: impact of atmospheric nitrogen deposition	Threat	Bittern	Further investigate potential atmospheric nitrogen impacts on the site based on application of guidance from Chief Scientist Group Nitrogen Task and Finish Group.
South West London Waterbodies SPA	1. Public Access/Disturbance	Pressure/Threat	Gadwall, Shoveler	<p>Seek agreement with the landowners and, where applicable, leaseholders/tenants, local authorities and parish councils about how each can avoid and manage recreational pressures upon the SPA birds. Confirm what aspects of each recreation activity or timing of activity or location of activity are detrimental to SPA interest features and explain the sensitivities of the SPA birds. Draw on lessons learnt from previous experiences, for example of fish destocking and temporal controls on watersports. Produce a written management agreement with each landowner/leaseholder/tenant. Ensure the entire geographical area of the SPA is addressed by the agreement.</p> <p>Clarify who the recreational users of the SPA are and produce information and events to address them on-site and online regarding what is special about the SPA and responsible recreational behaviour. Ensure this work is informed by the recreation management plans developed with landowners/leaseholders; draws on the local knowledge and assistance of parish councils, local authorities, community groups etc, and is ongoing in order to capture new audiences.</p> <p>Introduce new recreation opportunities to attract people away from ecologically sensitive areas, including well managed/constructed through routes. Incorporate such measures into plans for the area, including flood alleviation schemes. Discourage recreational disturbance by promoting sustainable and appealing recreation opportunities to the public and providing on-site signage. Work in partnership with local planning and highway authorities, nature conservation organisations, parish councils, community groups etc.</p>
	2. Changes in species distributions	Pressure/Threat	Gadwall, Shoveler	Gather together information to inform any potential review of the SPA and to secure effective monitoring of population over the longterm. Draw on previous research by Briggs and others and existing recording activities. Assess the resource availability across the SPA, considering future availability in light of maturing gravel pits, mineral restoration opportunities schemes, development and recreational pressure. Engage local bird



Site	Priority Issues	Pressure or Threat	Features Affected	Issues and Actions
				<p>watching groups, local authorities and local community groups in monitoring activities.</p> <p>Following a precautionary principle and until evidence to the contrary is obtained, continue to recognise the contribution of specified non-designated sites in supporting the SPA bird population and manage these sites accordingly.</p>
	3. Invasive species	Pressure/Threat	Gadwall, Shoveler	<p>Continue to manage and monitor <i>Crassula helmsii</i> at Kempton. Review management, drawing on examples of successful management from elsewhere and making use of resources available through the Non Native Species Secretariat. Working with Environment Agency, Thames Water, landowners and recreation interest groups, secure preventative measures at other waterbodies to prevent spread across SPA. Share information about invasive species with Environment Agency and others in relation to any flood alleviation schemes or other works which could assist spread of <i>Crassula helmsii</i>.</p> <p>Provide information sheets to landowners and recreation interest groups so that they can identify and report <i>Crassula helmsii</i>.</p>
	4. Natural changes to site conditions	Pressure/Threat	Gadwall, Shoveler	<p>In partnership with landowners and community groups, carry out habitat management across maturing gravel pits in order to maintain or enhance provision for Gadwall and Shoveler. Draw on research such as Briggs et al 2012 to inform management. For example, manage bankside willows at key locations to benefit both species. Incorporate habitat management and expansion of suitable habitat into plans for the area, including flood alleviation schemes and mineral restoration schemes. Seek local community volunteer involvement where appropriate</p>
	5. Fisheries: Fish stocking	Threat	Gadwall, Shoveler	<p>Drawing on previous research by Briggs and previous experiences of managing recreational fish stocks at the SPA and elsewhere, work with anglers and landowners to ensure appropriate stocking levels (levels specific to the particular fish species).</p>
	6. Inappropriate weed control	Threat	Gadwall, Shoveler	<p>Working with sailing club(s), review the management of weed and develop a management response tailored to the amount of weed/growing conditions of any particular summer. Review the size and location of the area that needs to be clear of weed and also the requirements by gadwall for the particular weeds</p>

Site	Priority Issues	Pressure or Threat	Features Affected	Issues and Actions
				growing in the sailing area. Draw on examples of successful management from elsewhere and monitor outcomes of management on the SPA. Produce written guidance note to inform weed control, drawing on review so far described and issue consent accordingly.
	7. Invasive species	Threat	Gadwall, Shoveler	Determine the interaction between Egyptian geese and gadwall/shoveler in order to establish whether there are negative direct or indirect impacts upon the SPA birds.  If necessary, explore potential to reduce numbers of Egyptian geese in tandem with Canada geese controls (oiling of eggs).
Lee Valley Ramsar	Ramsar sites do not have Site Improvement Plans. However, for the purposes of this HRA screening it is assumed that the plan for the related SPA would be appropriate to the related Ramsar.			
South West London Waterbodies Ramsar				

## Appendix B: Changes in Air Emissions Across the Study Area

Changes in road traffic emissions of NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>, by vehicle type, which are estimated to occur in 2023 because of the Proposed Scheme within central, inner, outer and Greater London and within the extents of 'non-Greater London' local authorities covered by the London Atmospheric Emissions Inventory (LAEI), respectively, are summarised in the following tables.

**Table B1: Estimated changes in 2023 road traffic NO<sub>x</sub> emissions within central, inner, outer and Greater London and relevant non-Greater London local authorities. Values are rounded to the nearest 5kg.**

Estimated change in 2023 road traffic NO <sub>x</sub> emissions in kg per annum (% change 'with' Proposed Scheme vs. 'without' Proposed Scheme)						
Area	Cars and Motorcycles	Private Hire Vehicles and Taxis	Light Goods Vehicles	Heavy Goods Vehicles	Buses and Coaches	All Vehicles
Central London	-1,425 (-4.5%)	-55 (-0.1%)	-635 (-1.6%)	5 (<0.1%)	35 (0.1%)	-2,075 (-0.9%)
Inner London	-24,020 (-3.4%)	-500 (-0.2%)	-12,305 (-2.5%)	-260 (-0.1%)	-135 (-0.1%)	-37,220 (-2.0%)
Outer London	-238,760 (-9.5%)	675 (0.4%)	-84,190 (-6.6%)	-150 (<0.1%)	-385 (-0.1%)	-322,805 (-6.9%)
Greater London	-264,205 (-8.2%)	120 (<0.1%)	-97,130 (-5.4%)	-405 (-0.1%)	-485 (-0.1%)	-362,105 (-5.4%)
Non-Greater London <sup>1</sup>	-175,430 (-8.1%)	65 (0.1%)	-38,205 (-3.3%)	-5 (<0.1%)	55 (0.1%)	-213,520 (-5.5%)

<sup>1</sup> Based on spatial extents of relevant local authorities areas covered by the LAEI, which is in some cases limited.

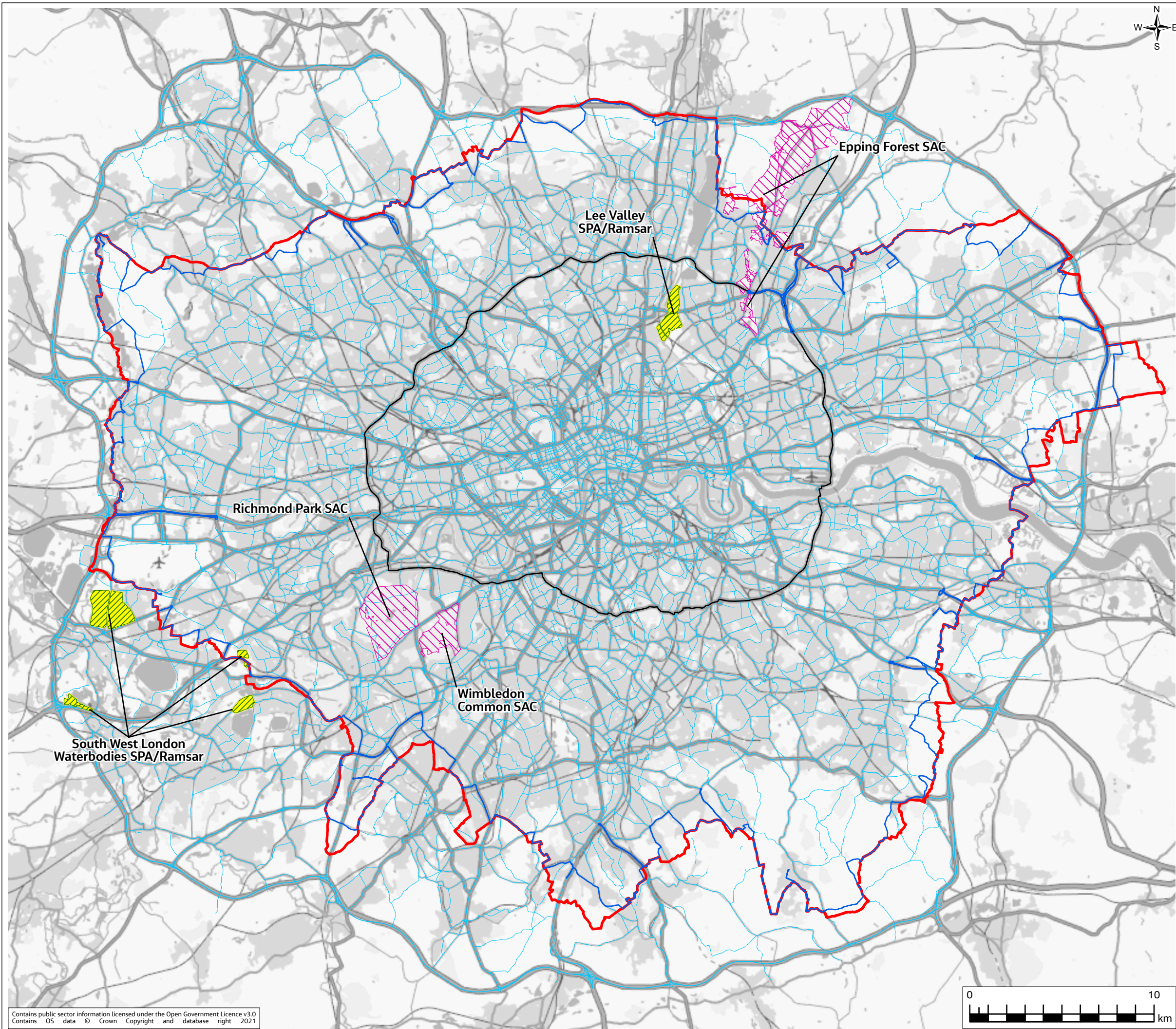
## Appendix C: Summary of Modelled Changes within 200m of Designated Sites

**Table B2: Statistics for modelled road links within 200m of designated sites for NOx Emissions and AADT.**

	Epping Forest SAC			Richmond Park SAC			Wimbledon Common SAC			Lee Valley SPA/Ramsar			South West London Waterbodies SPA/Ramsar		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
No. of Links	398			101			168			18			141		
Do-Min NOx Emissions (kgY)	426.4	0.0	25969.4	441.3	2.9	5087.3	151.3	0.0	2467.2	223.0	11.7	1353.4	574.6	3.4	7574.0
Do-Something NOx Emissions (kgY)	405.8	0.0	25420.8	408.1	2.5	4707.8	139.5	0.0	2283.4	218.5	11.4	1323.0	516.1	3.1	7002.1
No. Of Links with Decrease	386			101			167			18			141		
No. Of Links with Increase	1			0			0			0			0		
Change in NOx Emissions (kgY)	-20.7	-548.7	0.6	-33.1	-379.6	-0.3	-11.8	-183.7	0.0	-4.5	-30.4	-0.2	-58.6	-790.3	-0.3
Change in NOx Emission (%)	-8.1	-81.8	1.2	-8.2	-15.1	-3.6	-8.1	-13.3	0.0	-1.8	-2.5	-0.5	-12.0	-15.0	-1.1
Do-Minimum AADT	19640	0	128951	20232	549	73651	12441	0	74019	24563	15393	30439	14595	1304	63329
Do-Something AADT	19688	0	129020	20138	544	73710	12417	0	74081	24800	15845	30717	14496	1307	63204
Number of Links with Decrease	205			88			94			0			112		
Number of Links with Increase	171			12			51			18			29		

	Epping Forest SAC			Richmond Park SAC			Wimbledon Common SAC			Lee Valley SPA/Ramsar			South West London Waterbodies SPA/Ramsar		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Change in AADT	48	-390	898	-94	-241	59	-24	-351	124	237	85	452	-100	-486	187
Change in AADT (%)	-0.5	-71.7	3.5	-0.9	-3.9	0.5	-0.5	-4.7	1.4	1.1	0.4	2.9	-0.8	-2.4	1.4

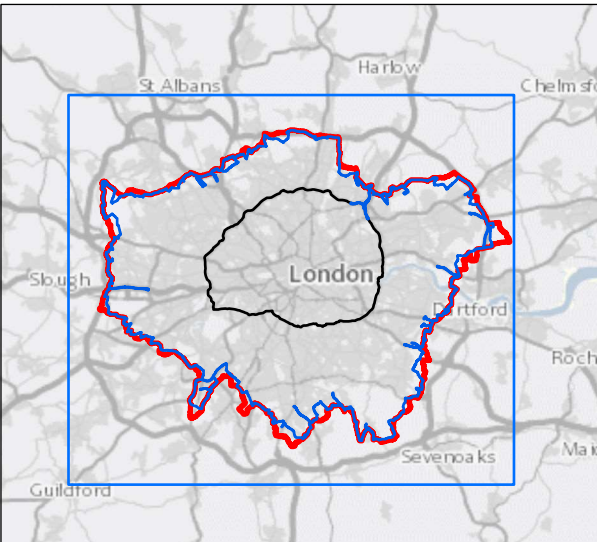




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FIGURE 1

- Legend**
- Proposed London-Wide ULEZ Boundary / LEZ Boundary
  - ULEZ Boundary
  - Greater London Authority
  - Study Area
  - Special Area of Conservation (SAC)
  - Special Protection Areas
  - Ramsar Site



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TfL ROAD USED CHARGING IIA

Drawing Title

EUROPEAN DESIGNATED BIODIVERSITY AND NATURE CONSERVATION SITES

Drawing Status

DRAFT

Scale @ A3

1:200,000

DO NOT SCALE

Jacobs No.

B2417101

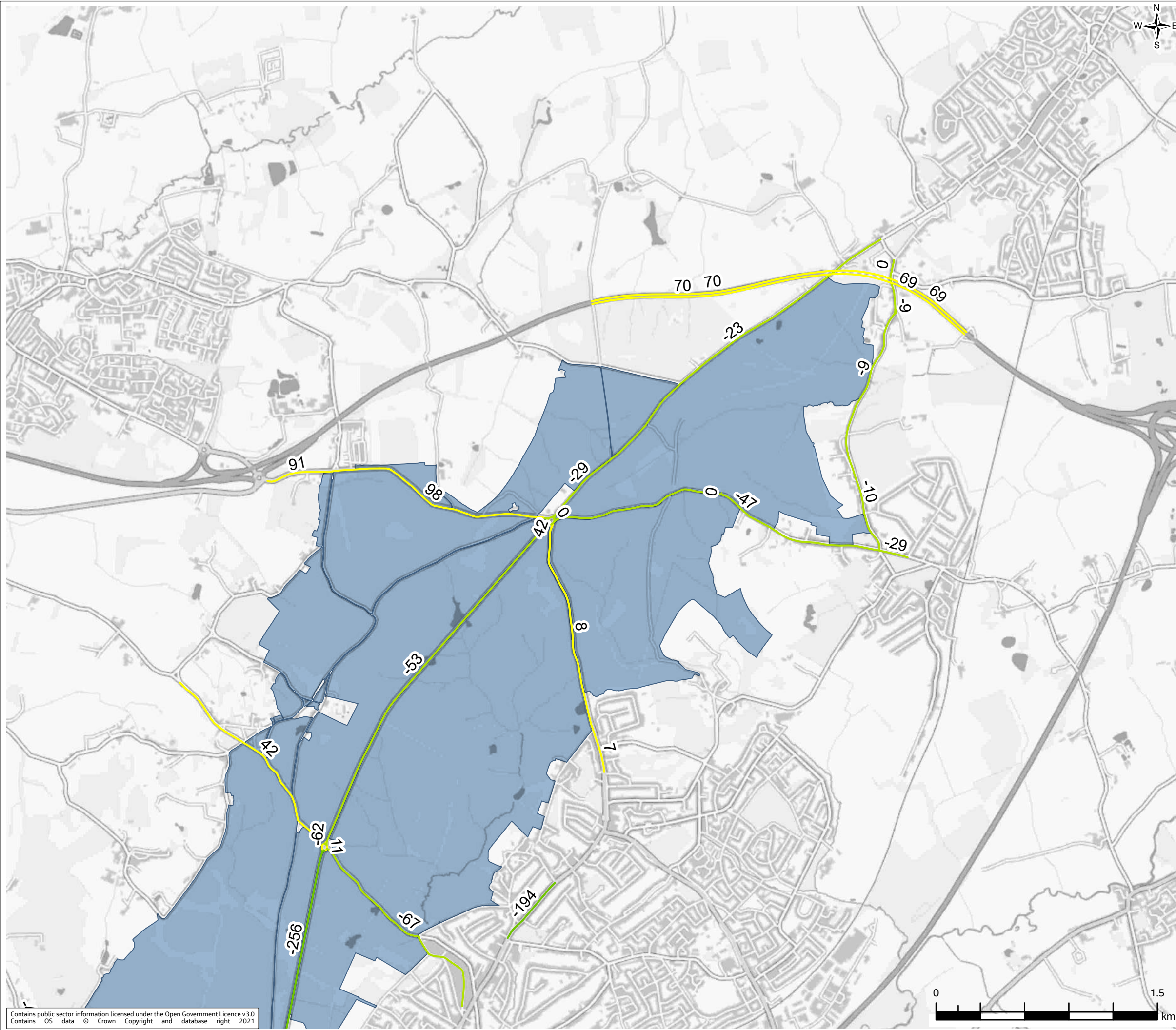
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Drawing No.

B2417101\_European Biodiversity and Nature Conservation Sites

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FIGURE 2a

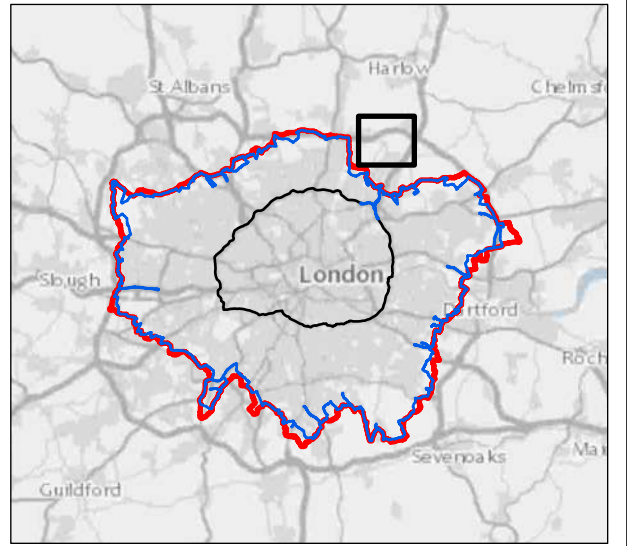
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- Epping Forest SAC Boundary

**Change in AADT**

- 500 to -100
- 100 to 0
- 0 to 100
- 100 to 500
- 500 to 1000

SOURCE: Modelled change in annual average daily traffic flows on major roads provided by TfL



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Drawing Title

MODELLED CHANGES IN ANNUAL AVERAGE DAILY TRAFFIC FLOWS  
(WITH ULEZ EXPANSION) AT EPPING FOREST SAC  
PAGE 1 OF 3

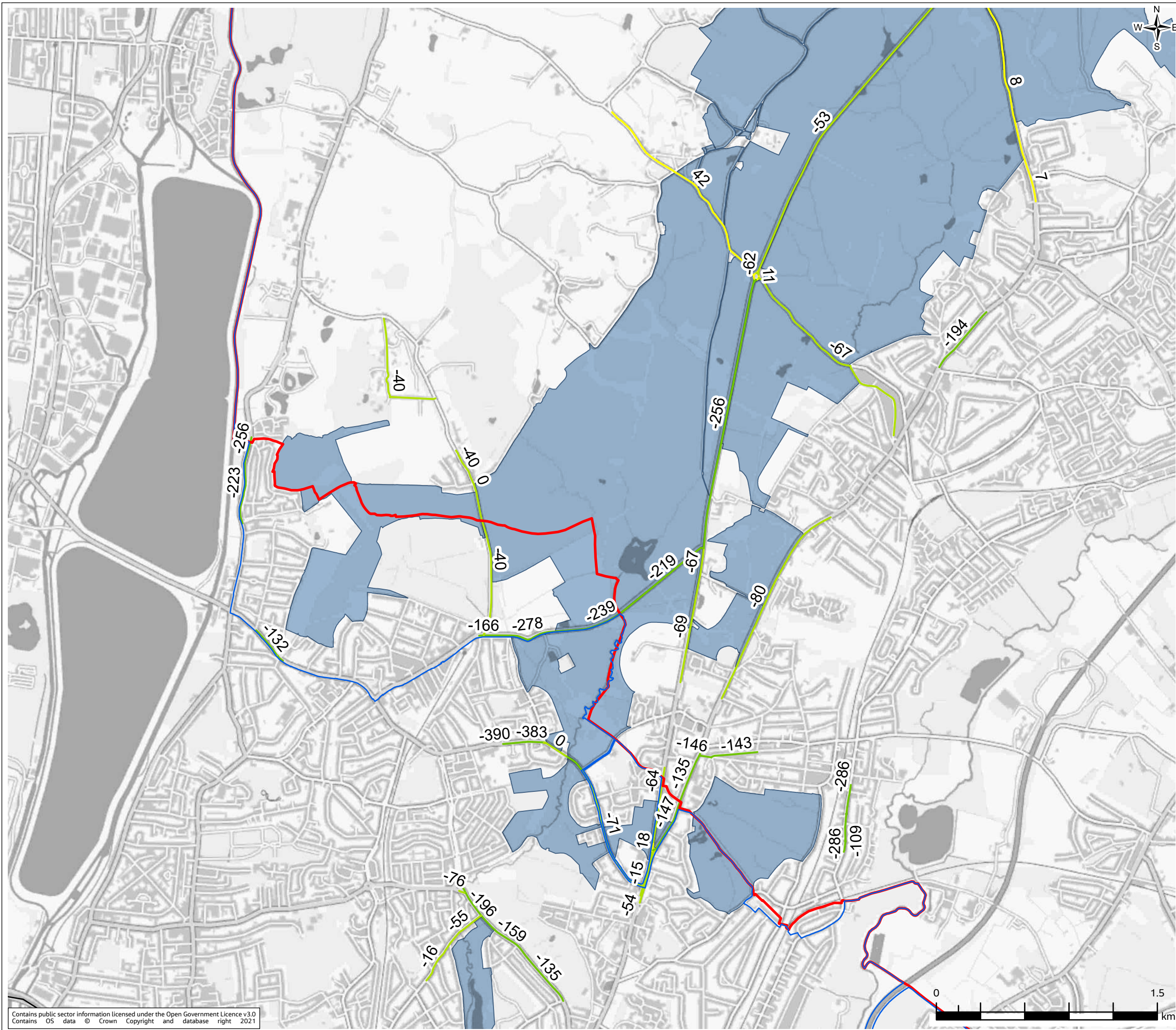
Drawing Status

DRAFT

Scale @ A3	1:25,000	DO NOT SCALE
Jacobs No.	B2417101	
Client No.		
Drawing No.	B2417101_Traffic Changes_Epping Forest	

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FIGURE 2a

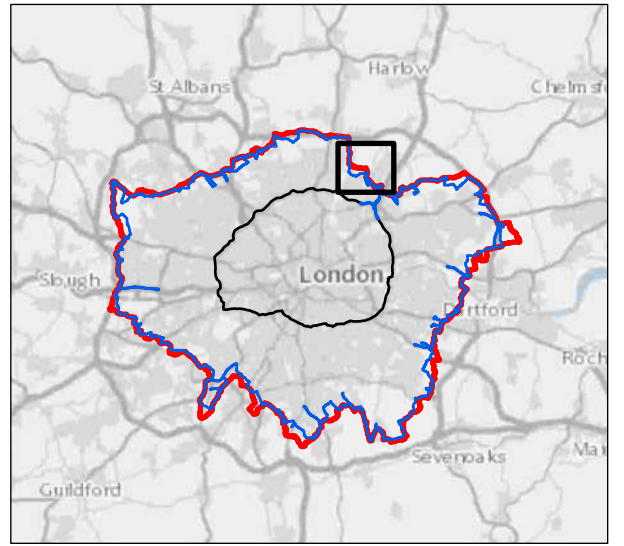
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- Epping Forest SAC Boundary

**Change in AADT**

- 500 to -100
- 100 to 0
- 0 to 100
- 100 to 500
- 500 to 1000

SOURCE: Modelled change in annual average daily traffic flows on major roads provided by TfL



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PAGE 2 OF 3

Drawing Status

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Scale @ A3

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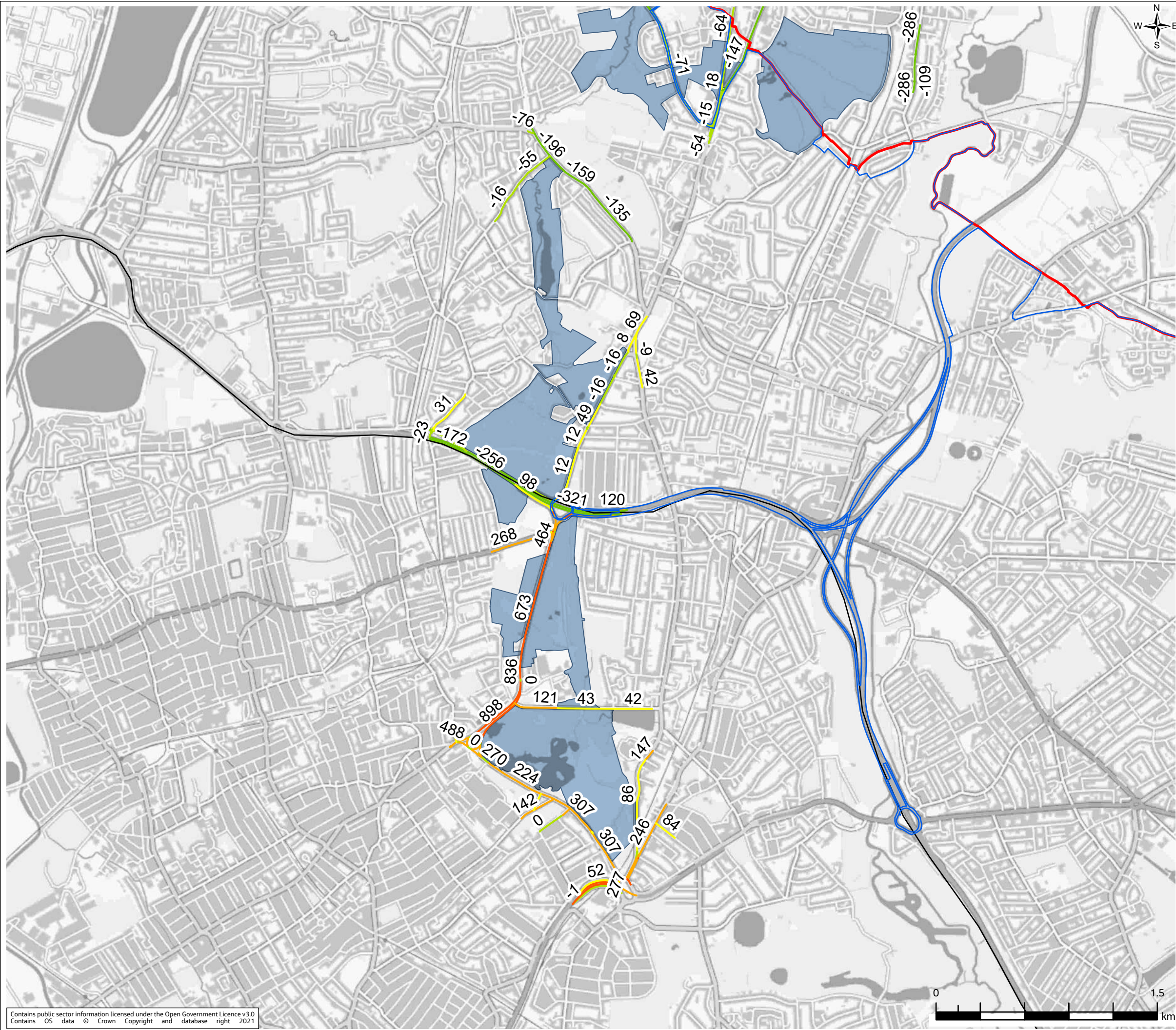
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Drawing No.

B2417101\_Traffic Changes\_Epping Forest

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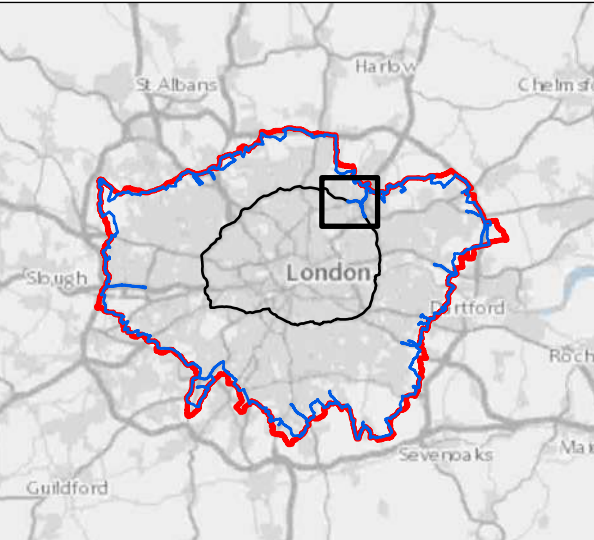
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- Epping Forest SAC Boundary

**Change in AADT**

- 500 to -100
- 100 to 0
- 0 to 100
- 100 to 500
- 500 to 1000

SOURCE: Modelled change in annual average daily traffic flows on major roads provided by TfL



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Drawing Title

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(WITH ULEZ EXPANSION) AT EPPING FOREST SAC  
PAGE 3 OF 3

Drawing Status

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Scale @ A3

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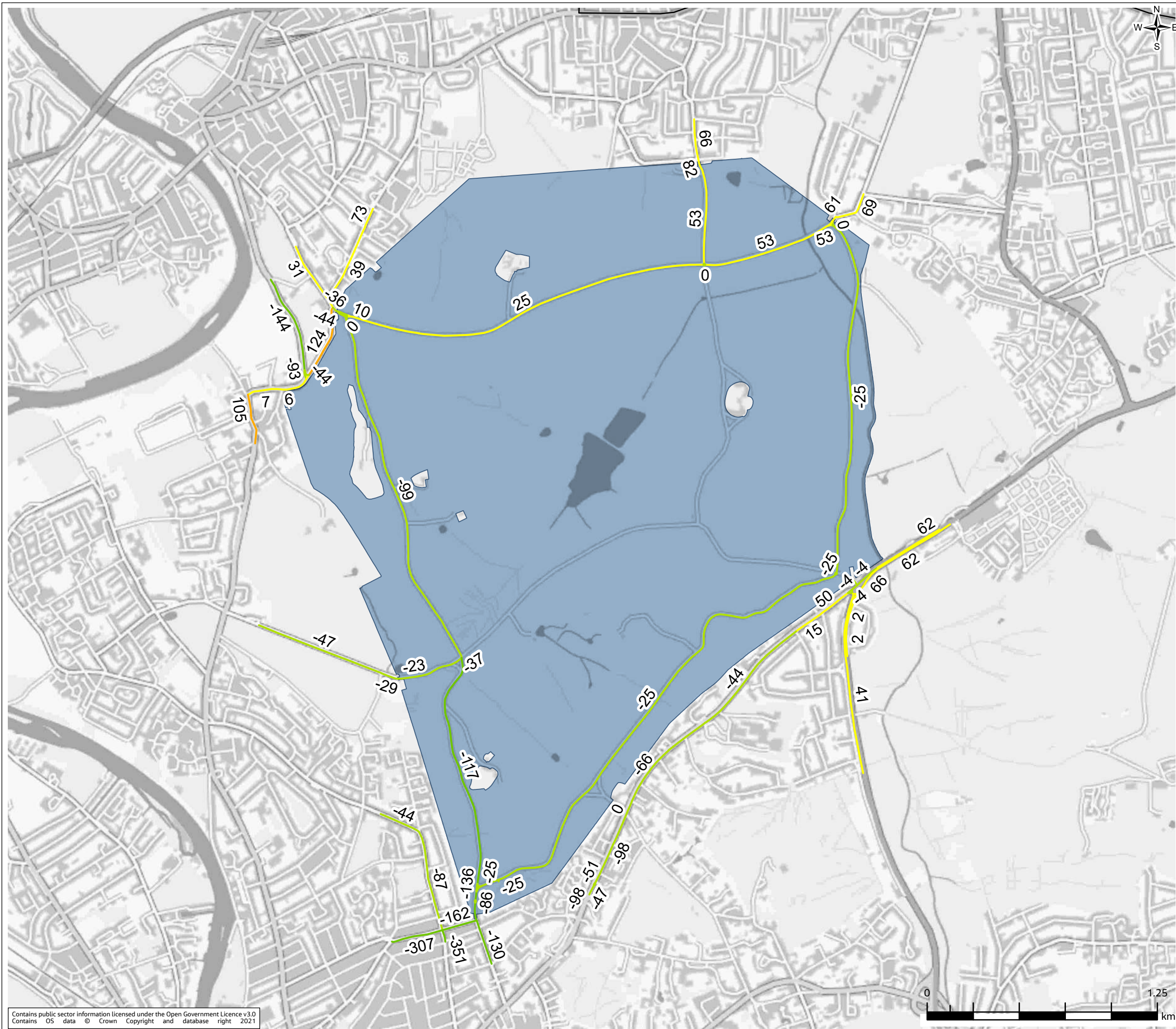
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FIGURE 2b

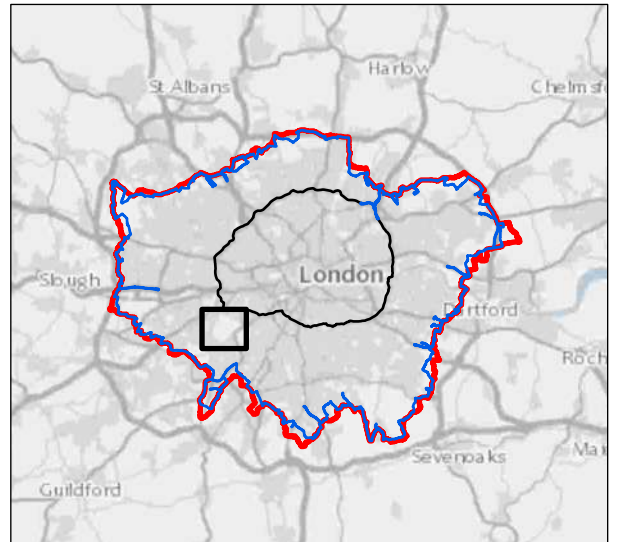
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- Richmond Park SAC Boundary

**Change in AADT**

- 500 to -100
- 100 to 0
- 0 to 100
- 100 to 500
- 500 to 1000

SOURCE: Modelled change in annual average daily traffic flows on major roads provided by TfL



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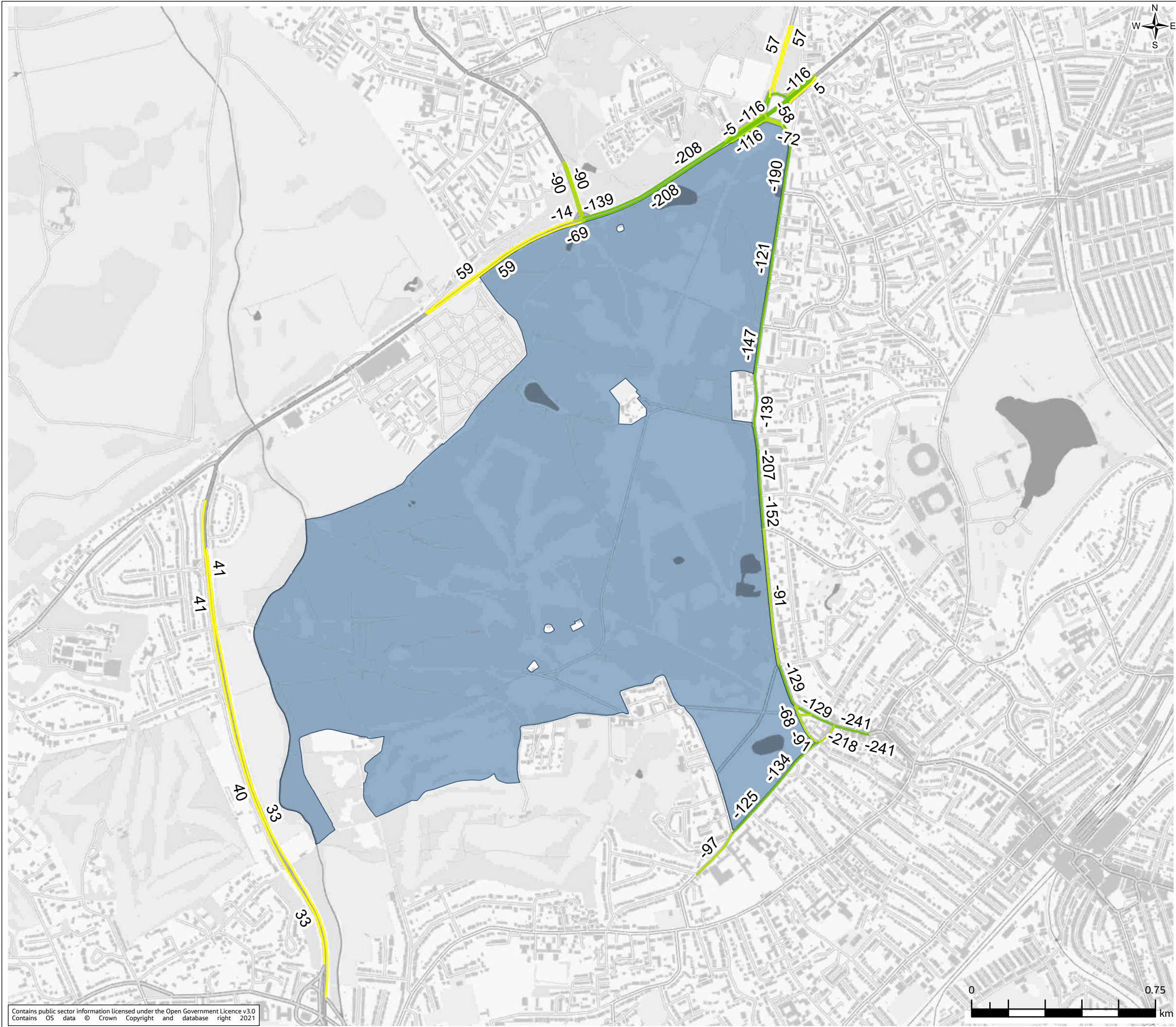
Drawing Title: **MODELLLED CHANGES IN ANNUAL AVERAGE DAILY TRAFFIC FLOWS (WITH ULEZ EXPANSION) AT RICHMOND PARK SAC**

Drawing Status: **DRAFT**

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Drawing No.	B2417101_Traffic Changes	

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FIGURE 2c

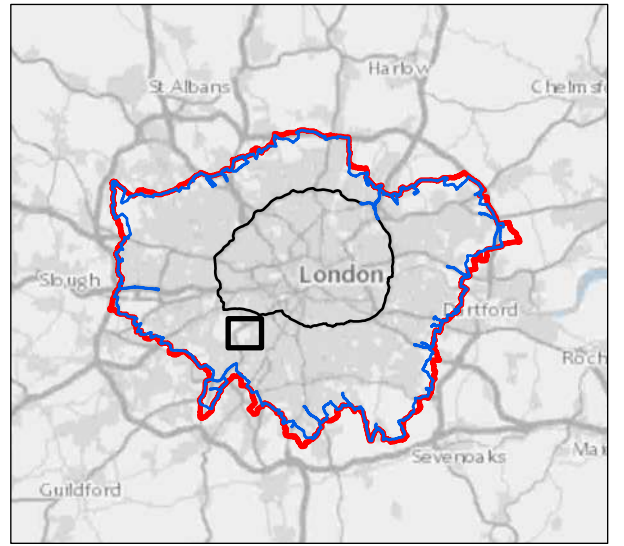
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- Wimbledon Common SAC Boundary

**Change in AADT**

- 500 to -100
- 100 to 0
- 0 to 100
- 100 to 500
- 500 to 1000

SOURCE: Modelled change in annual average daily traffic flows on major roads provided by TfL



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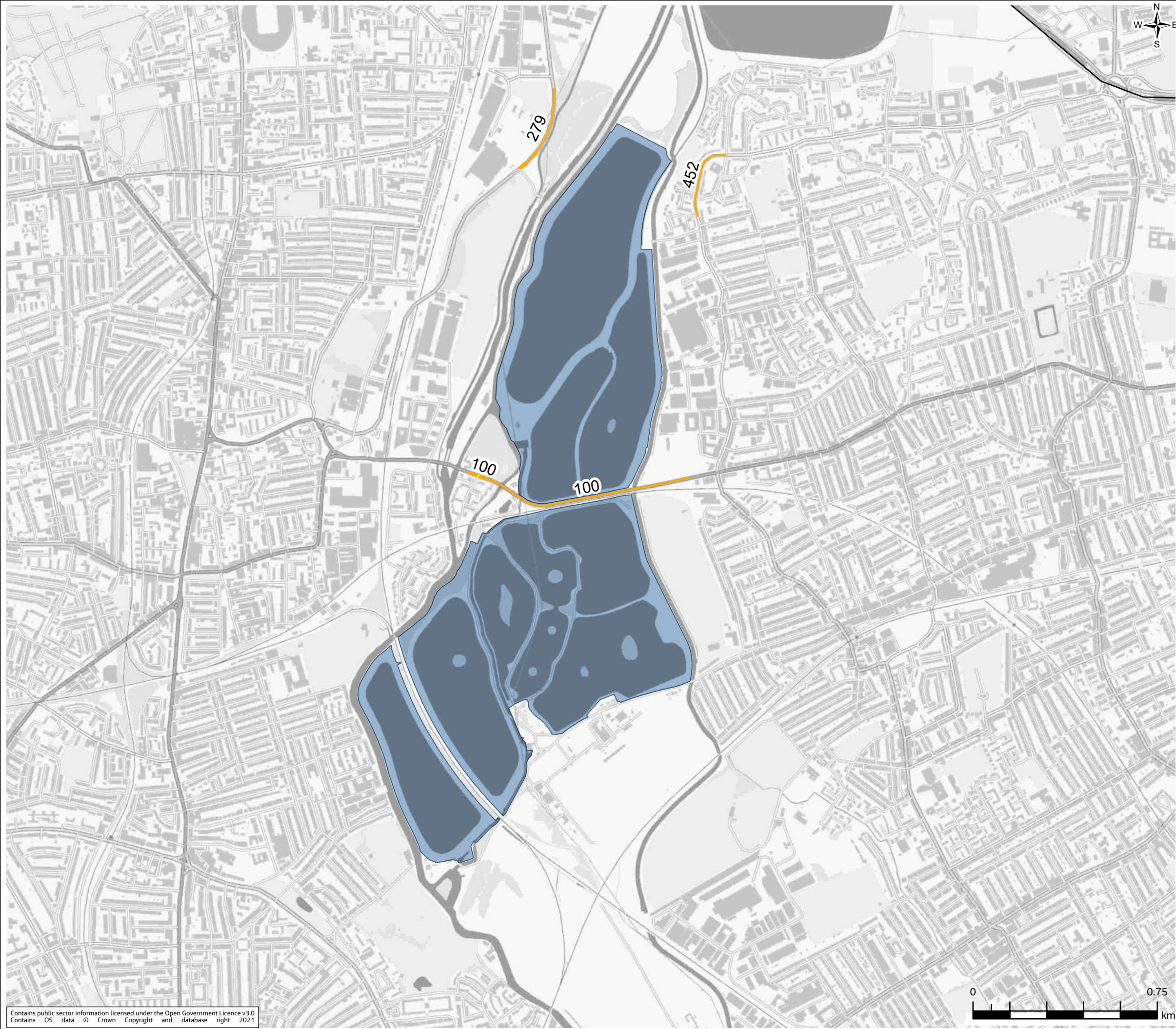
Drawing Title  
MODELLED CHANGES IN ANNUAL AVERAGE DAILY TRAFFIC FLOWS  
(WITH ULEZ EXPANSION) AT WIMBLEDON COMMON SAC

Drawing Status  
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Scale @ A3	1:15,000	DO NOT SCALE
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Client No.		
Drawing No.	B2417101_Traffic Changes	

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FIGURE 2d

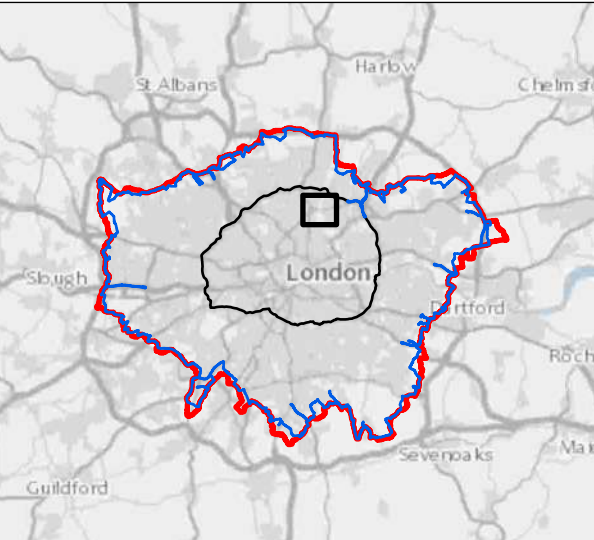
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- Lee Valley SPA Boundary

**Change in AADT**


- 500 to -100
- 100 to 0
- 0 to 100
- 100 to 500
- 500 to 1000

SOURCE: Modelled change in annual average daily traffic flows on major roads provided by TfL



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Project	LONDON - WIDE ULTRA LOW EMISSION ZONE INTERGATED IMPACT ASSESSMENT		
Drawing Title	MODELLLED CHANGES IN ANNUAL AVERAGE DAILY TRAFFIC FLOWS (WITH ULEZ EXPANSION) AT LEE VALLEY SPA		
Drawing Status	DRAFT		
Scale @ A3	1:15,000	DO NOT SCALE	
Jacobs No.	B2417101		
Client No.			
Drawing No.	B2417101_Traffic Changes		

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FIGURE 2e

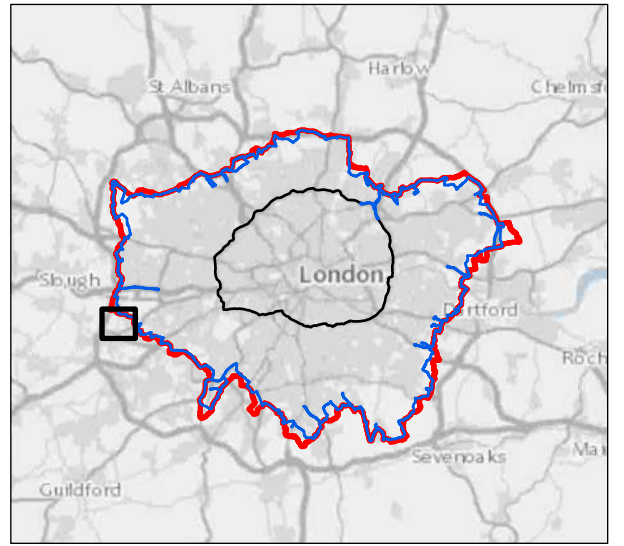
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- South West London Waterbodies SPA Boundary

**Change in AADT**

- 500 to -100
- 100 to 0
- 0 to 100
- 100 to 500
- 500 to 1000

SOURCE: Modelled change in annual average daily traffic flows on major roads provided by TfL



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LONDON - WIDE ULTRA LOW EMISSION ZONE  
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MODELLED CHANGES IN ANNUAL AVERAGE DAILY TRAFFIC FLOWS  
(WITH ULEZ EXPANSION) AT SOUTH WEST LONDON WATERBODIES SPA  
PAGE 1 OF 3

DRAFT

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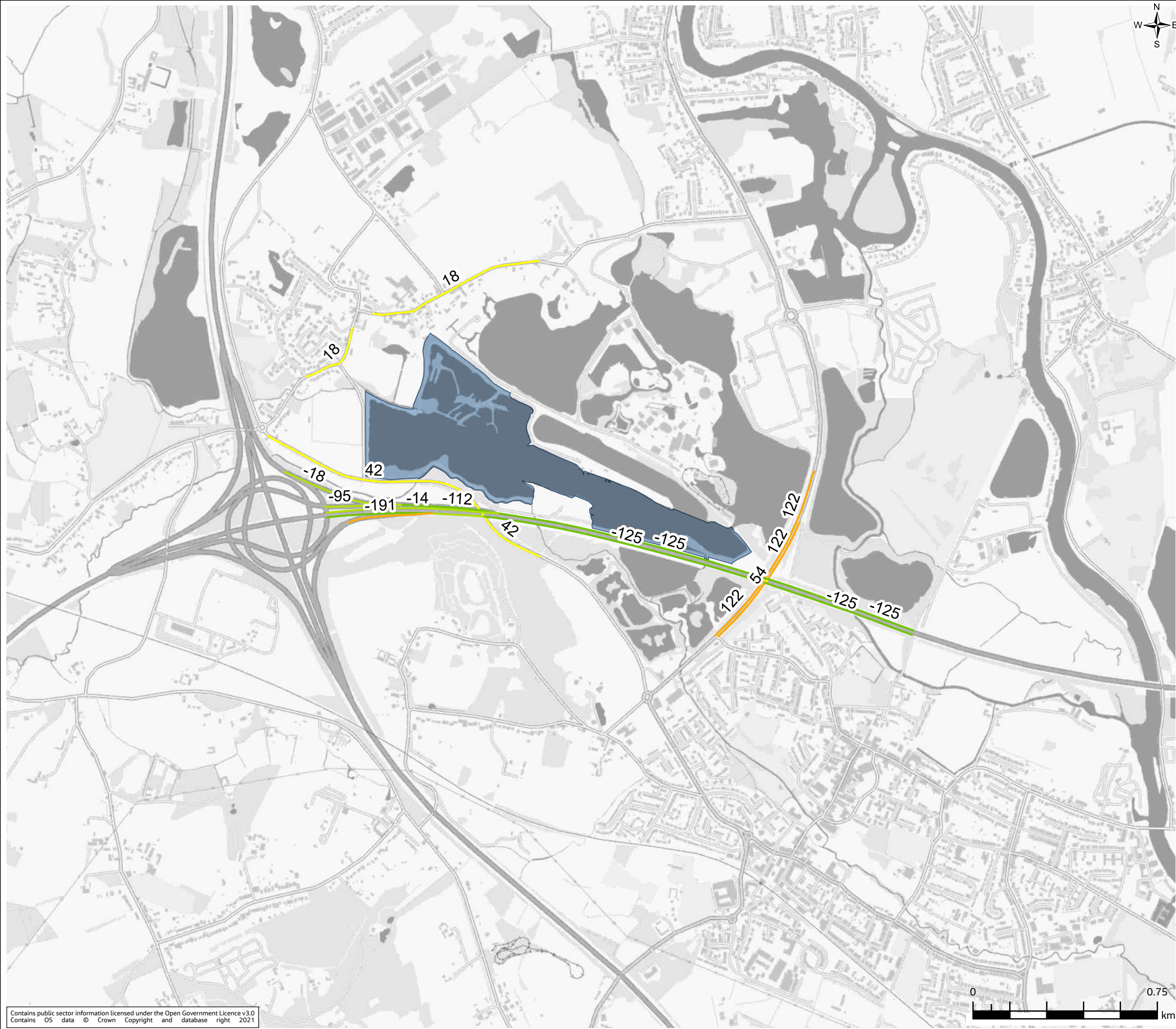
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B2417101

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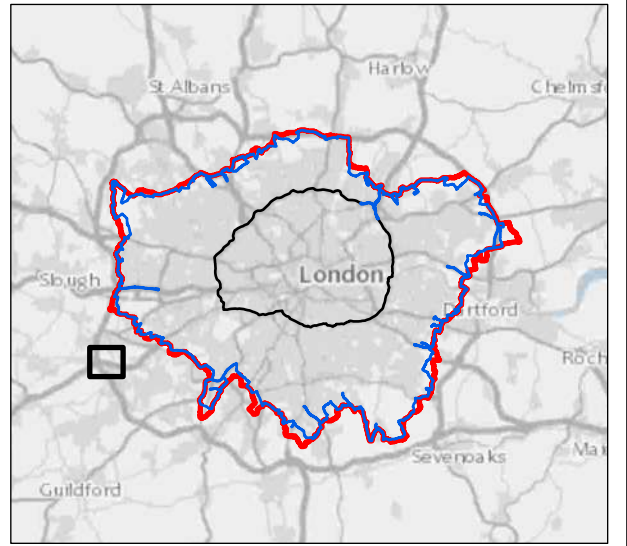
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- South West London Waterbodies SPA Boundary

**Change in AADT**

- 500 to -100
- 100 to 0
- 0 to 100
- 100 to 500
- 500 to 1000

SOURCE: Modelled change in annual average daily traffic flows on major roads provided by TfL



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Project

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INTERGATED IMPACT ASSESSMENT

Drawing Title

MODELLED CHANGES IN ANNUAL AVERAGE DAILY TRAFFIC FLOWS  
(WITH ULEZ EXPANSION) AT SOUTH WEST LONDON WATERBODIES SPA  
PAGE 2 OF 3

Drawing Status

DRAFT

Scale @ A3

1:15,000

DO NOT SCALE

Jacobs No.

B2417101

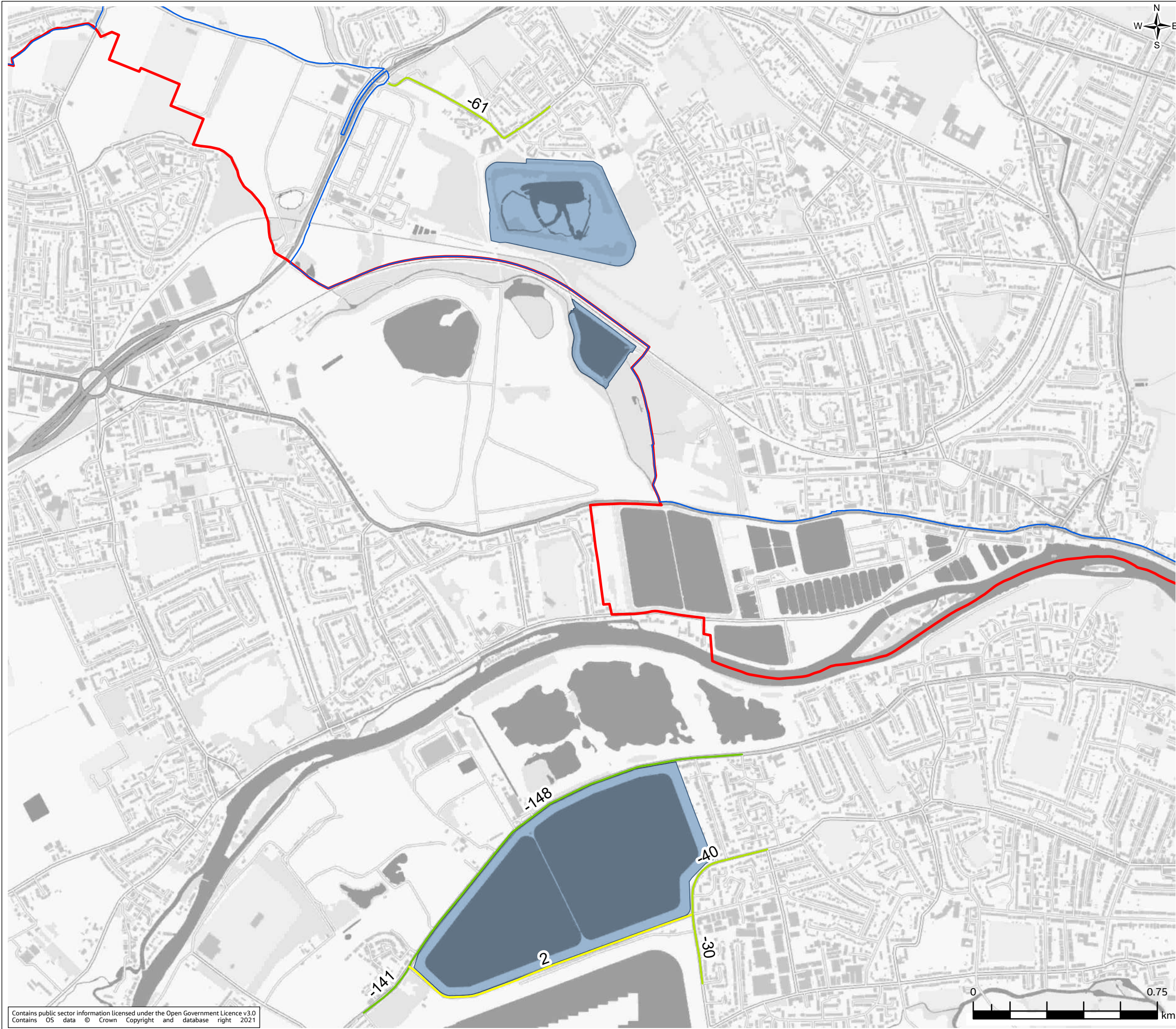
Client No.

Drawing No.

B2417101\_Traffic Changes\_South West London

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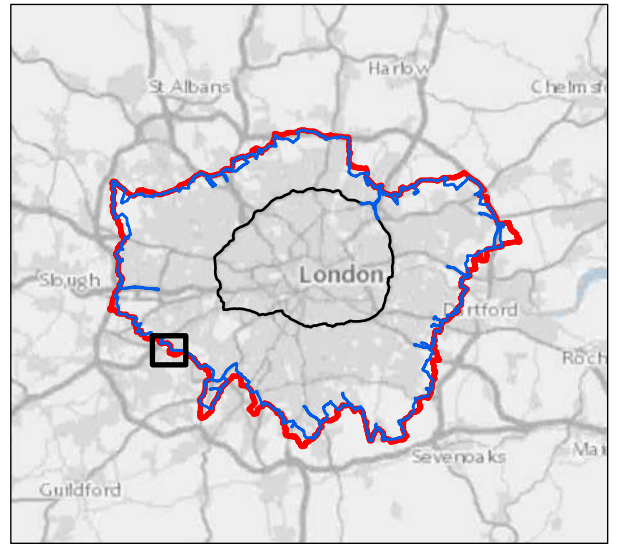
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- South West London Waterbodies SPA Boundary

**Change in AADT**

- 500 to -100
- 100 to 0
- 0 to 100
- 100 to 500
- 500 to 1000

SOURCE: Modelled change in annual average daily traffic flows on major roads provided by TfL



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Project

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INTERGATED IMPACT ASSESSMENT

Drawing Title

MODELLED CHANGES IN ANNUAL AVERAGE DAILY TRAFFIC FLOWS  
(WITH ULEZ EXPANSION) AT SOUTH WEST LONDON WATERBODIES SPA  
PAGE 3 OF 3

Drawing Status

DRAFT

Scale @ A3

1:15,000

DO NOT SCALE

Jacobs No.

B2417101

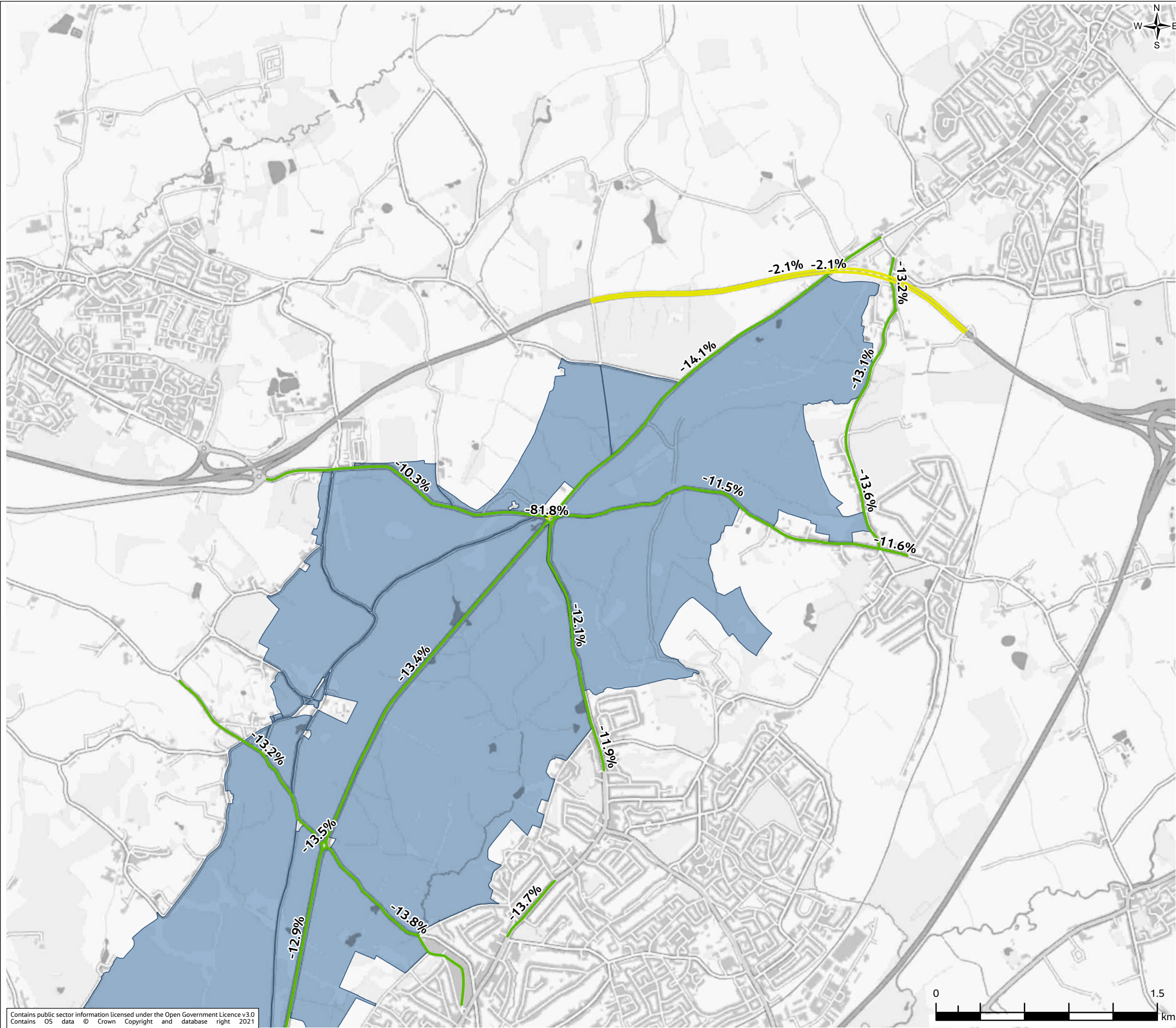
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Drawing No.

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FIGURE 3a

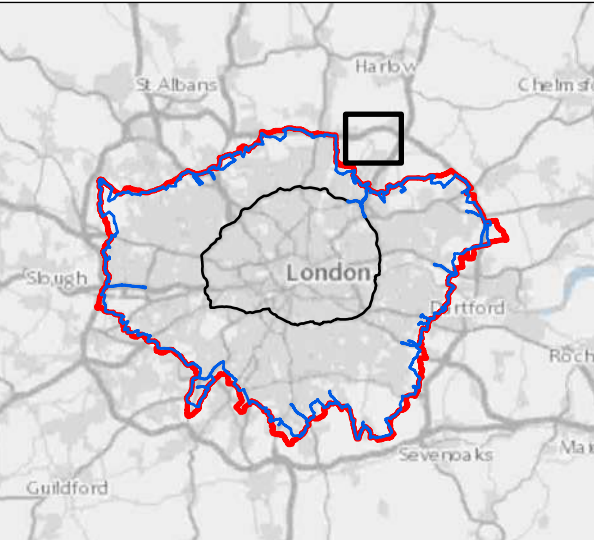
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- Epping Forest SAC Boundary

**Change in Total NOx Emissions (kg/Y)**

- Less than -50%
- 50% to -10%
- 10% to -5%
- 5% to 0%
- 0% to 5%

SOURCE: Modelled change in annual road traffic NOx emissions on major roads provided by TfL



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LONDON - WIDE ULTRA LOW EMISSION ZONE  
INTERGATED IMPACT ASSESSMENT

CHANGE IN ANNUAL NOx EMISSIONS (%)  
(WITH ULEZ EXPANSION) AT EPPING FOREST SAC  
PAGE 1 OF 3

Drawing Status: DRAFT

Scale @ A3: 1:25,000 DO NOT SCALE

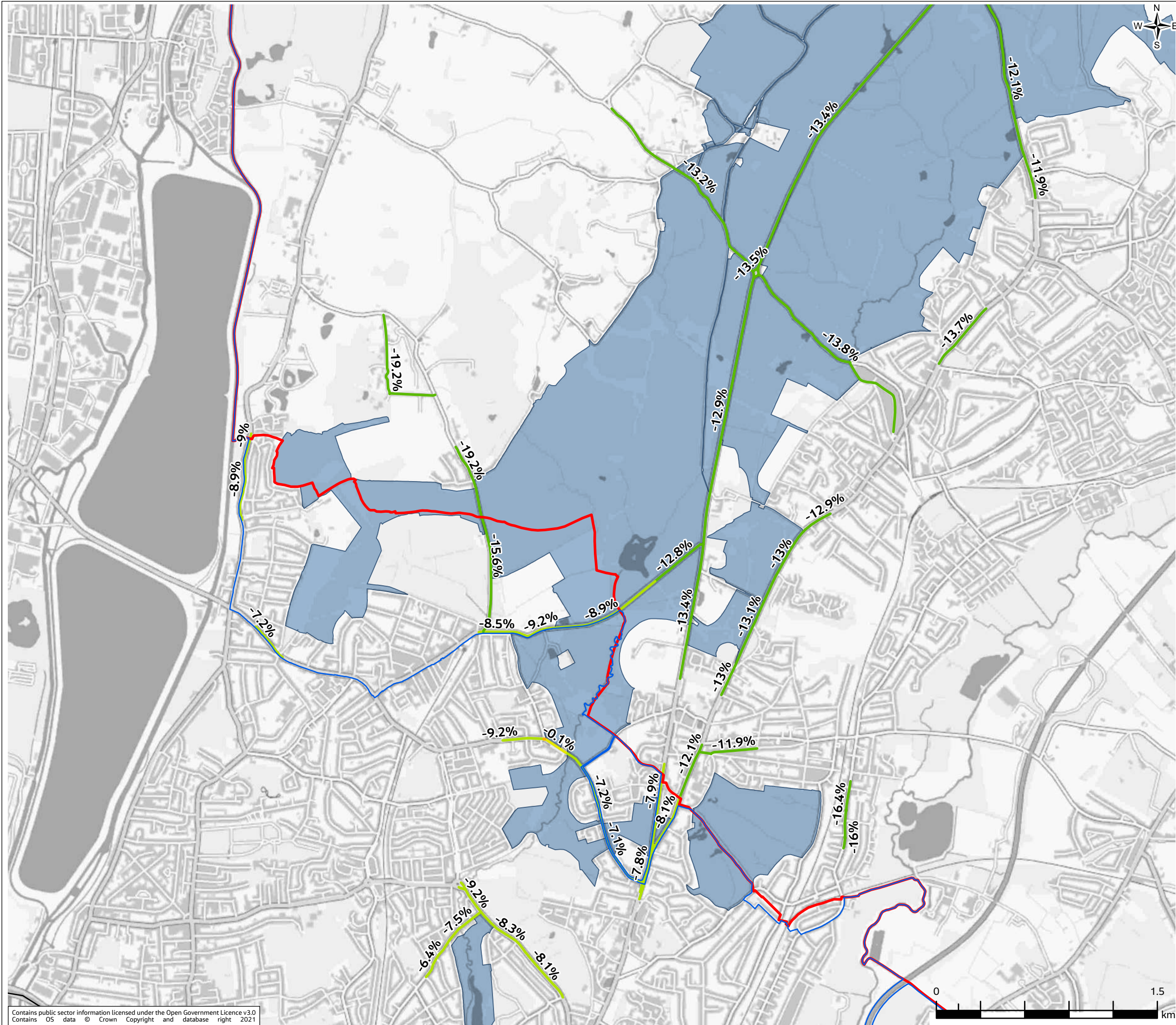
Jacobs No.: B2417101

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Drawing No.: B2417101\_Annual NOx Emissions\_Epping Forest

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FIGURE 3a

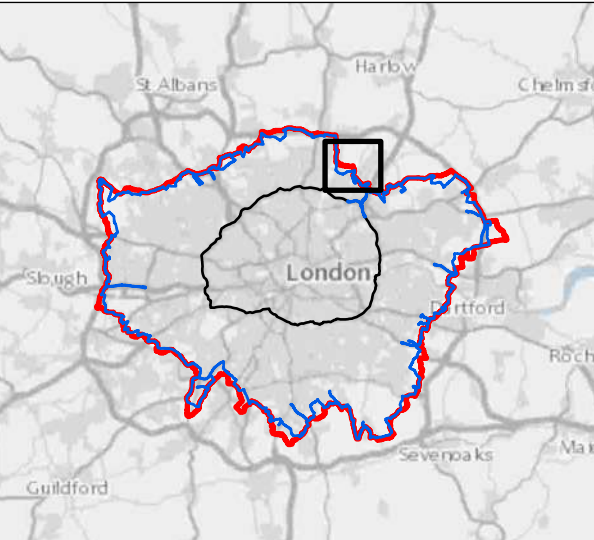
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- Epping Forest SAC Boundary

**Change in Total NOx Emissions (kg/Y)**

- Less than -50%
- 50% to -10%
- 10% to -5%
- 5% to 0%
- 0% to 5%

SOURCE: Modelled change in annual road traffic NOx emissions on major roads provided by TfL



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LONDON - WIDE ULTRA LOW EMISSION ZONE  
INTERGATED IMPACT ASSESSMENT

CHANGE IN ANNUAL NOx EMISSIONS (%)  
(WITH ULEZ EXPANSION) AT EPPING FOREST SAC  
PAGE 2 OF 3

Drawing Status: DRAFT

Scale @ A3: 1:25,000 DO NOT SCALE

Jacobs No.: B2417101

Client No.:

Drawing No.: B2417101\_Annual NOx Emissions\_Epping Forest

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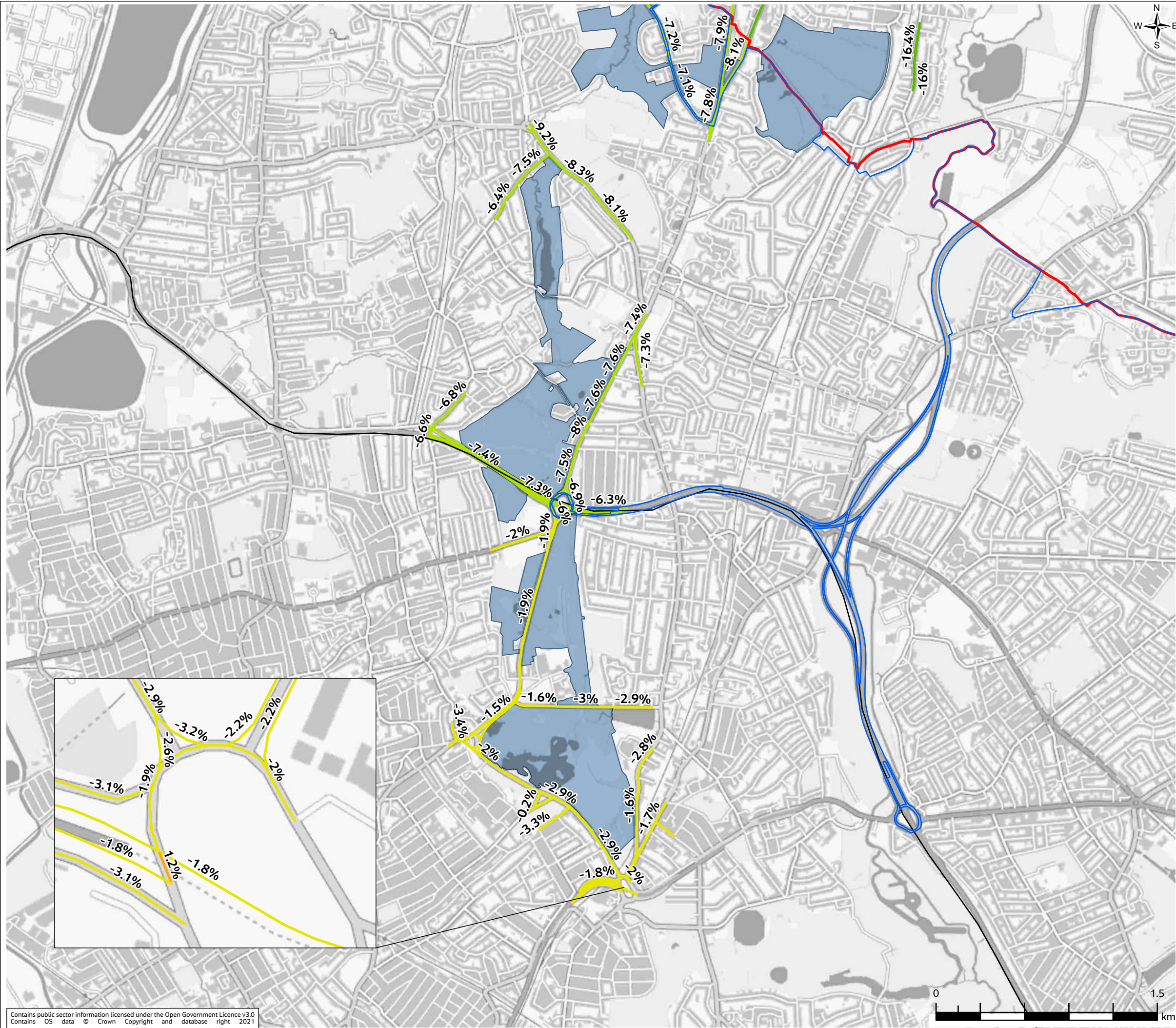


FIGURE 3a

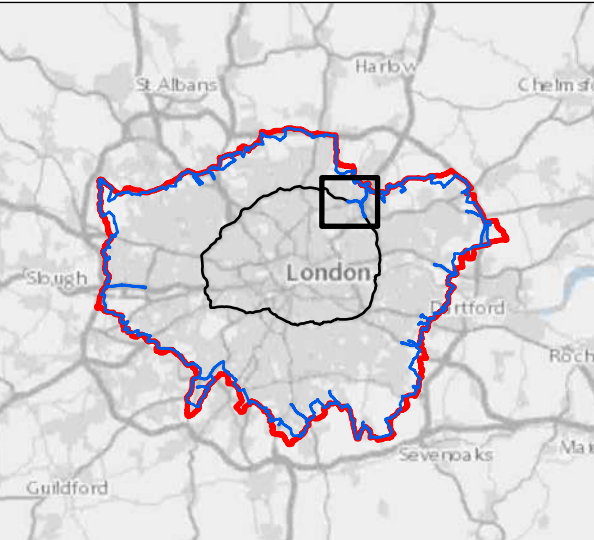
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- Epping Forest SAC Boundary

**Change in Total NOx Emissions (kg/Y)**

- Less than -50%
- 50% to -10%
- 10% to -5%
- 5% to 0%
- 0% to 5%

SOURCE: Modelled change in annual road traffic NOx emissions on major roads provided by TfL



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LONDON - WIDE ULTRA LOW EMISSION ZONE  
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CHANGE IN ANNUAL NOx EMISSIONS (%)  
(WITH ULEZ EXPANSION) AT EPPING FOREST SAC  
PAGE 3 OF 3

Drawing Status: DRAFT

Scale @ A3: 1:25,000 DO NOT SCALE

Jacobs No.: B2417101

Client No.:

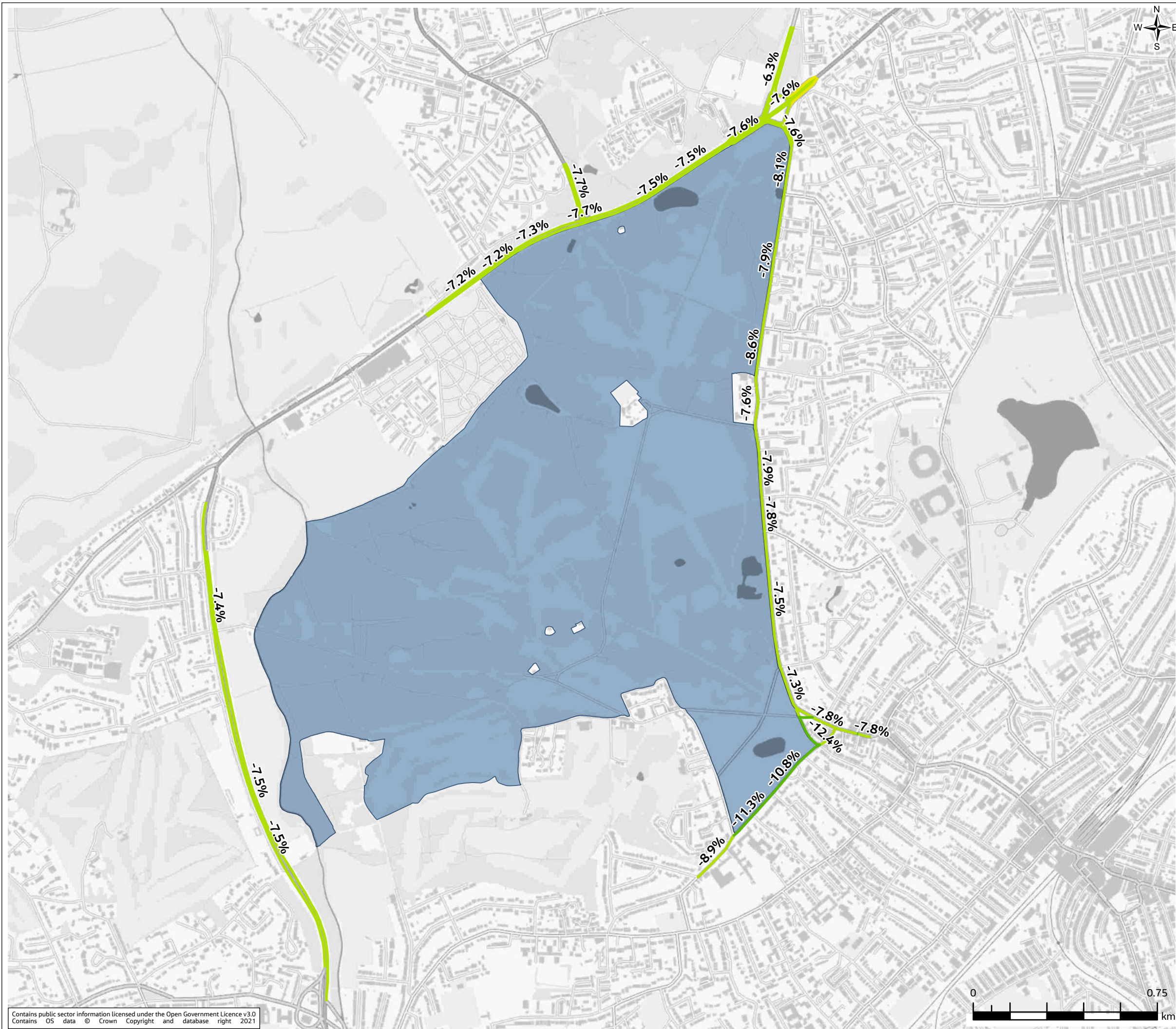
Drawing No.: B2417101\_Annual NOx Emissions\_Epping Forest

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FIGURE 3c

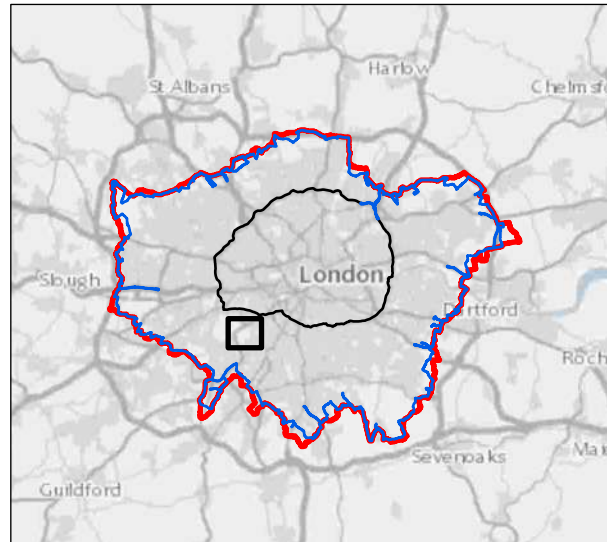
**Legend**


- Proposed London-Wide ULEZ boundary / LEZ boundary
- Greater London Authority
- ULEZ Boundary
- Wimbledon Common SAC Boundary

**Change in Total NOx Emissions (kg/Y) lol**

- Less than -50%
- 50% to -10%
- 10% to -5%
- 5% to 0%
- 0% to 5%

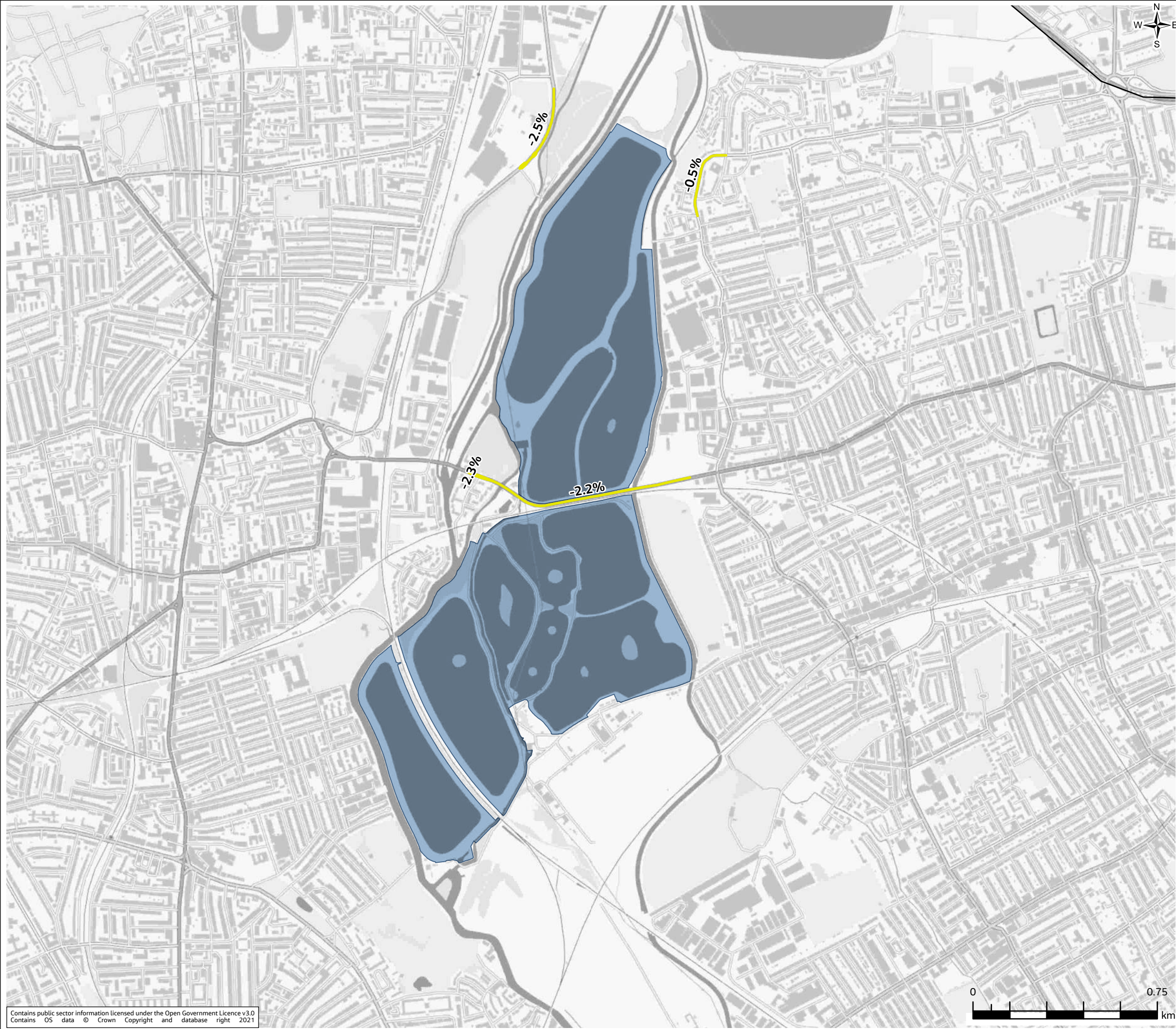
SOURCE: Modelled change in annual road traffic NOx emissions on major roads provided by TfL



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Drawing Title						
CHANGE IN ANNUAL NOx EMISSIONS (%) (WITH ULEZ EXPANSION) AT WIMBLEDON COMMON SAC						
Drawing Status						
DRAFT						
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Drawing No.		B2417101_Annual NOx Emissions				

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FIGURE 3d

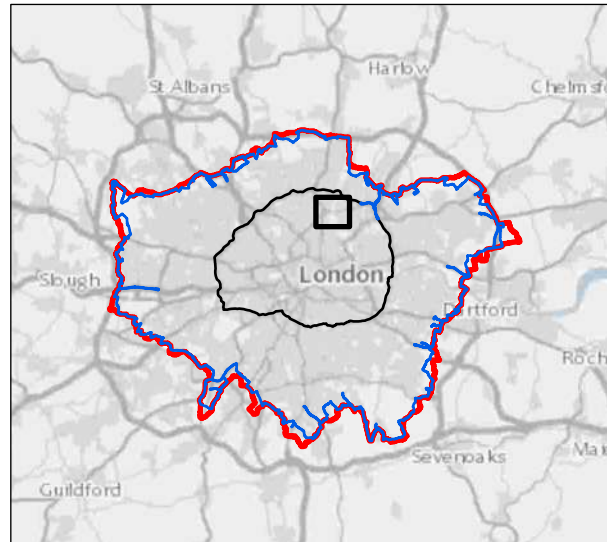
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- Greater London Authority
- ULEZ Boundary
- Lee Valley SPA Boundary

**Change in Total NOx Emissions (kg/Y) lol**

- Less than -50%
- 50% to -10%
- 10% to -5%
- 5% to 0%
- 0% to 5%

SOURCE: Modelled change in annual road traffic NOx emissions on major roads provided by TfL



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INTERGATED IMPACT ASSESSMENT

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CHANGE IN ANNUAL NOx EMISSIONS (%)  
(WITH ULEZ EXPANSION) AT LEE VALLEY SPA

Drawing Status

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Drawing No.

B2417101\_Annual NOx Emissions

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FIGURE 3e

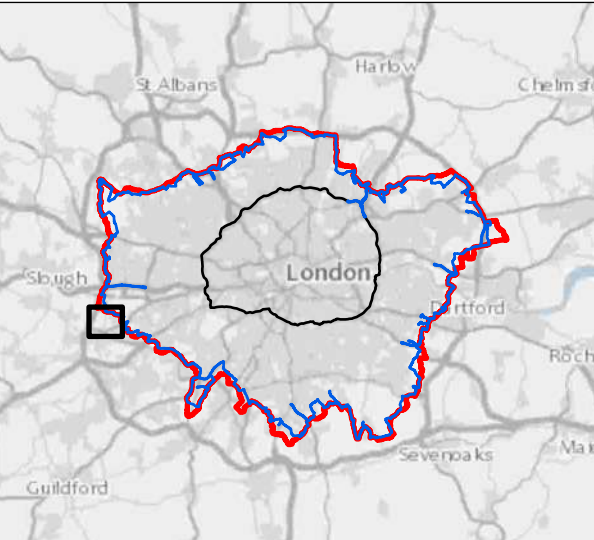
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- South West London Waterbodies SPA Boundary

**Change in Total NOx Emissions (kg/Y)**

- Less than -50%
- 50% to -10%
- 10% to -5%
- 5% to 0%
- 0% to 5%

SOURCE: Modelled change in annual road traffic NOx emissions on major roads provided by TfL



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LONDON - WIDE ULTRA LOW EMISSION ZONE  
INTERGATED IMPACT ASSESSMENT

CHANGE IN ANNUAL NOx EMISSIONS (%)  
(WITH ULEZ EXPANSION) AT SOUTH WEST LONDON WATERBODIES SPA  
PAGE 1 OF 3

DRAFT

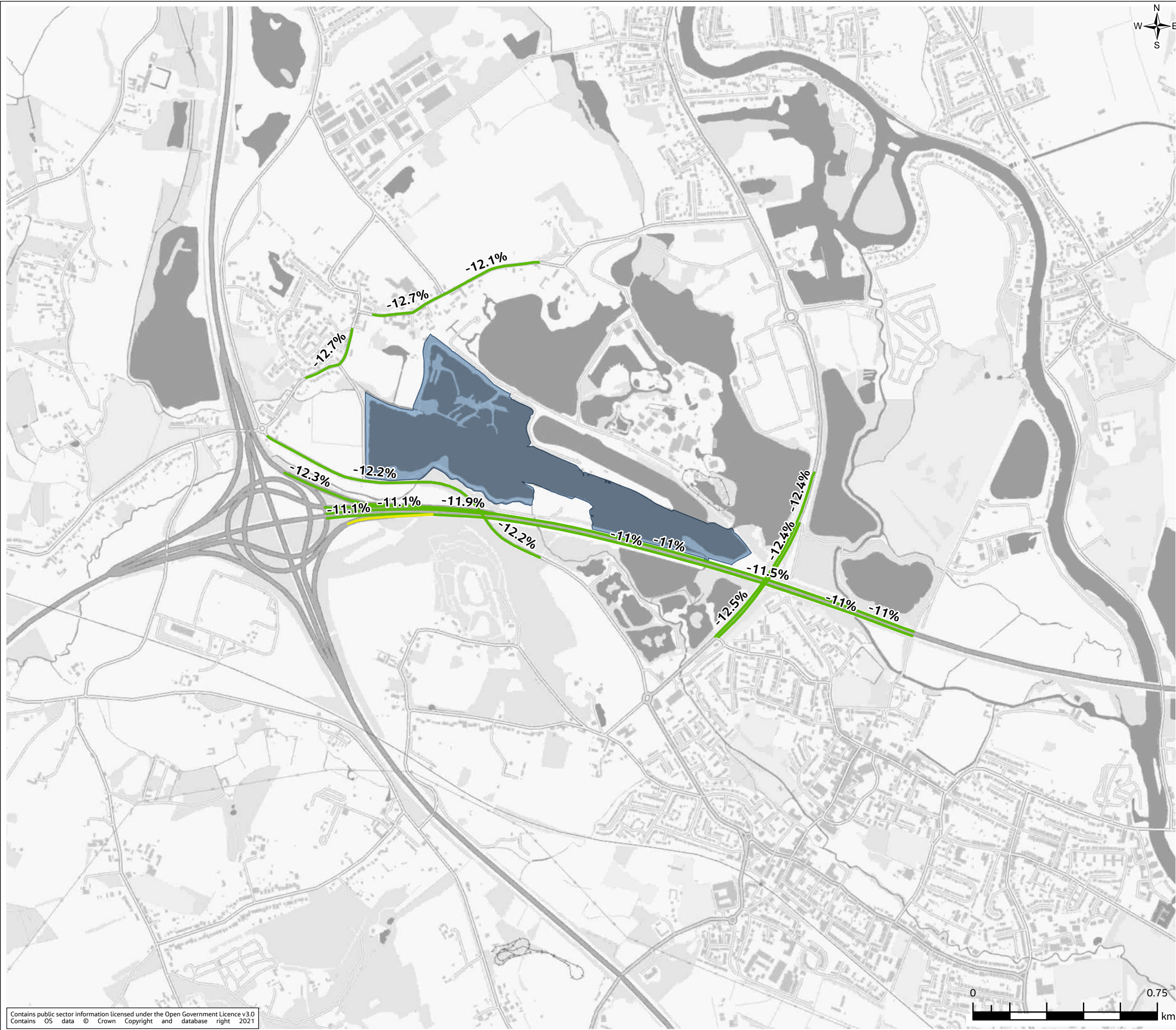
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FIGURE 3e

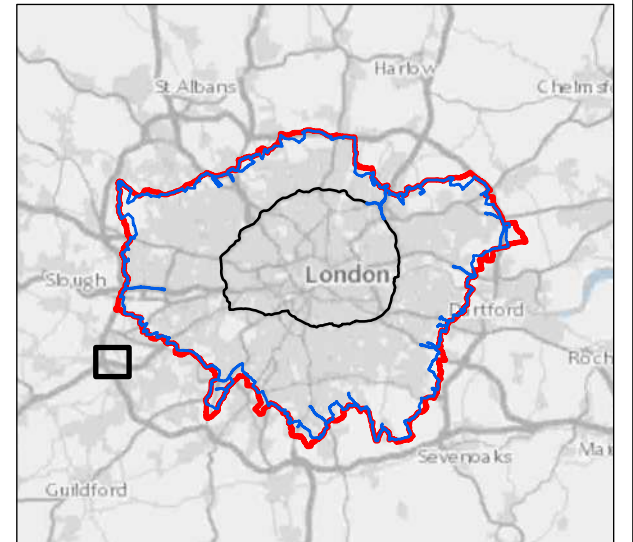
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- South West London Waterbodies SPA Boundary

**Change in Total NOx Emissions (kg/Y)**

- Less than -50%
- 50% to -10%
- 10% to -5%
- 5% to 0%
- 0% to 5%

SOURCE: Modelled change in annual road traffic NOx emissions on major roads provided by TfL



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INTERGATED IMPACT ASSESSMENT

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CHANGE IN ANNUAL NOx EMISSIONS (%)  
(WITH ULEZ EXPANSION) AT SOUTH WEST LONDON WATERBODIES SPA  
PAGE 2 OF 3

Drawing Status

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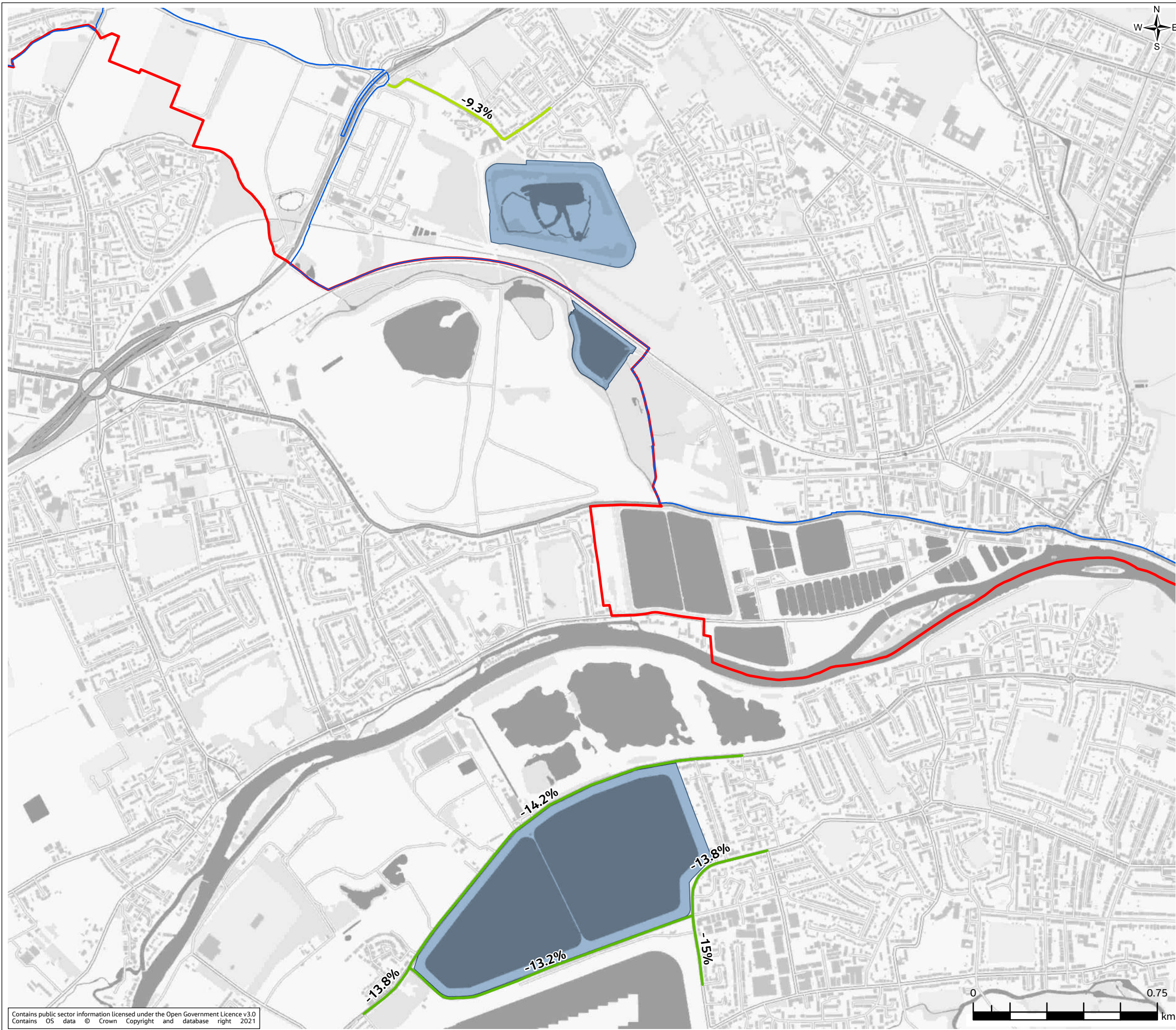


FIGURE 3e

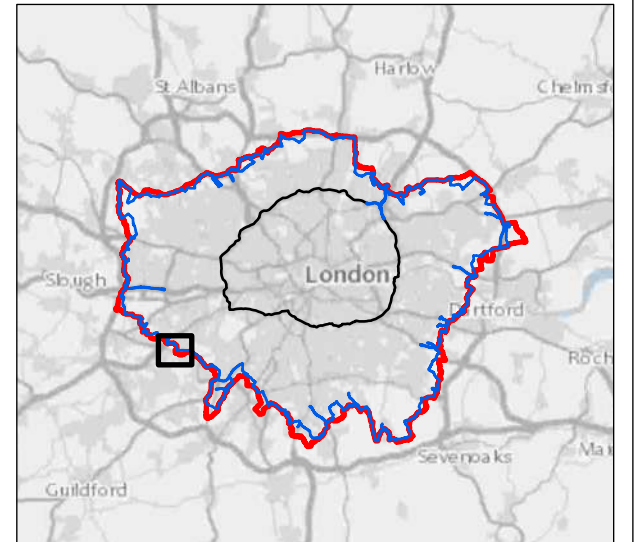
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- South West London Waterbodies SPA Boundary

**Change in Total NOx Emissions (kg/Y)**

- Less than -50%
- 50% to -10%
- 10% to -5%
- 5% to 0%
- 0% to 5%

SOURCE: Modelled change in annual road traffic NOx emissions on major roads provided by TfL



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CHANGE IN ANNUAL NOx EMISSIONS (%)  
(WITH ULEZ EXPANSION) AT SOUTH WEST LONDON WATERBODIES SPA  
PAGE 3 OF 3

Drawing Status

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B2417101\_Annual NOx Emissions\_South West London

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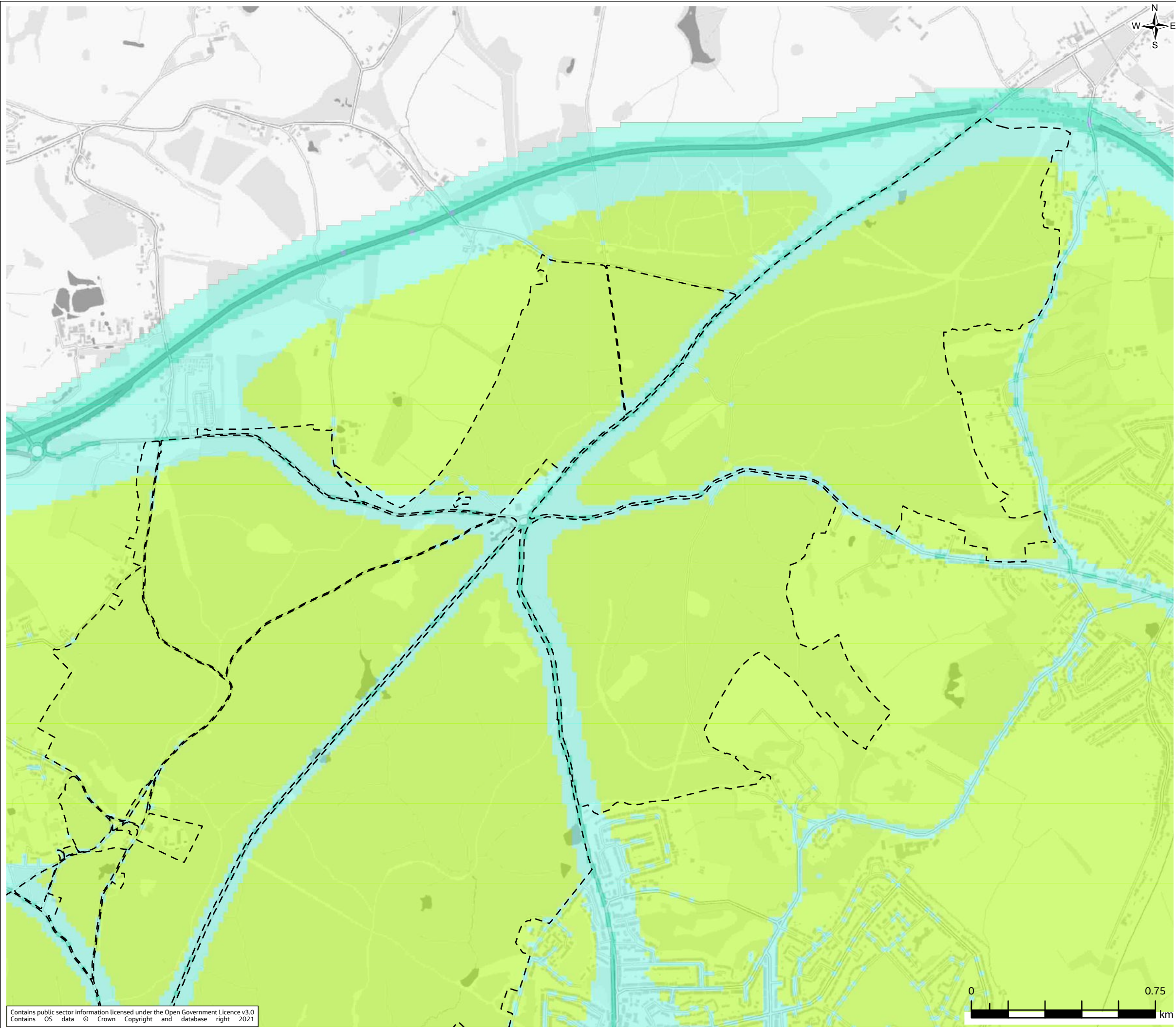


FIGURE 4a

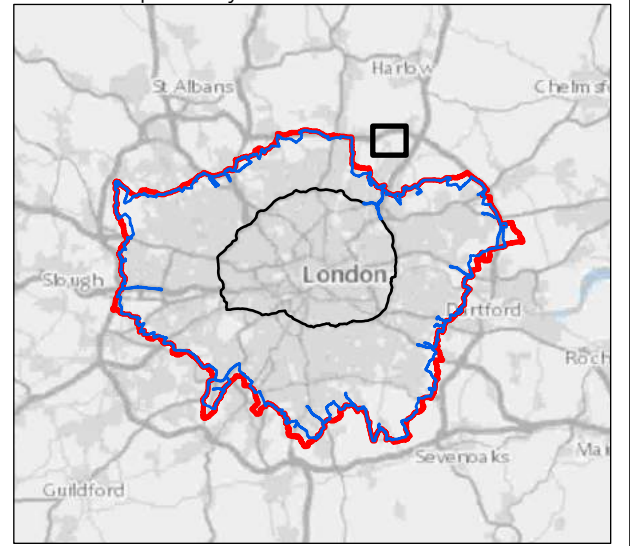
**Legend**

Epping Forest SAC Boundary

**Difference in Scheme NO<sub>2</sub> Derived NDep Forest Habitat (kg N/Ha/Yr)**

- Less than -1.00
- 1.00 to -0.50
- 0.50 to -0.25
- 0.25 to -0.10
- 0.10 to -0.05
- 0.05 to 0.00
- 0.00 to 0.05
- 0.05 to 0.10
- 0.10 to 0.25
- 0.25 to 0.50
- 0.50 to 1.00
- Greater than 1.00

SOURCE: Nitrogen deposition derived from scheme difference NO<sub>2</sub> concentrations provided by TfL



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Project

LONDON - WIDE ULTRA LOW EMISSION ZONE  
INTERGATED IMPACT ASSESSMENT

Drawing Title

CHANGE IN SCHEME ANNUAL NO<sub>2</sub> DERIVED NITROGEN DEPOSITION  
(WITH ULEZ EXPANSION BOUNDARY)  
FOR FOREST HABITATS AT EPPING FOREST SAC  
PAGE 1 OF 3

Drawing Status

DRAFT

Scale @ A3

1:15,000

DO NOT SCALE

Jacobs No.

B2417101

Client No.

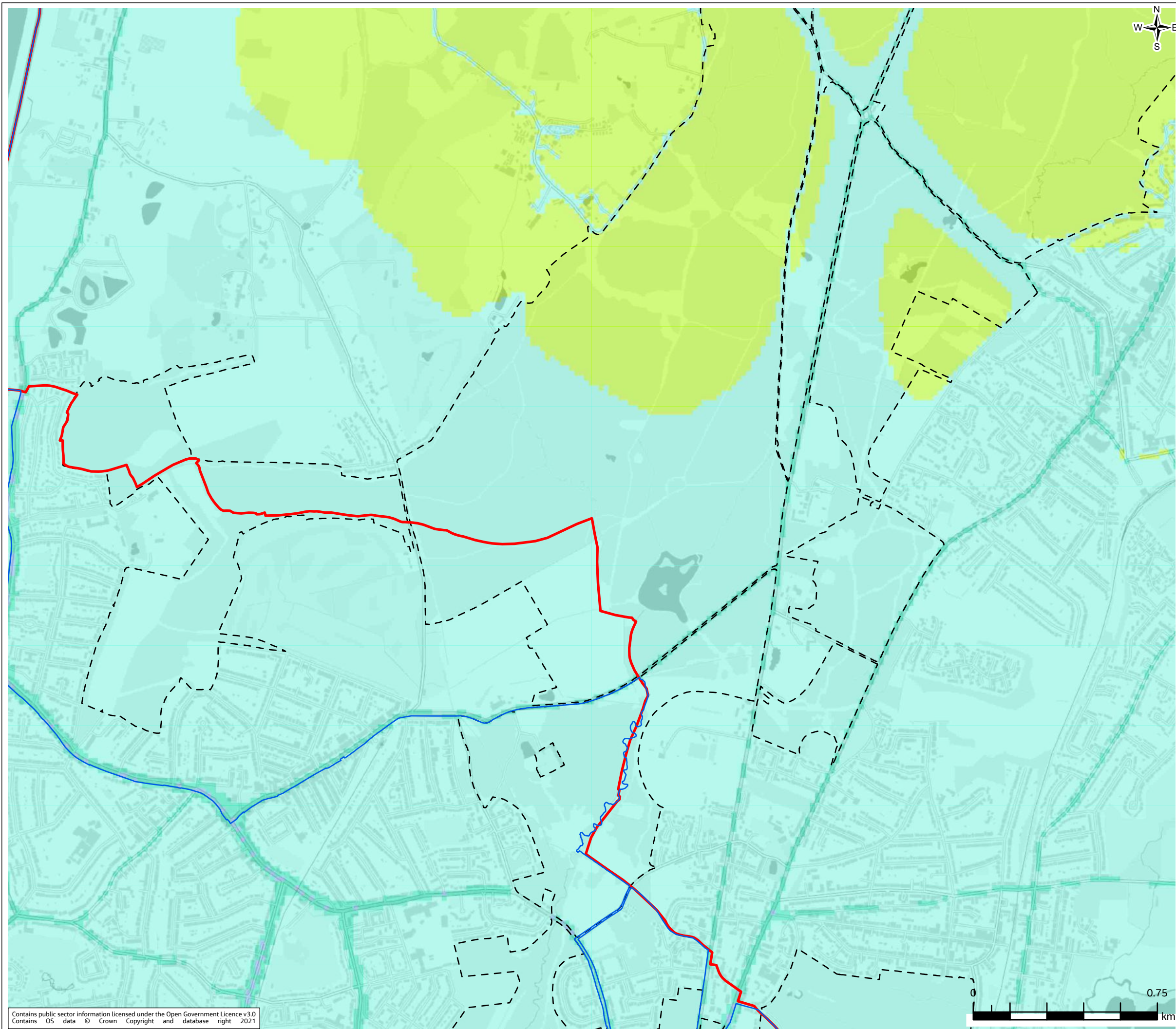
Drawing No.

B2417101\_Nitrogen Deposition\_Epping Forest

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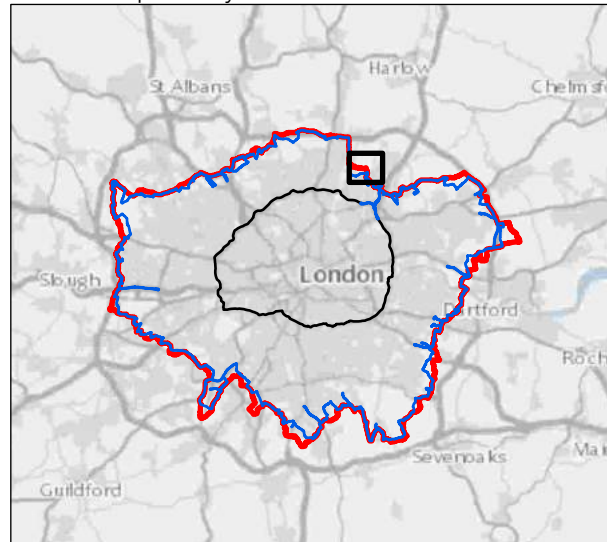


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FIGURE 4a

Legend

Proposed London-Wide ULEZ boundary / LEZ boundary

Greater London AuthorityDifference in Scheme NO<sub>2</sub> Derived NDep Forest Habitat (kg N/Ha/Yr)Less than -1.00-1.00 to -0.50-0.50 to -0.25-0.25 to -0.10-0.10 to -0.05-0.05 to 0.000.00 to 0.050.05 to 0.100.10 to 0.250.25 to 0.500.50 to 1.00Greater than 1.00SOURCE: Nitrogen deposition derived from scheme difference NO<sub>2</sub> concentrations provided by TfL

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LONDON - WIDE ULTRA LOW EMISSION ZONE  
INTERGATED IMPACT ASSESSMENT

Drawing Title

CHANGE IN SCHEME ANNUAL NO<sub>2</sub> DERIVED NITROGEN DEPOSITION  
(WITH ULEZ EXPANSION BOUNDARY)  
FOR FOREST HABITATS AT EPPING FOREST SAC  
PAGE 2 OF 3

Drawing Status

DRAFT

Scale @ A3

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DO NOT SCALE

Jacobs No.

B2417101

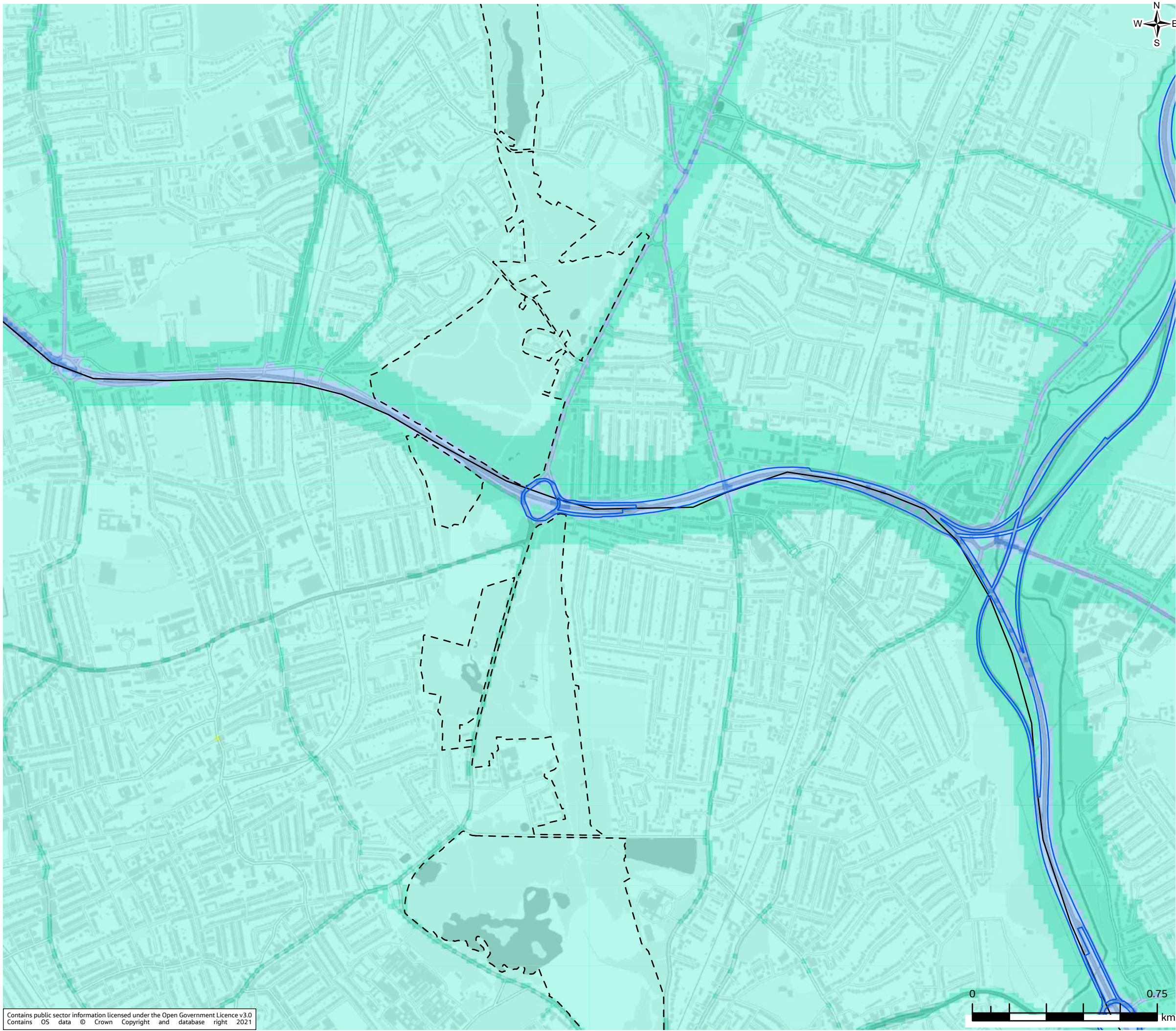
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Drawing No.

B2417101\_Nitrogen Deposition\_Epping Forest

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FIGURE 4a

**Legend**

Proposed London-Wide ULEZ boundary / LEZ boundary

ULEZ Boundary

Greater London Authority

Epping Forest SAC Boundary

**Difference in Scheme NO<sub>2</sub> Derived NDep Forest Habitat (kg N/Ha/Yr)**

Less than -1.00

-1.00 to -0.50

-0.50 to -0.25

-0.25 to -0.10

-0.10 to -0.05

-0.05 to 0.00

0.00 to 0.05

0.05 to 0.10

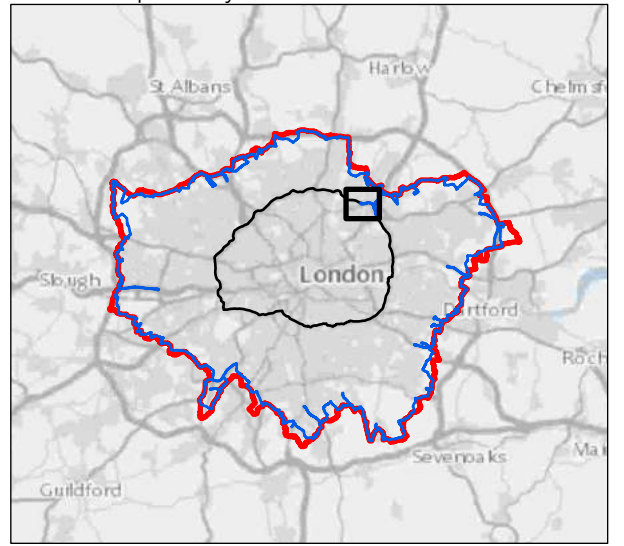
0.10 to 0.25

0.25 to 0.50

0.50 to 1.00

Greater than 1.00

SOURCE: Nitrogen deposition derived from scheme difference NO<sub>2</sub> concentrations provided by TfL



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LONDON - WIDE ULTRA LOW EMISSION ZONE  
INTERGATED IMPACT ASSESSMENT

Drawing Title

CHANGE IN SCHEME ANNUAL NO<sub>2</sub> DERIVED NITROGEN DEPOSITION  
(WITH ULEZ EXPANSION BOUNDARY)  
FOR FOREST HABITATS AT EPPING FOREST SAC  
PAGE 3 OF 3

Drawing Status

DRAFT

Scale @ A3	1:15,000	DO NOT SCALE
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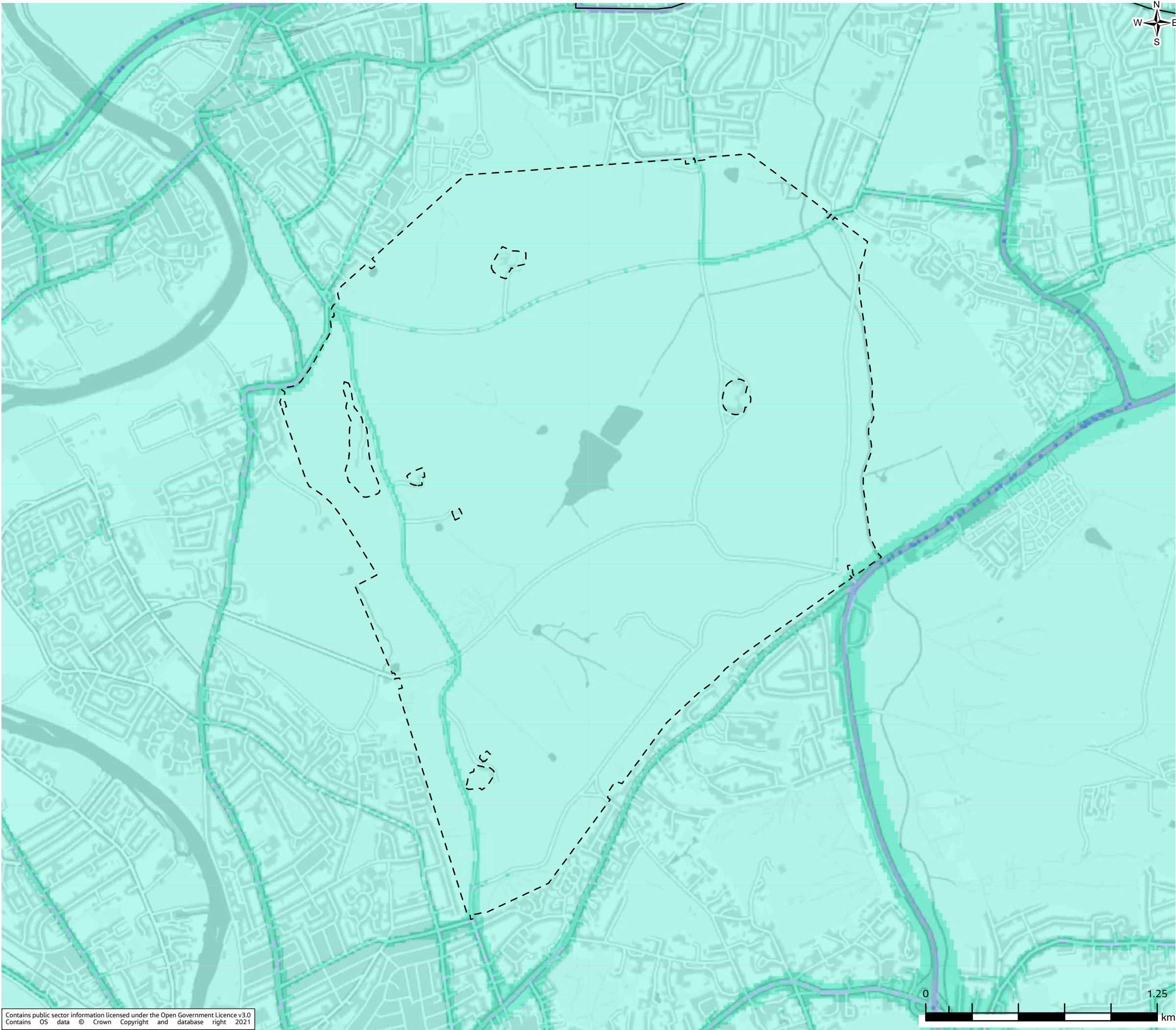
Jacobs No.	B2417101
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FIGURE 4b

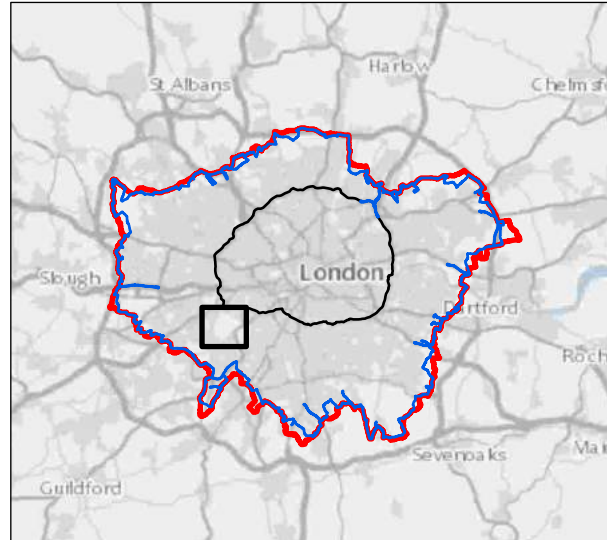
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- Richmond Park SAC Boundary

**Difference in Scheme NO<sub>2</sub> Derived NDep Forest Habitat (kg N/Ha/Yr)**

- Less than -1.00
- 1.00 to -0.50
- 0.50 to -0.25
- 0.25 to -0.10
- 0.10 to -0.05
- 0.05 to 0.00
- 0.00 to 0.05
- 0.05 to 0.10
- 0.10 to 0.25
- 0.25 to 0.50
- 0.50 to 1.00
- Greater than 1.00

SOURCE: Nitrogen deposition derived from scheme difference NO<sub>2</sub> concentrations provided by TfL



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Project

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INTERGATED IMPACT ASSESSMENT

Drawing Title

CHANGE IN SCHEME ANNUAL NO<sub>2</sub> DERIVED NITROGEN DEPOSITION  
(WITH ULEZ EXPANSION BOUNDARY)  
FOR FOREST HABITATS AT RICHMOND PARK SAC

Drawing Status

DRAFT

Scale @ A3

1:20,000

DO NOT SCALE

Jacobs No.

B2417101

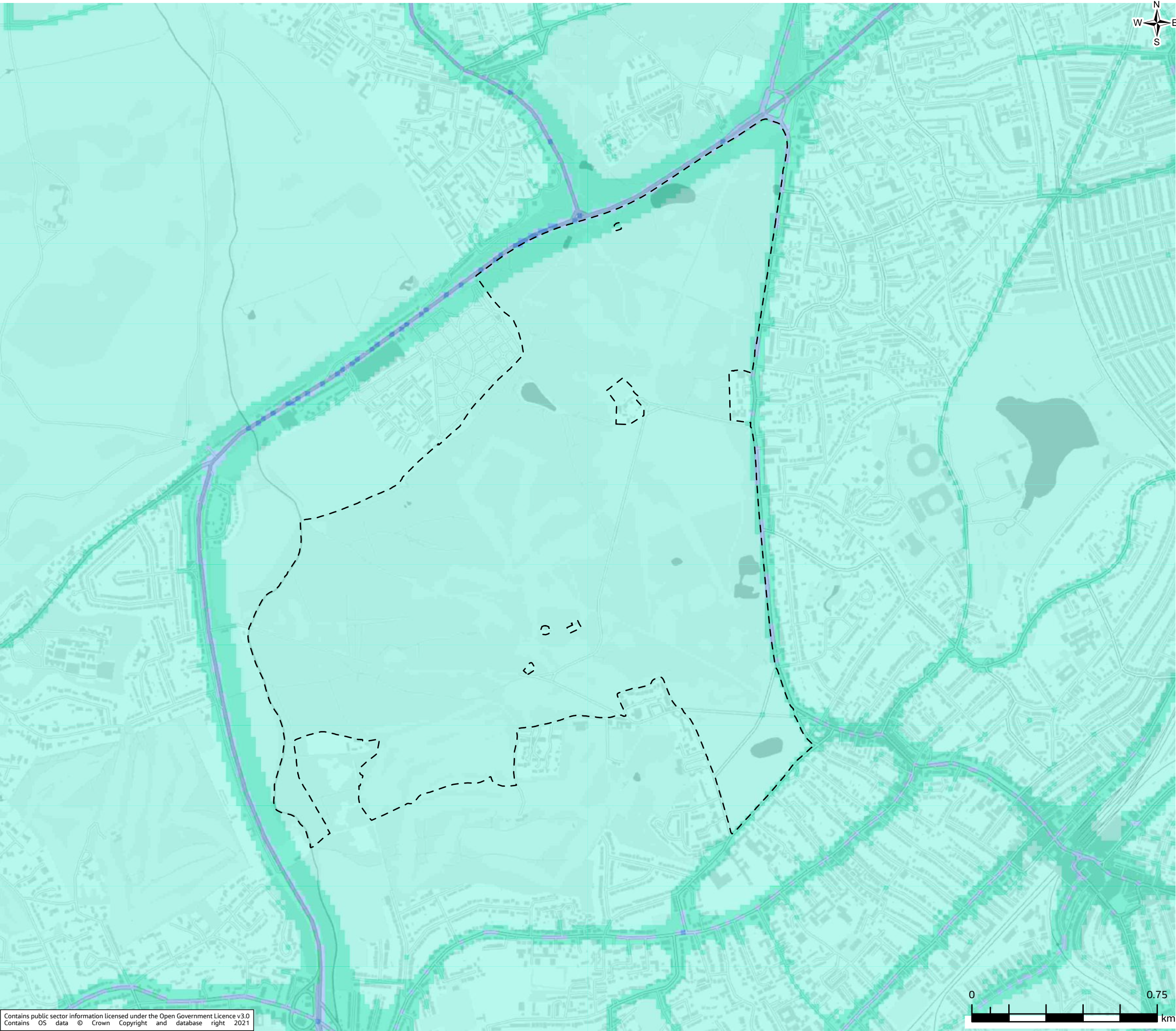
Client No.

Drawing No.

B2417101\_Nitrogen Deposition

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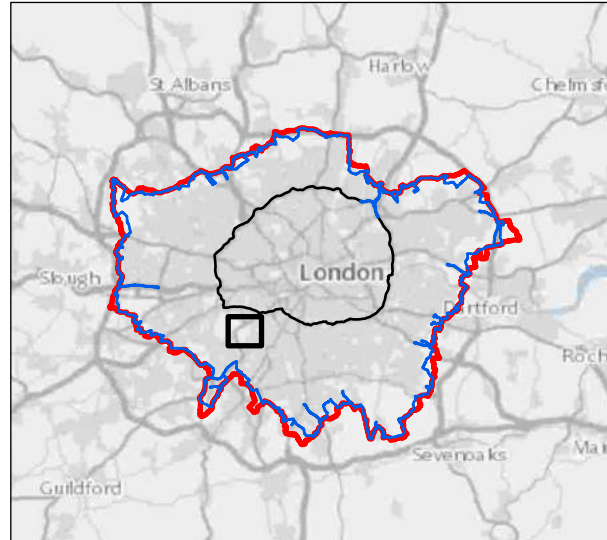
FIGURE 4c

- Legend**
- Proposed London-Wide ULEZ boundary / LEZ boundary
  - ULEZ Boundary
  - Greater London Authority
  - Wimbleton Common SAC Boundary

**Difference in Scheme NO<sub>2</sub> Derived NDep Forest Habitat (kg N/Ha/Yr)**

- Less than -1.00
- 1.00 to -0.50
- 0.50 to -0.25
- 0.25 to -0.10
- 0.10 to -0.05
- 0.05 to 0.00
- 0.00 to 0.05
- 0.05 to 0.10
- 0.10 to 0.25
- 0.25 to 0.50
- 0.50 to 1.00
- Greater than 1.00

SOURCE: Nitrogen deposition derived from scheme difference NO<sub>2</sub> concentrations provided by TfL



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Client

 **Transport for London**

Project

LONDON - WIDE ULTRA LOW EMISSION ZONE  
INTERGATED IMPACT ASSESSMENT

Drawing Title

CHANGE IN SCHEME ANNUAL NO<sub>2</sub> DERIVED NITROGEN DEPOSITION  
(WITH ULEZ EXPANSION BOUNDARY)  
FOR FOREST HABITATS AT WIMBLETON COMMON SAC

Drawing Status

DRAFT

Scale @ A3

1:15,000

DO NOT SCALE

Jacobs No.

B2417101

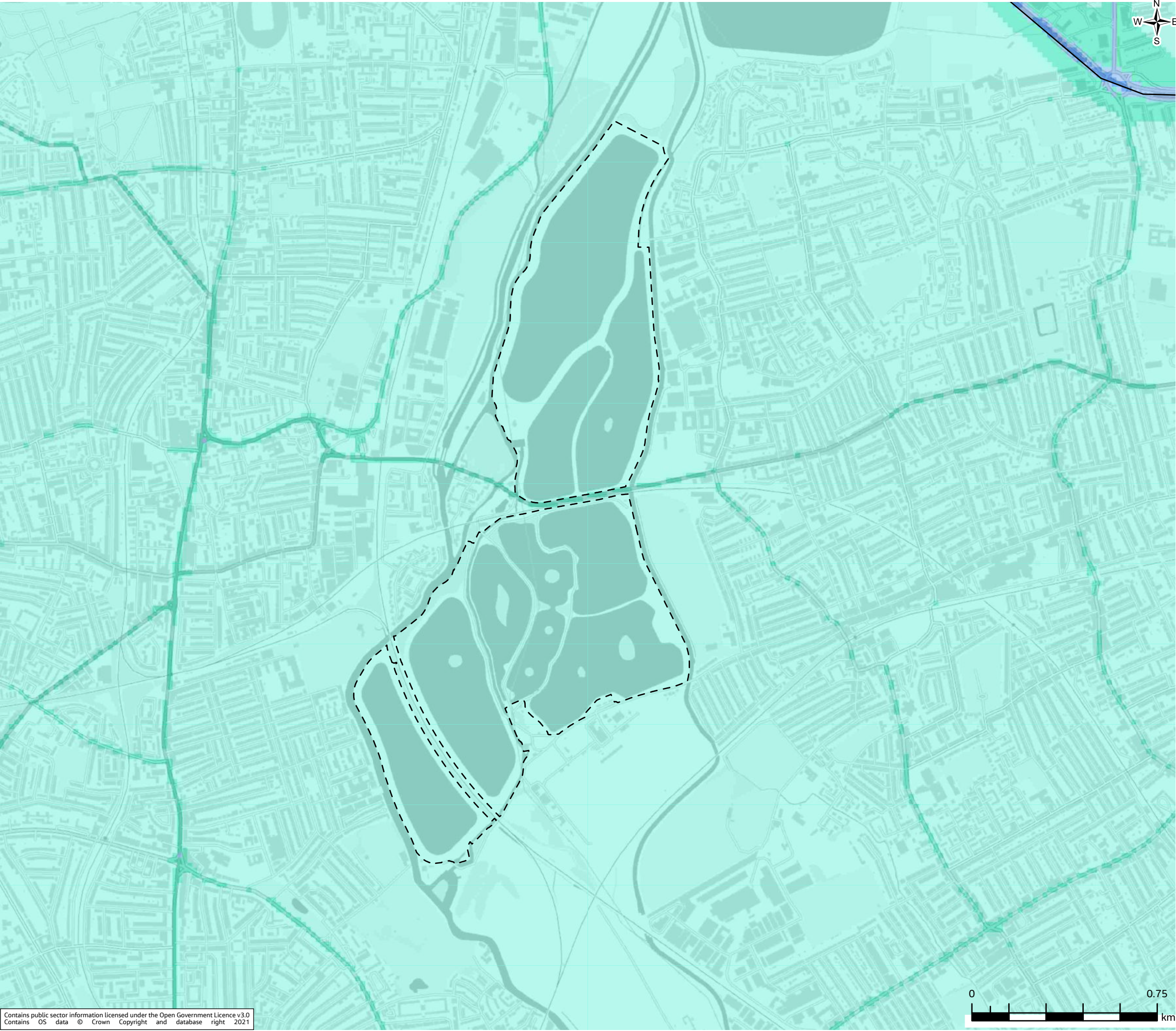
Client No.

Drawing No.

B2417101\_Nitrogen Deposition

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FIGURE 4d

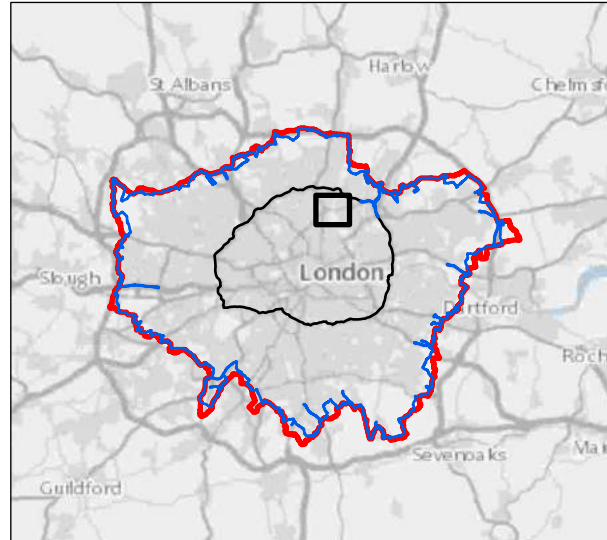
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- Lee Valley SPA Boundary

**Difference in Scheme NO<sub>2</sub> Derived NDep Forest Habitat (kg N/Ha/Yr)**

- Less than -1.00
- 1.00 to -0.50
- 0.50 to -0.25
- 0.25 to -0.10
- 0.10 to -0.05
- 0.05 to 0.00
- 0.00 to 0.05
- 0.05 to 0.10
- 0.10 to 0.25
- 0.25 to 0.50
- 0.50 to 1.00
- Greater than 1.00

SOURCE: Nitrogen deposition derived from scheme difference NO2 concentrations provided by TfL



P01	SEP 2022	Initial Issue	MS	JM	GM	JP
Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

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Client



Project

LONDON - WIDE ULTRA LOW EMISSION ZONE  
INTERGATED IMPACT ASSESSMENT

Drawing Title

CHANGE IN SCHEME ANNUAL NO2 DERIVED NITROGEN DEPOSITION  
(WITH ULEZ EXPANSION BOUNDARY)  
FOR FOREST HABITATS AT LEE VALLEY SPA

Drawing Status

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Jacobs No.

B2417101

Client No.

Drawing No.

B2417101\_Nitrogen Deposition

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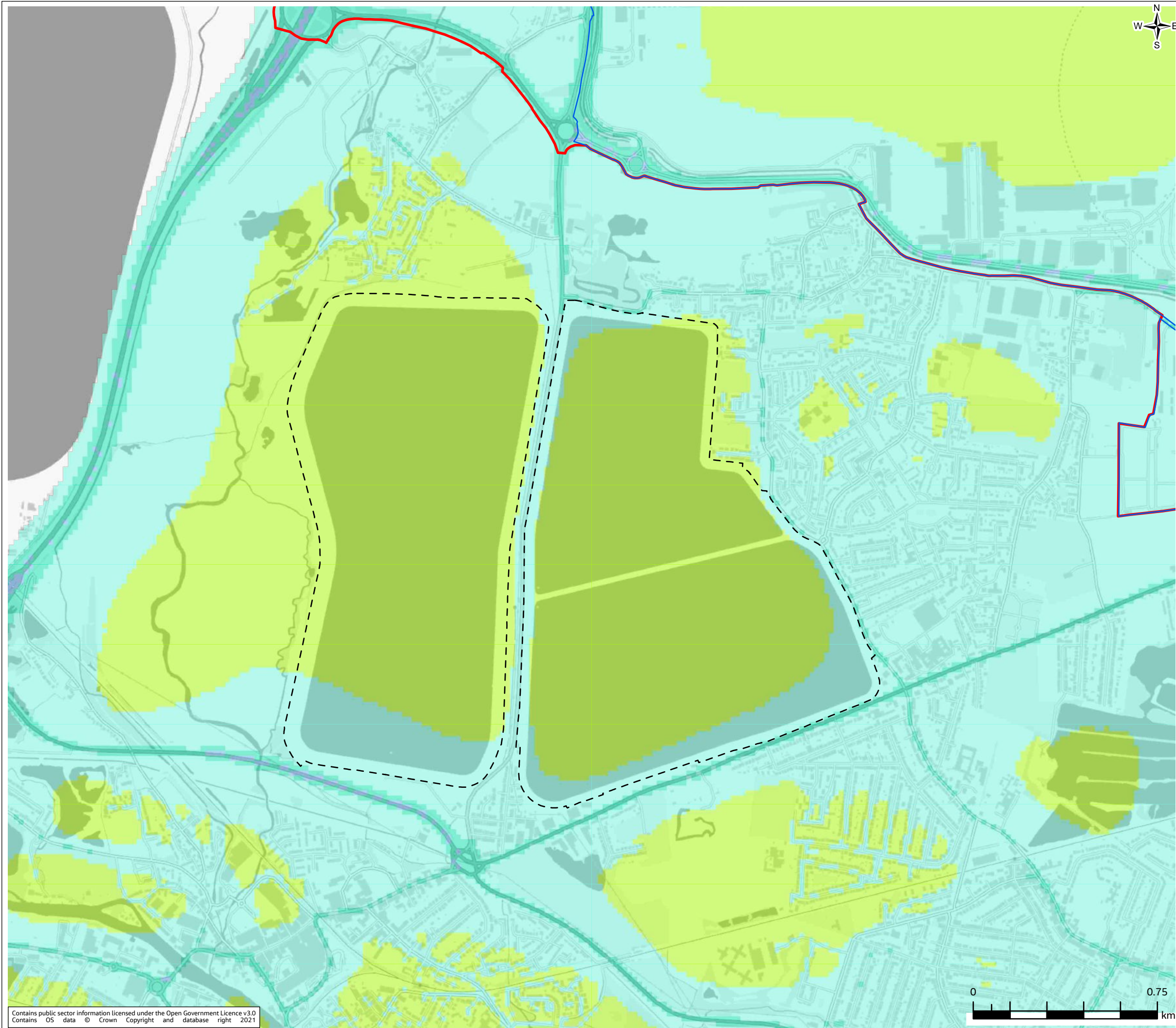


FIGURE 4e

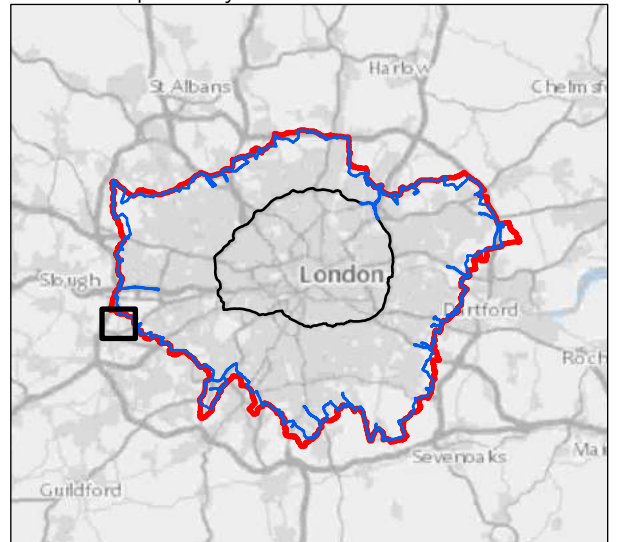
**Legend**

- Proposed London-Wide ULEZ boundary / LEZ boundary
- ULEZ Boundary
- Greater London Authority
- South West London Waterbodies SPA Boundary

**Difference in Scheme NO<sub>2</sub> Derived NDep Forest Habitat (kg N/Ha/Yr)**

- Less than -1.00
- 1.00 to -0.50
- 0.50 to -0.25
- 0.25 to -0.10
- 0.10 to -0.05
- 0.05 to 0.00
- 0.00 to 0.05
- 0.05 to 0.10
- 0.10 to 0.25
- 0.25 to 0.50
- 0.50 to 1.00
- Greater than 1.00

SOURCE: Nitrogen deposition derived from scheme difference NO<sub>2</sub> concentrations provided by TfL



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 **Transport for London**

Project

LONDON - WIDE ULTRA LOW EMISSION ZONE  
INTERGATED IMPACT ASSESSMENT

Drawing Title

CHANGE IN SCHEME ANNUAL NO<sub>2</sub> DERIVED NITROGEN DEPOSITION  
(WITH ULEZ EXPANSION BOUNDARY)  
FOR FOREST HABITATS AT SOUTH WEST LONDON WATERBODIES SPA  
PAGE 1 OF 3

Drawing Status

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Scale @ A3

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Jacobs No.

B2417101

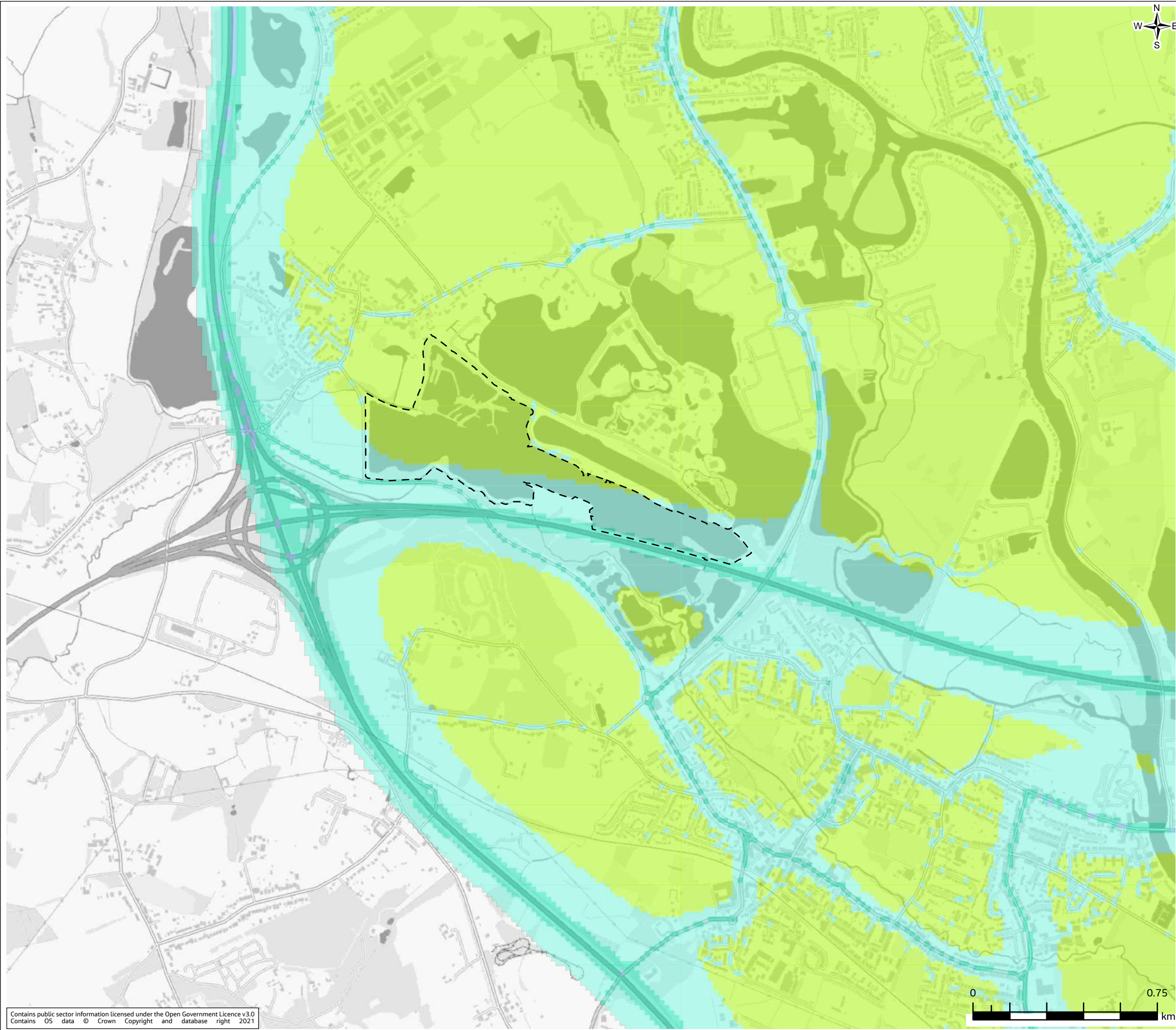
Client No.

Drawing No.

B2417101\_Nitrogen Deposition\_South West London

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FIGURE 4e

**Legend**

- ULEZ Boundary
- South West London Waterbodies
- SPA Boundary

**Difference in Scheme NO<sub>2</sub> Derived NDep Forest Habitat (kg N/Ha/Yr)**

- Less than -1.00
- 1.00 to -0.50
- 0.50 to -0.25
- 0.25 to -0.10
- 0.10 to -0.05
- 0.05 to 0.00
- 0.00 to 0.05
- 0.05 to 0.10
- 0.10 to 0.25
- 0.25 to 0.50
- 0.50 to 1.00
- Greater than 1.00

SOURCE: Nitrogen deposition derived from scheme difference NO<sub>2</sub> concentrations provided by TfL

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Project

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INTERGATED IMPACT ASSESSMENT

Drawing Title

CHANGE IN SCHEME ANNUAL NO<sub>2</sub> DERIVED NITROGEN DEPOSITION  
(WITH ULEZ EXPANSION BOUNDARY)  
FOR FOREST HABITATS AT SOUTH WEST LONDON WATERBODIES SPA  
PAGE 2 OF 3

Drawing Status

DRAFT

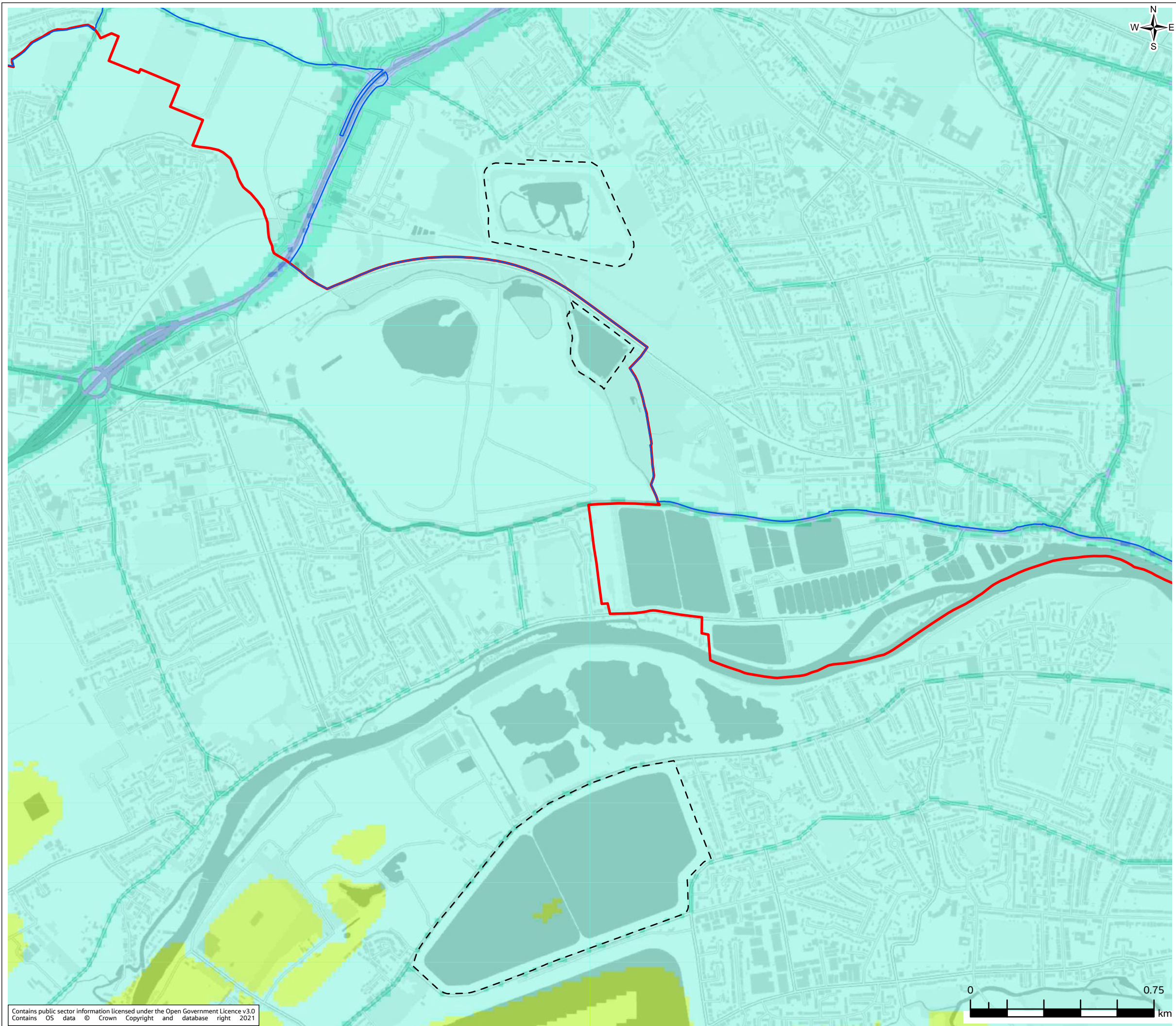
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Jacobs No.	B2417101	
Client No.		

Drawing No.

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FIGURE 4e

**Legend**

Proposed London-Wide ULEZ boundary / LEZ boundary

ULEZ Boundary

Greater London Authority

South West London Waterbodies SPA Boundary

**Difference in Scheme NO<sub>2</sub> Derived NDep Forest Habitat (kg N/Ha/Yr)**

Less than -1.00

-1.00 to -0.50

-0.50 to -0.25

-0.25 to -0.10

-0.10 to -0.05

-0.05 to 0.00

0.00 to 0.05

0.05 to 0.10

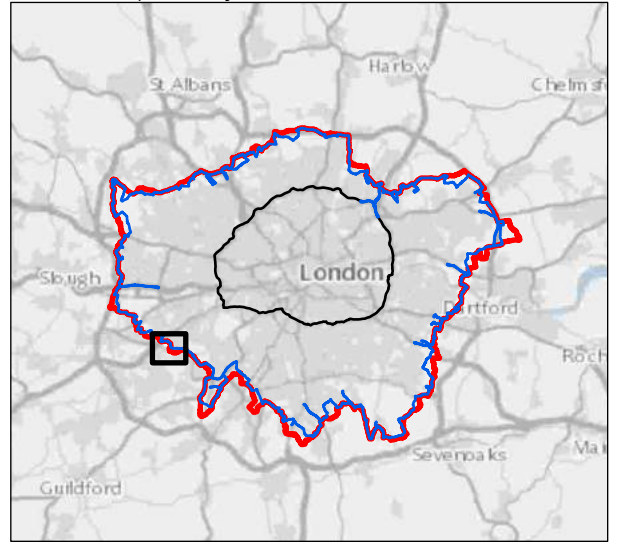
0.10 to 0.25

0.25 to 0.50

0.50 to 1.00

Greater than 1.00

SOURCE: Nitrogen deposition derived from scheme difference NO<sub>2</sub> concentrations provided by TfL



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(WITH ULEZ EXPANSION BOUNDARY)  
FOR FOREST HABITATS AT SOUTH WEST LONDON WATERBODIES SPA  
PAGE 3 OF 3

Drawing Status

DRAFT

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Drawing No.

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## Appendix E – Marketing Materials

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## Stakeholder email

Dear Stakeholder,

Today, we launched our [consultation](#) seeking your views on expanding the Ultra Low Emission Zone (ULEZ) London-wide. You have until 29 July to have your say. The Mayor has asked TfL to consult on these proposals and to begin to develop a longer-term smart road user charging system to address the triple challenges facing London of toxic air pollution, the climate emergency and traffic congestion.

We want to encourage you to have your say on our proposals to help achieve a clean, green and healthy future London. Additionally, we want to hear your views on how we shape a future road user charging solution to address the triple challenges. You can share your views through our consultation survey, or by writing to us or calling using the details below. Please also contact us should you want more information or to arrange a meeting with us.

There are a number of documents to help you to respond to the consultation. For an overview of the proposals there is a short consultation brochure and video. More detailed information, including impact assessments, is also available on our [consultation page](#).

The consultation asks a number of questions on the proposals for the London-wide ULEZ. If a larger zone was introduced, it would have a transformative effect by the end of 2023. It is estimated that the number of cars not meeting the tough ULEZ emission standards each day would fall from 160,000 to 46,000 and number of vans from 42,000 to 26,000.

Please share the consultation with your communities, organisations or any one you think might be interested in responding or meeting with us to discuss. We have also created a toolkit for you to easily share information with any of your stakeholders. Please email us at [cleanairyourview@tfl.gov.uk](mailto:cleanairyourview@tfl.gov.uk) to request the kit.

We hope that you will give your views via our consultation survey on our Have Your Say [website](#). You can also call us on 0343 222 1155 or email us at [cleanairyourview@tfl.gov.uk](mailto:cleanairyourview@tfl.gov.uk) with your response.

Yours faithfully,

**Alex Williams**  
Director of City Planning  
Transport for London



## CRM email

# Transport for London



Have your say on our proposals to help improve air quality, tackle the climate emergency and reduce congestion in London



Dear Jon,

We are consulting on proposals to extend the Ultra-Low Emission Zone (ULEZ) London-wide on 29 August 2023.

Drivers of non-compliant vehicles would pay £12.50 per day to drive within Greater London.

We are also seeking views on changes to Auto Pay, penalties for non-payment for the ULEZ and Congestion Charge, and changes to the Mayor's Transport Strategy.

Additionally, we'd like to hear your views on how we shape the future of road user charging.

The consultation ends 29 July 2022.

**Have your say**

Many thanks for your time.

Yours sincerely,

Alex Williams  
Director of City Planning



## Radio Script

SFX:           *General ambient background of light traffic in London.*

VO:           Transport for London is proposing to extend the Ultra-Low Emission Zone London-wide in August 2023.

Most drivers have compliant vehicles and would not pay the ULEZ charge. Drivers of non-compliant vehicles would have to pay £12.50 to drive within Greater London each day.

We'd also like your views on how we shape the future of road user charging.

This is part of our commitment to help improve air quality, tackle the climate emergency and reduce traffic congestion.

To see all our proposals and have your say, search TfL Clean Air.

Consultation ends 29<sup>th</sup> of July.

To the Mayor of London and TfL, every journey matters.

## Have your say on our proposals to help improve air quality, tackle the climate emergency and reduce congestion in London

We're proposing to extend the Ultra Low Emission Zone (ULEZ) London-wide in August 2023.

Most drivers already have compliant vehicles and would not have to pay the ULEZ charge. Drivers of non-compliant vehicles would pay £12.50 per day to drive within Greater London.

We would also like to know your views on how we can shape the future of road user charging.

**Consultation ends 29 July 2022**

To find out more and have your say, please visit [tfl.gov.uk/clean-air](https://tfl.gov.uk/clean-air)



**Have  
your  
say**



**MAYOR OF LONDON**



Press Release – 20 May 2022

## TfL Press Release - TfL seeks views on expanding world-leading ULEZ London-wide, as new data estimates it would deter more than 100,000 of the most polluting cars a day



[Download](#)

PN-044

- **Proposals to improve air quality across the capital and significantly reduce the number of vehicles not meeting pollution standards**
- **It is estimated that the number of cars not meeting the tough ULEZ standards each day in outer London would fall from 160,000 to 46,000**
- **Greatest number of premature deaths related to air pollution occur in outer London boroughs of Bromley, Barnet, Havering and Croydon**



- **Changes also proposed to Auto Pay and penalty charge levels for the ULEZ and Congestion Charge**

A consultation on plans to expand the Ultra Low Emission Zone (ULEZ) to cover almost the whole of the capital from 29 August 2023 has been launched.

The Mayor of London and Transport for London (TfL) have delivered a range of schemes to tackle the capital's toxic air crisis, the climate emergency and traffic congestion, but further bold action across the city is required. Around 4,000 premature deaths in 2019 were attributed to filthy air, with the greatest number in outer London. Bromley, Barnet, Havering and Croydon were the boroughs with the highest number of early deaths, showing that poor air quality is not just a central London problem. More extreme weather events are predicted if the world fails to act to reduce carbon emissions, with London already seeing these in the form of flash floods in 2021.

The current and long-term threat from toxic air pollution to public health is significant. All Londoners live in areas that breach the World Health Organization (WHO) target for particulate matter and nitrogen dioxide, around 500,000 suffer from asthma and a similar number will develop diseases linked to dirty air over the next 30 years. In the same period, it is estimated harmful emissions will cost the NHS and social care £10.4bn if no further action is taken to improve air quality.



[Download](#)

Traffic congestion continues to be a persistent problem in the capital. Last year, the cost to the London economy was estimated to be £5.1 billion. Nearly two-thirds of the cost of

congestion in London has been attributed to traffic delays in outer London. This comes at a cost to everyone, impacting businesses, bus customers and essential services.

The Mayor considered a range of options when deciding the next steps to take in dealing with the emergency facing the capital. In the short term, expanding the ULEZ London-wide will have the biggest effect on emissions relative to the cost to Londoners as a whole, as well as helping to tackle the climate emergency and traffic congestion. The current £12.50 daily charge level for cars, vans and motorbikes that do not meet the standards would be retained. This would be supported by a revision of the Mayor's Transport Strategy, which is also part of this consultation. The consultation will also ask Londoners to help shape the future of road user charging in the capital. This could include scrapping existing charges, such as the Congestion Charge, and replacing them with a single road user charging scheme that uses more sophisticated technology to make it as simple and fair as possible for Londoners.

If a larger zone were introduced, it would have a significant impact by the end of 2023. It is estimated that the number of cars not meeting the tough ULEZ standards each day in outer London would fall from 160,000 to 46,000 and the number of vans from 42,000 to 26,000. Pollution afflicts the lives of young people, stunting the development of their lungs. These proposals would mean the air around an additional 145 schools, mostly in outer London, would meet the interim WHO target for nitrogen dioxide. The changes would also see a further 340,000 Londoners living in areas meeting these international health-based standards.

The tough emission standards have already been hugely successful in central London, helping reduce lethal nitrogen dioxide at the roadside by around half. In outer London more than four out of five vehicles are already compliant with the ULEZ standards. For those who own older, more polluting vehicles it is proposed there will be as big a vehicle scrappage scheme as is feasible to help people adapt to the change if the proposals are confirmed by the Mayor. This would build on the Mayor's previous £61m scheme, which took more than 15,000 of the dirtiest vehicles off the road, supporting low income and disabled Londoners, charities and small businesses.

TfL is working quickly to clean up its services with more than 800 zero emission at tailpipe buses, making it the largest green fleet in western Europe. Strict licensing standards mean that over a third of iconic black cabs are now zero emission capable. As part of the wider move to electric, all drivers are being supported to switch to the cleanest vehicles, with more than 10,000 charging points now within the M25 – a third of the UK's total.

TfL is also proposing to make it easier for people to pay the charge by removing the annual £10 per vehicle Auto Pay registration fee, while ensuring financial penalties for non-payment remain an effective deterrent by increasing the penalty by £20, or £10 if paid within 14 days.



[Download](#)

**Mayor of London Sadiq Khan said:** “The air Londoners breathe is so toxic it stunts children’s lungs, exacerbates chronic illness and contributes to thousands of premature deaths each year. More than half of the 500,000 Londoners with asthma live in outer London and all areas of London still breach safe levels of pollution.

“That’s why my proposals for expanding the Ultra -Low Emission Zone are the right thing to do. Air pollution is not just a central London issue and Londoners in the outer boroughs should be able to enjoy the clean air benefits the ULEZ brings.

“We’re keen to hear from all Londoners, so please share your views on my plans to build a better London for everyone – a safer, fairer, greener and more prosperous city for all Londoners.”

**Alex Williams, TfL’s Director of City Planning, said:** “It’s clear that the capital’s toxic air is continuing to blight the lives of Londoners and progress in outer boroughs is slower than anywhere else. The number of premature deaths and current projections for diseases linked to poor air quality is unacceptable. We must act at pace to tackle this, which is why we are proposing to expand the ULEZ London-wide next year and are looking at the longer-term solution of a new form of road user charging. We would encourage people to respond to this consultation to help shape our plans.”

**Adam Tyndall, Programme Director for Transport at London First, said:** “The ULEZ has been transformative in cleaning up London’s air but there is clearly more to be done. For example, congestion on the capital’s roads still costs the economy more than £5bn every year, and if we are to achieve the Mayor’s ambitious net zero targets then bold



thinking is required. Solving these challenges will involve difficult decisions, so it is important that Londoners and London's business engage fully with this consultation."

**Oli Lord at the Clean Cities Campaign said:** "London's ULEZ is envied across Europe and I'm thrilled the Mayor remains committed to it. A London-wide ULEZ will ensure everyone breathes cleaner air and especially people living on busy arterial roads, who are often left behind. We are, however, long overdue a conversation on what comes next and I'm pleased this has begun because we need to do more than the ULEZ to meet our climate goals."

**Rosamund Adoo-Kissi-Debrah said:** "Fewer and cleaner cars on the road is good for communities, the high street and - crucially - our health. In the short time since ULEZ was expanded, Londoners have chosen to leave their cars behind or trade them in for cleaner models. Now it's time to extend ULEZ onto the South Circular, where children are still walking along just to get to school, and beyond. Illegal levels of air pollution on the South Circular caused my daughter Ella's deadly asthma nine years ago, expanding ULEZ London-wide can help prevent future deaths like Ella's."

**Jemima Hartshorn, Mums for Lungs said:** "We have been calling for this for four years and are delighted to see it happen. This will help clean up the air and hopefully reduce some of the preventable illnesses caused by air pollution. But it's sadly not enough to ensure all kids can breathe easily. We need to see a plan to get rid of diesel in its entirety and look forward to continuing working with the Mayor."

## Metro Article – 20 May 2022

### Have your say on the ULEZ expansion

LONDONERS are encouraged to share their thoughts on plans to expand the Ultra Low Emission Zone (ULEZ) to cover almost all of London from August 29, 2023.

Around 4,000 premature deaths in 2019 were attributed to filthy air, with the greatest number in outer London.

If a larger zone were introduced, it would have a significant impact by the end of 2023. It is estimated that the number of cars not meeting the tough ULEZ standards each day in outer London would fall from 160,000 to 46,000 and the number of vans from 42,000 to 26,000.

The tough ULEZ emission standards have already been hugely successful in central London, helping reduce lethal nitrogen dioxide at the roadside by around half. In outer London, more than



#### Now open: Consultation on the ULEZ

four out of five vehicles are already compliant. The current £12.50 daily charge level for cars, vans and motorbikes that don't meet the standards would be retained.

A vehicle scrappage scheme is proposed for people who own older, more polluting vehicles to help them adapt to the change if the proposals are confirmed by the Mayor.

The consultation will also ask Londoners to help shape the future of road user charging, including the use of sophisticated technology to make it as simple and fair as possible.

The consultation is open until July 29. For more information, visit the webpage at [haveyoursay.tfl.gov.uk](https://haveyoursay.tfl.gov.uk)

**Transport for London**  
**GREATER LONDON AUTHORITY ACT 1999**  
**ROAD USER CHARGING**

**TRANSPORT FOR LONDON**, as the charging authority for the Congestion Charge, Ultra Low Emission Zone ('ULEZ') and Low Emission Zone ('LEZ') road user charging schemes, hereby gives notice that, pursuant to the Greater London Authority Act 1999, it:

1. **intends to make an order entitled the Greater London Low Emission Zone Charging (Variation and Transitional Provisions) Order 2022 ('the ULEZ and LEZ Variation Order')** pending revision of the Mayor's Transport Strategy; and
2. **has made an Order entitled the Greater London (Central Zone) Congestion Charging (Variation) Order 2022 ('the Congestion Charging Variation Order')**.

The ULEZ and LEZ Variation Order would further amend the Low Emission Zone Charging Scheme Order 2006 which establishes the LEZ and the ULEZ and provides for a daily road user charge to apply to vehicles which are used within the respective zones and which do not meet the vehicle standards set out therein (unless the vehicles are exempt or registered for a discount).

Transport for London is proposing that the following changes as set out in the ULEZ and LEZ Variation Order would be made:

- 1) Extension of the ULEZ to an area covering approximately the whole of Greater London.
- 2) Removal of the £10 registration and annual fee for paying for ULEZ and LEZ charges by the automatic payment service known as Auto Pay.
- 3) Increasing the level of penalty charge for non-payment of the ULEZ charge to £180, reduced to £90 if paid within 14 days and increasing to £270 if a charge certificate is issued.
- 4) Minor changes to update the scheme rules, including to remove spent provisions, align payments methods and to clarify refunds and the length of licences that may be issued.

The Mayor is also proposing to revise his transport strategy (MTS) in order to ensure that the above proposed changes are in conformity with it. It is Transport for London's intention to make the ULEZ and LEZ Variation Order subject to the strategy being revised.

The Congestion Charging Variation Order will further amend the Greater London (Central Zone) Congestion Charging Order 2004 which established the Congestion

Charging Zone and provides for a daily road user charge to apply to vehicles which are used within the zone (unless they are exempt or registered for a discount).

The Congestion Charging Variation Order provides for the following proposed changes to be made:

- 1) Removal of the £10 registration and annual fee for paying for the Congestion Charge by the automatic payment service known as Auto Pay.
- 2) Increasing the level of penalty charge for non-payment of the Congestion Charge to £180, reduced to £90 if paid within 14 days and increasing to £270 if a charge certificate is issued.
- 3) Minor changes to update the scheme rules, including to remove spent provisions, align payments methods, clarify refunds and the length of licences that may be issued.

Consultation materials including the ULEZ and LEZ Order (in draft form pending revision of the MTS) which Transport for London intends to make, the related proposed revision to the MTS and the Congestion Charging Variation Order may be viewed at [tfl.gov.uk/clean-air](https://tfl.gov.uk/clean-air) or may be obtained by emailing [cleanairyourview@tfl.gov.uk](mailto:cleanairyourview@tfl.gov.uk) A summary of the proposals in easy read, audio and British Sign Language Video is also available. Paper copies and other formats are available on request.

Transport for London invites the making of representations on, or objections to, the proposed changes and the proposed revision to the Mayor's Transport Strategy. Any representations that are submitted must be made in writing and be received by 29 July 2022. Representations may be sent to [cleanairyourview@tfl.gov.uk](mailto:cleanairyourview@tfl.gov.uk) or by post to: **Freepost TfL HAVE YOUR SAY (No stamp required)**

Dated: 20 May 2022

*Gareth Powell*

*Deputy Commissioner, Transport for London*



## Have your say on our proposals to help improve air quality, tackle the climate emergency and reduce congestion in London

We're proposing to extend the Ultra Low Emission Zone (ULEZ) London-wide in August 2023.

Most drivers already have compliant vehicles and would not have to pay the ULEZ charge. Drivers of non-compliant vehicles would pay £12.50 per day to drive within Greater London.

We would like to hear your views on our proposals to:

- Extend the ULEZ London-wide
- Remove the £10 Auto Pay annual registration fee for the ULEZ, the Congestion Charge and the Low Emission Zone (LEZ)
- Increase the penalty charge amount from £160 to £180 for the ULEZ and the Congestion Charge
- Update the Mayor's Transport Strategy with proposals for the ULEZ expansion London-wide

We would also like to know your views on how we can shape the future of road user charging.

**Consultation ends 29 July 2022**

Have your say



MAYOR OF LONDON



**TRANSPORT FOR LONDON**  
EVERY JOURNEY MATTERS

## How to have your say on our proposals

Fill out the online survey: [tfl.gov.uk/clean-air](https://tfl.gov.uk/clean-air)

Email your comments to: [cleanairyourview@tfl.gov.uk](mailto:cleanairyourview@tfl.gov.uk)

Write to us at: **Freepost TfL Have your say**

Call: **0343 222 1155\***

Please visit our website [tfl.gov.uk/clean-air](https://tfl.gov.uk/clean-air)  
or scan the QR code for:



- Easy read versions of our information and consultation survey
- British Sign Language video of our proposals
- More detailed information, including Frequently Asked Questions

Please contact us via email, phone or post for:

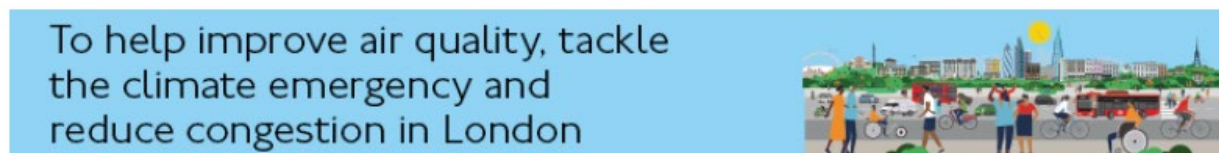
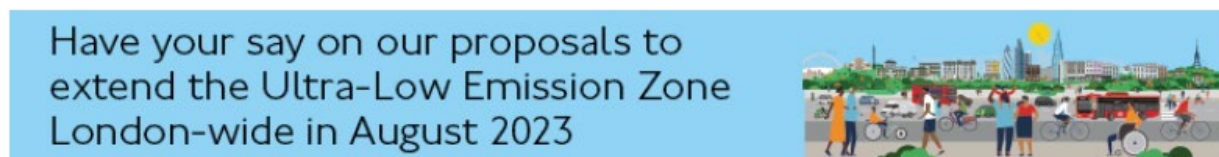
- Translations into other languages
- Printed copies of information and survey



\*Network charges may apply. See [tfl.gov.uk/terms](https://tfl.gov.uk/terms) for details.  
Lines are open Monday-Friday, 9am-5pm.



## Digital Ads and Social media Ads





# Have your say on our proposals to help improve air quality, tackle the climate emergency and reduce congestion in London

We're proposing to extend the Ultra Low Emission  
Zone (ULEZ) London-wide in August 2023.

Consultation ends 29 July 2022



Have  
your  
say



MAYOR OF LONDON



## Letter to flyer drop locations

Transport for London



Transport for London  
Local Communities and  
Partnerships

FREEPOST TFL HAVE YOUR  
SAY

[cleanairyourview@tfl.gov.uk](mailto:cleanairyourview@tfl.gov.uk)

0343 222 1155

30 May 2022

**Transport for London's consultation on proposals to help improve air quality and health of Londoners, tackle the climate emergency and reduce congestion**

We are writing to you to ask for your help in promoting our consultation and we think your premises will help us reach a wide audience.

We are consulting on extending the Ultra Low Emission Zone (ULEZ) London-wide in 2023 and are also considering and some other changes to Auto Pay, Penalty Charge Notes (PCNs) and the Mayor's Transport Strategy. We are also seeking views on how we shape the future of Road User Charging.

Included with this letter are 50 flyers and a poster. We would be grateful if you could display these in your premises.

We are keen to meet with local communities and groups around Greater London and surrounding counties to discuss our proposals. If you would like to organise a meeting or know of a local meeting we could attend, please get in touch with us via [cleanairyourview@tfl.gov.uk](mailto:cleanairyourview@tfl.gov.uk) or call 0343 222 1155. You can use the white space on the poster to write the details of the meeting.

If you would like to receive more flyers or more posters, please contact us using the details above. We also have a number of additional marketing materials that we can share with you, including translations of the flyer in different languages, and a brochure that summarises our proposals.

The consultation is open until 29 July 2022. Thank you in advance for your help in promoting our consultation. |

Yours faithfully,

**Fraser MacDonald**  
Strategic Consultation Lead  
Transport for London

MAYOR OF LONDON



VAT number 756 2769 90

## Interactive map of proposals

### Where it would operate

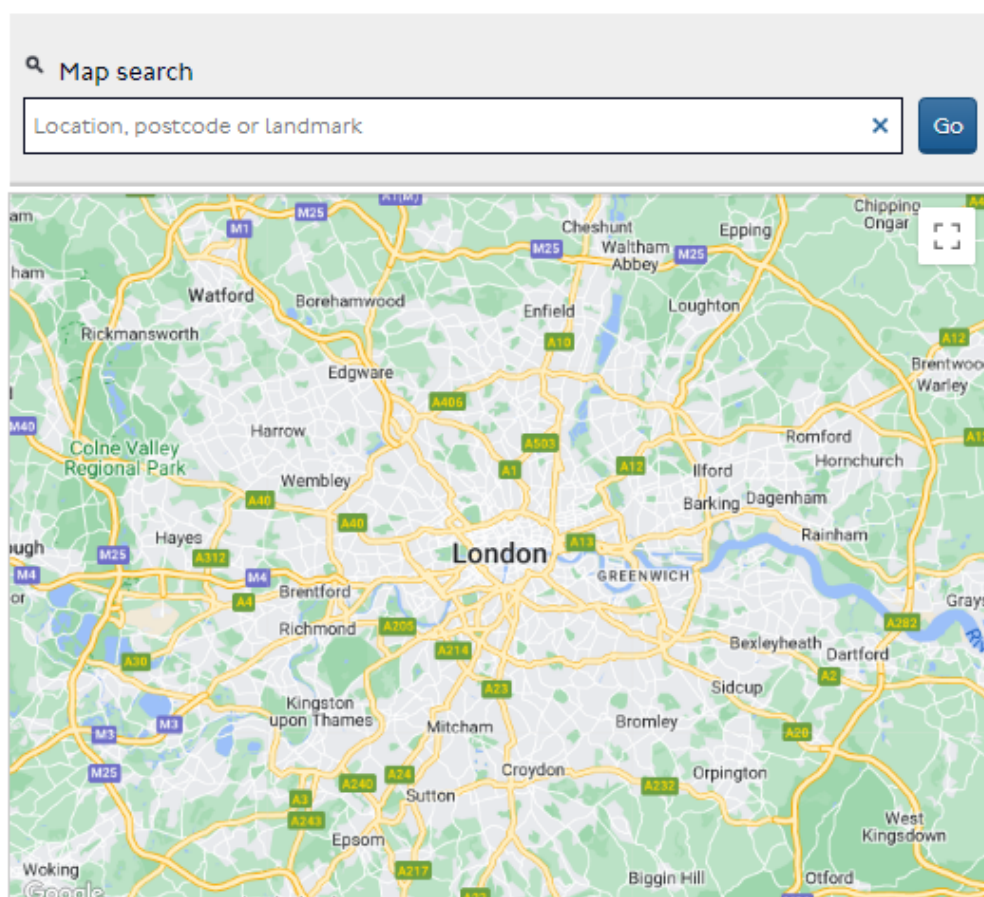
This map shows the new proposed ULEZ boundary and the area it would cover. You can toggle the map to view the Congestion Charging zone, current ULEZ and the proposed 2023 ULEZ.

Enter a street name, post code or landmark in the search box to see its location in relation to the charging zones.

PostCode



Find address

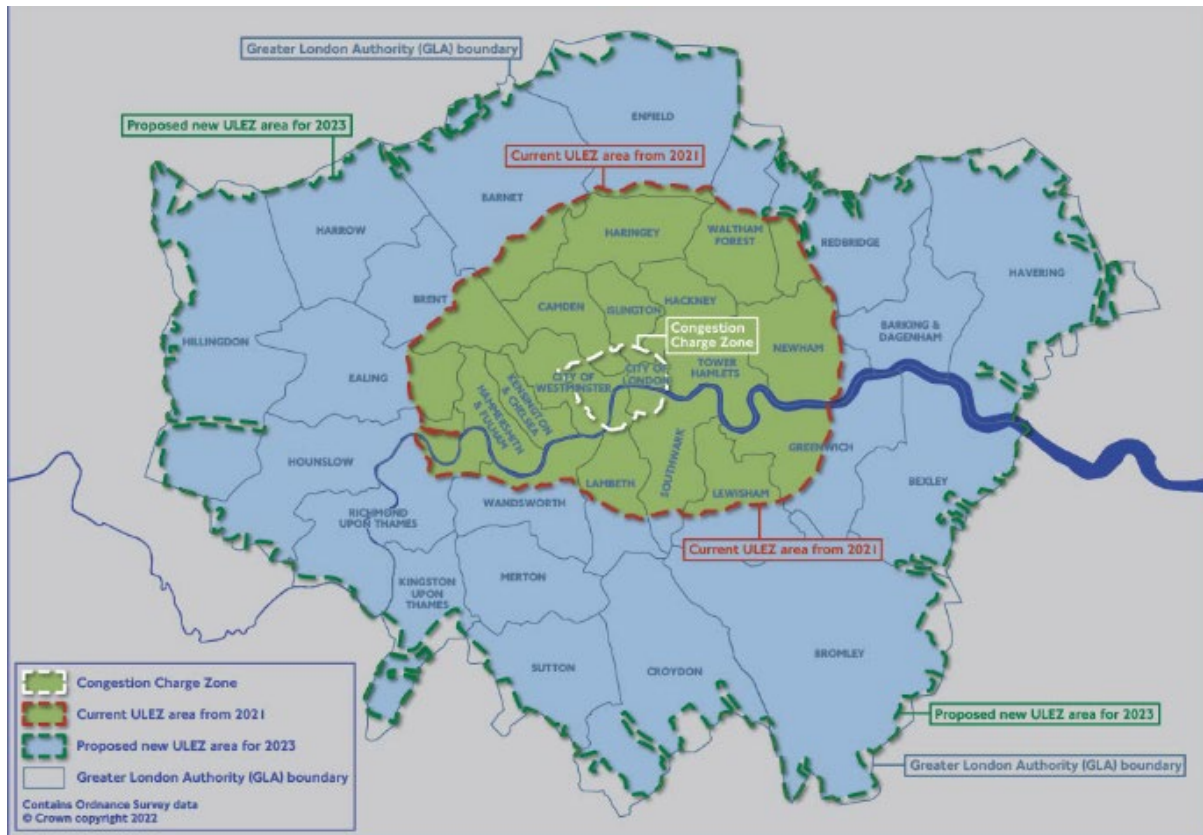


### More Information

To find out more about the proposed changes to ULEZ and to have your say on the proposals, visit our [consultation page](#).



## Static map of proposals



## Appendix F – Stakeholder meetings and stakeholder contact list

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### Political representatives and organisations

Date of meeting	Stakeholder(s)	Summary of meeting
17/03/2022	London and Home Counties MPs and London Assembly Members (AMs)	Pre-briefing on the consultation proposals.
03/04/2022	Department for Transport (DfT)	Pre-briefing provided on the consultation proposals.
03/05/2022	London Council's Officer Group	Discussion on the ULEZ proposals
16/06/2022	London MPs' Staff	Briefing and Q&A session on the consultation proposals.
24/06/2022	London Assembly Members	Briefing and Q&A session on the consultation proposals.
12/07/2022	London Assembly Transport Committee session on London-wide ULEZ proposals	Briefing on the consultation proposals.

## London Boroughs

02/03/2022	LB Richmond and LB Wandsworth	Pre-briefing on the consultation proposals.
09/03/2022	LB Bromley	Pre-briefing on the consultation proposals.
15/03/2022	LB Merton	Pre-briefing on the consultation proposals.
15/03/2022	LB Southwark	Pre-briefing on the consultation proposals.
16/03/2022	LB Hounslow	Pre-briefing on the consultation proposals.
18/03/2022	LB Ealing	Pre-briefing on the consultation proposals.
18/03/2022	LB Brent	Pre-briefing on the consultation proposals.
18/03/2022	LB Lewisham	Pre-briefing on the consultation proposals.
21/03/2022	LB Harrow	Pre-briefing on the consultation proposals.
21/03/2022	LB Enfield	Pre-briefing on the consultation proposals.
21/03/2022	LB Newham	Pre-briefing on the consultation proposals.
23/03/2022	LB Hillingdon	Pre-briefing on the consultation proposals.
23/03/2022	RB Kingston upon Thames	Pre-briefing on the consultation proposals.
24/03/2022	LB Bexley	Pre-briefing on the consultation proposals.
25/03/2022	LB Sutton	Pre-briefing on the consultation proposals.
07/05/2022	LB Waltham Forest	Pre-briefing on the consultation proposals.
10/05/2022	LB Lambeth	Pre-briefing on the consultation proposals.
13/05/2022	RB Greenwich	Pre-briefing on the consultation proposals.
17/05/2022	LB Redbridge	Pre-briefing on the consultation proposals.
27/05/2022	LB Croydon	Pre-briefing on the consultation proposals.
04/06/2022	LB Havering	Briefing on the consultation proposals.

## Neighbouring Authorities

23/05/2022	Hertfordshire County Council	Briefing on the consultation proposals.
23/05/2022	Epping Forest District Council	Briefing on the consultation proposals.
25/05/2022	Surrey County Council	Briefing on the consultation proposals.
27/05/2022	Kent County Council	Briefing on the consultation proposals.



27/05/2022	Pan-NHS	Briefing on the consultation proposals.
09/06/2022	Watford Borough Council	Briefing on the consultation proposals.
09/06/2022	England's Economic Heartland	Briefing on the consultation proposals.
07/07/2022	Essex County Council	Briefing on the consultation proposals.

## Charities

06/07/2022	Havering Compact Forum	Briefing on the consultation proposals.
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## Businesses

24/02/2022	Canary Wharf Group Transport Forum	Pre-briefing on the consultation proposals.
25/05/2022	UDL	Briefing on the consultation proposals.
21/06/2022	Federation of Master Builders	Briefing on the consultation proposals.
27/06/2022	London First	Briefing and Q&A session on the consultation proposals.
14/07/2022	Federation of Small Businesses	Briefing and Q&A session on the consultation proposals.
15/07/2022	CBI	Briefing and Q&A session on the consultation proposals.
26/07/2022	London Chamber and Commerce and Industry, including representatives from over 50 companies	Briefing and Q&A session on the consultation proposals.

## Transport and Road User Groups

31/01/2022	Campaign for Better Transport	Pre-briefing on the consultation proposals.
08/02/2022	Confederation of Passenger Transport	Pre-briefing on the consultation proposals.
11/02/2022	London Cycling Campaign (LCC)	Pre-briefing on the consultation proposals.
11/02/2022	London Travel Watch	Pre-briefing on the consultation proposals.

23/02/2022	Healthy Streets Advisory Group	Pre-briefing on the consultation proposals.
17/03/2022	Independent Disability Advisory Group	Pre-briefing on the consultation proposals.
23/03/2022	Heathrow Strategic Planning Group	Pre-briefing on the consultation proposals.
24/03/2022	Heathrow Area Transport Forum Board	Pre-briefing on the consultation proposals.
05/05/2022	Transport East	Pre-briefing on the consultation proposals.
26/05/2022	National Highways	Briefing on consultation proposals.
04/07/2022	London Living Streets, including Living Streets representatives from across London	Question and answer session on the proposals.

## Health

27/05/2022	NHS Integrated Care Systems Green Leads	Briefing on the consultation proposals.
21/06/2022	NHS - Greener NCI Programme Board	Briefing on the consultation proposals.
04/07/2022	London Asthma Leadership and Implementation Group	Briefing on the consultation proposals.
12/07/2022	NHS Health and Sustainability Summit	NHS organised summit, with a ULEZ consultation stand for drop-in conversations.

## Community Organisations

31/05/2022	Southfields Grid Residents Association	Organisation's AGM.
30/06/2022	National Pensioners Convention, London Region	Question and answer session on the proposals.

## Environmental

05/07/2022	Havering Council's Green Forum	Briefing on the consultation proposals.
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## Other

10/05/2022	Deaf and Disabled Londoners Forum	Pre-briefing on the consultation proposals.
06/06/2022	Black Majority Church Leaders	Briefing on the consultation proposals.
16/06/2022	Inclusive Transport Forum	Briefing and Q&A on the consultation proposals.
27/06/2022	Inclusion London	Briefing and Q&A on the consultation proposals.
19/07/2022	TfL Youth Panel	Workshop on the ULEZ proposals and the future of road user charging.

## List of Stakeholders contacted

A large database of stakeholders involving over 1,900 contacts were notified of the consultation in addition to publicity activities. This included:

**All 33 London local authorities** with notification to: Leaders, Chief Executives, Cabinet Leads, Councillors, Transport Leads and Communications Officers

**Strategic London organisations:** Greater London Authority, London Councils, London Fire Brigade, Metropolitan Police, London Ambulance

### Political Representatives and Organisations

#### Members of Parliament

Abena Oppong-Asare	Jonathan Lord
Adam Afriyie	Joy Morrissey
Adam Holloway	Julia Lopez
Alan Mak	Julian Lewis
Alan Whitehead	Julie Marson
Alex Burghart	Karen Buck
Alok Sharma	Kate Osamor
Andrew Griffith	Keir Starmer
Andrew Rosindell	Kelly Tolhurst
Andrew Selous	Kemi Badenoch
Andy Slaughter	Kit Malthouse
Angela Richardson	Kwasi Kwarteng

Anna Firth	Laura Farris
Anneliese Dodds	Laura Trott
Anthony Browne	Layla Moran
Apsana Begum	Leo Docherty
Bambos Charalambous	Lloyd Russell-Moyle
Barry Gardiner	Louie French
Bell Ribeiro-Addy	Lucy Frazer
Ben Everitt	Lyn Brown
Ben Spencer	Margaret Hodge
Bernard Jenkin	Maria Caulfield
Bim Afolami	Maria Miller
Bob Blackman	Mark Francois
Bob Neill	Marsha de Cordova
Bob Stewart	Matt Rodda
Boris Johnson	Matthew Offord
Caroline Ansell	Matthew Pennycook
Caroline Dinenege	Meg Hillier
Caroline Lucas	Michael Gove
Caroline Nokes	Michael Penning
Catherine West	Mike Freer
Charles Walker	Mims Davies
Chris Grayling	Mohammad Yasin
Chris Philp	Munira Wilson
Claire Coutinho	Nadine Dorries
Clive Efford	Natalie Elphicke
Craig Mackinlay	Neil Coyle
Crispin Blunt	Nick Gibb
Daisy Cooper	Nickie Aiken
Damian Collins	Nusrat Ghani
Damian Hinds	Oliver Dowden
Daniel Zeichner	Oliver Heald
David Evennett	Paul Beresford
David Johnston	Paul Holmes
David Lammy	Paul Scully
David Simmonds	Penny Mordaunt
Dawn Butler	Peter Bottomley
Dean Russell	Peter Kyle
Desmond Swayne	Priti Patel
Diane Abbott	Rachel Hopkins
Dominic Raab	Ranil Jayawardena
Ed Davey	Rebecca Harris
Eleanor Laing	Rehman Chishti
Ellie Reeves	Richard Fuller
Elliot Colburn	Rob Butler



Emily Thornberry	Robert Courts
Felicity Buchan	Robert Halfon
Feryal Clark	Roger Gale
Fleur Anderson	Rosena Allin-Khan
Flick Drummond	Rosie Duffield
Florence Eshalomi	Royston Smith
Gagan Mohindra	Rupa Huq
Gareth Bacon	Rushanara Ali
Gareth Johnson	Ruth Cadbury
Gareth Thomas	Sally Ann-Hart
Giles Watling	Sam Tarry
Gillian Keegan	Sarah Green
Gordon Henderson	Sarah Jones
Grant Shapps	Sarah Olney
Greg Clark	Sarah Owen
Greg Hands	Seema Malhotra
Greg Smith	Shailesh Vara
Harriet Harman	Siobhain McDonagh
Helen Grant	Stella Creasy
Helen Hayes	Stephen Hammond
Helen Whately	Stephen McPartland
Henry Smith	Stephen Metcalfe
Huw Merriman	Stephen Morgan
Iain Duncan Smith	Stephen Timms
Iain Stewart	Steve Baker
Jackie Doyle-Price	Steve Barclay
James Cleverly	Steve Brine
James Duddridge	Steve Reed
James Murray	Suella Braverman
James Sunderland	Tan Dhesi
Janet Daby	Theresa May
Jeremy Corbyn	Theresa Villiers
Jeremy Hunt	Tim Loughton
Jeremy Quin	Tom Tugendhat
John Baron	Tracey Crouch
John Cryer	Tulip Siddiq
John Howell	Vicky Ford
John McDonnell	Vicky Foxcroft
John Redwood	Victoria Prentis
John Whittingdale	Virendra Sharma
Jon Cruddas	Wes Streeting
Jonathan Djanogly	Will Quince

## Assembly Members

Andrew Boff	Neil Garratt
Anne Clarke	Nicholas Rogers
Caroline Russell	Onkar Sahota
Caroline Pidgeon	Peter Fortune
Elly Baker	Sakina Sheikh
Emma Best	Sem Moema
Hina Bokhari	Shaun Bailey
Joanne McCartney	Sian Berry
Keith Prince	Susan Hall
Krupesh Hirani	Tony Devenish
Len Duvall	Unmesh Desai
Leonie Cooper	Zack Polanski
Marina Ahmad	

## Neighbouring Authorities

Brentwood District Council	Mole Valley District Council
Broxbourne Borough Council	Reading Borough Council
Buckinghamshire Council	Reigate and Banstead Borough Council
Dartford Borough Council	Sevenoaks District Council
Elmbridge Borough Council	Slough Borough Council
Epping Forest District Council	Spelthorne Borough Council
Epsom and Ewell Borough Council	Surrey County Council
Essex County Council	Tandridge District Council
Hertfordshire County Council	Three Rivers District Council
Hertsmere Borough Council	Thurrock Council
Kent County Council	Watford Borough Council
Luton Borough Council	Welwyn Hatfield Borough Council

## Businesses

AECOM	London Bridge Team
Aimer Products Limited	London Chamber of Commerce and Industry
Amazon	London City Airport
Amma Radek	London First
Angel London BID	London Riverside BID
Argall	London Soccerdome
Argent	Lookahead
Augustins Solicitors	Lordship Hub Co-op
Baker Street Quarter	Love Hampton Hill
Barking & Dagenham Chamber of Commerce	Love Wimbledon BID

Barking and Dagenham Leaseholders Association	LoveUxbridge BID
Barnet Museum	Make it Ealing BID
Barnet Symphony Orchestra	Marble Arch London BID
Beddington Industrial Area BID	Markfield Beam Engine and Museum
Bee Midtown	McDonalds
Better Bankside BID	Metro Bank
Bexleyheath BID	Mill Hill Jazz Club
Beyond Barriers	Morrisons
Big Green Bookshop	Music Venue Trust
Blue House Yard	National Market Traders' Association
British Athletics	New River Studios
Brixton	New West End Company
Bromley BID	Night Time Industries Association
Bromley Experts by Experience CIC	Night Time Policy Forum
Burgh House and Hampstead Museum	North London
Camden Town unlimited	O2 Arena
Canary Wharf Group	Orpington First BID
Canary Wharf Management Ltd	Phoenix Cinema Trust
Catch 22	PLOS Theatre Company
CBI	Positively Putney BID
Certax Accounting (Enfield)	Purley BID
Chartered Institute of Plumbing and Heating Engineers	Queen Elizabeth Foundation Mobility Services
Cheapside Business Alliance	Railfuture Ltd
Chessington World of Adventures	Red Lion and Sun
Chickenshed Theatre	Remploy
Chiswick W4 Forum	Richmond BID
Church Street Association	Richmond Music Trust
Community Cafe	RMT Union
Construction Industry Council	Royal Air Force Museum
Cornerstone Business Recovery	S2 Design Ltd
Craftory Workshop	Society of London Theatre
Craving Coffee	South East London Chamber of Commerce
Croydon BID	South Wimbledon Business Area
CWPA	Spare Tyre - Arts and Theatre
E20	Sprout Community Arts
Ealing Broadway BID	St Margaret's Traders Association
East Sheen Traders Organisation	St Margaret's Community website
East Twickenham Traders Association (ETTA)	Stratford Original BID
England's Economic Heartland	Streatham BID
Enterprise Enfield	Streetlink
ExCeL	Successful Sutton BID
Facebook team Croydon	Sutton Chamber of Commerce

Federation of Master Builders	Sutton United FC
Federation of Small Business	Team London Bridge
Fusion foods	Teddington Business Community
Future Wood Green	Tesco
Graeae Theatre Company	The Aldgate Partnership
Green Lanes Shopping Centre	The Crown Estate
Hainault Business Park BID	The Engine room
Ham Parade Traders Association	The London Legacy Development Corporation
Hammersmith London	The Mall Wood Green
Hampton Hill Traders Association	The Mill Project
Hampton Village Traders Association	The Vue
Hampton Wick Society	The Wenta Business Centre, Enfield
Hampton Wick Village	This is Clapham
Harringay Traders	This is Paddington
Harrow Town Centre BID - Ha1	Tottenham Hale Retail Park (Workman Retail)
Heart of London Business Alliance	Tottenham Hotspur Football & Athletic Co. Ltd
Heathrow Airport Limited	Tottenham Traders Partnership
Hertfordshire Growth Hub	Tourism for All UK
Hien Le & Co Chartered Accountants	Trade Union Congress
Holiday Inn Stratford	Try Twickenham BID
HuskBrewing	Twickenham Town Business Association
Ikea Croydon	Victoria BID
In & Around Covent Garden	Visit Britain
In Streatham	Visit Chislehurst
In West Ealing BID	Visit London
Jewish Museum	Visitor Economy Advisor
Kent Solicitors	Wake Up Docklands
Kentish Town City Farm	West Ham United FC
Kimpton Industrial Park Proprietors Association (KIPPA) BID	West Hampstead BID
King's Road Trader's Association	West London Chamber of Commerce
Kingston Chamber of Commerce	Whitton Business Association
Kingston First BID	Whitton Town Centre
Kingston Town Centre Management Limited	Willow Lane BID
Lewisham Shopping Centre	Wood Green Works
LGBTQ+ Venues and Promoters Forum	World Economic Forum
Yoga in Daily Life Association UK	
Your Bromley BID	



## Freight and Emergency Services

AA	John Bywater Transport
Abacus Transtex	Keolis
Abel & Co	Keolis Amey Docklands
ADM Mailing Ltd	KFC UKI
Aerodyne Global Ltd	Khukuri Beer UK Ltd
Aggregate Industries	Kilnbridge
Air Liquide	Knights of Old
Air Quality News	KNK Group
ALD Automotive	Krispy Kreme
ALDI	KPI Transport Co Ltd
Allison Transmission UK	Kuehne + Nagel
Amazon	L Lynch Plant Hire & Haulage Ltd
Amminex Emission Technology	Laing O'Rourke
Anderson Grant	Land Lease
Angel Trains Ltd	LCCI
APC UK	LDV
APT Controls	Link Group
Argos	Logistics UK
Asda	London Ambulance Service
ASDA Stores	London Ambulance Service NHS Trust
Association of Vehicle Recovery Operators	London Association of Funeral Directors
Astra Vehicle Technologies	London Fire and Emergency Planning Authority
Atkins Global	London Fire Brigade
Autogas	London First
Axle Haulage Ltd	Loomis UK
B C WILES & SON LTD	Loomis UK Ltd
Babcock International	Low Carbon Vehicle Partnership
Ballard	Lyreco
BD Auto	M A Ponsonby Ltd
BEAMA	Magtec
Biffa Waste Services	MAN Truck and Bus UK
BLG	Marks & Spencer
BMM Energy Solutions LTD	Martin-Brower UK
BOC Fuels	McDonnell transport
Borough Market	McGrath Group
BPR Group	McNicholas
Brake	Metropolitan Police Service
Brakes Group	Mineral Products Association
Brewery Logistics Group	MITIE
Brewing, Food & Beverage Industry Suppliers Association	ML Power Systems
British Association of Removers	MMAPP Haulage Contractors Ltd
British Beer & Pub Association (BBPA)	Mobile Mini

British Gas	Moove Lubricants
British Vehicle Rental and Leasing Association	Morrisons
BVRLA	Mouchel Parkman Services Ltd
BYD	Movianto UK
BYD UK	MRCT
Calor Gas Ltd	Muni-Serv Hire Ltd
Canary Wharf Group	MWW Ltd
Carousel	National Federation of Retail Newsagents
Cartwright Group	National Franchised Dealers Association
CBI	National Grid
CECA	Network Rail
Cemex UK Operations	Necor
Cenex	NHS Property Services
Central London Freight Quality Partnership	NIOC
Centre for Sustainable Road Freight	Nissan Motor GB
Charge Engineering	NLA
Chartered Institute of Logistics and Transport (CILT)	Nomad Power
City of London Police	O' Donavan Waste Disposal
City Scaffolding	Ocado
Clean Air Power	Octopus Energy Services Limited
Clear Channel UK	O'Donovan Waste Disposal
Clipper Logistics	Office Depot
Close Brothers Asset Finance	Office Gold
CNG Fuels	Organic Power / Biomethane Ltd
Co-operative Group	Panavision
Commercial Vehicle Franchise for DAF Trucks--Greenhous DAF	Parsons Brinkerhoff
CoMoUK	Pizza Express
Connected Kerb	Port of London Authority
Cool Van	Pod Point Ltd
Co-op	Police and Crime Commissioner - Bucks
Covent Garden Markets Authority	Police and Crime Commissioner - Essex
Cross River Partnership	Police and Crime Commissioner - Kent
CVU	Police and Crime Commissioner - Surrey
Dachser	Prestige Cars and Couriers
DAF Trucks Ltd	Pret a Manger
Daimler	Professional Recovery Operators Federation
DairyCrest	RAC
Deepstore Records Management	Reliagen Holdings Ltd
Dennis Eagle	Renault
DHL	Reynolds
Doddle	RFG
Dore to Door Specialist Handling Ltd	Road Haulage Association LTD

DPD Group	Roast and Ground
DPD Group UK	Route Monkey
Driver & Vehicle Standards Agency	Royal Mail
DSM (Distribution Services Management)	Royal Mail Beddington Lane
DVLA	Royal Mail Parcel Force
EDF Energy	Ryder
Eezehaul Logistics	Sainsbury's Supermarkets
ELB Partners	Saints Transport
Eminox	SBS
Emoss	Scania
Energy Saving Trust	Scarab-Sales
Enterprise Car Club	Serco
EO Charging	Shell
Erith	Shredstation
Europcar	Simply Waste Solutions
European Metal Recycling Ltd	Sir Robert Alpine
Eurovia UK	SITA UK
Event Concept	Skanska
Evo-Group/Truline	Sky
Excalibre Technologies Ltd	Society of Motor Manufacturers and Traders
Federation of Wholesale Distributors (FWD)	South West Truck & Van
FedEx	Specialist Fleet Services
Fleetcor	Tarmac
FM Conway	Tesco
Food Storage and Distribution Federation	Tevva Motors
Ford Motor Company	The Co-operative Group
Ford Transport Operations	The First Mile
Fowler Welch	The Linde Group
Freight Transport Association	The Mayor's Office for Policing and Crime (MOPAC)
Frigoblock	Thermo King
Fruit 4 London	Tideway
FSB	TJ Hammond Transport
FTA	TKMaxx
GAP Group	TMJ Interiors
GasCorp Holdings	TNT
Gasrec	Top flight Couriers
GeoPost UK	Tracsis
Gordon Herrald Associates	Transport and Travel Research
GreatBear Distribution	Trucking Magazine
Greater London Hire	Trueline
Green Freight Europe	Turley Sustainability
Green Freight Europe/EST	Ubeequo
Green Urban Technologies Ltd	UKLPG

Greenstick Energy	UKPLG
Gross Klein	UKPN
Grundon Waste Management	United Utilities
Guest Trucks	UPS
H2gogo industries	Urban Transport Group
HA Boyse and Son	UVA UK
Harod	VansA2Z
HartDixon LLP	Vodanile Ltd
Heathrow Truck Centre Ltd	Volta Trucks
Heliotrope Digital	Voltia
Herbapharmedica Ltd	Volvo Group
Hermes	Volvo Group London
Hotchkiss Ltd	VP Groundforce Serco
Howard Tenens Logistics Ltd	VVPLC
HYDRO CLEANSING LTD	W. Howard Ltd
ICE	Walls and Ceilings International
Ikea	Warburtons
Imagineline	Wego Carbon Neutral Couriers
Innogy	WestTrans
Innovate UK	WFL (UK) Ltd
Institute of Couriers	Whirlpool Corporation
IRTE/SOE	White Logistics
ITM Power	WhiteBear
Iveco	Wilcox Commercial Vehicles
Jay Transport	Wiles Green World
John Lewis Partnership	William Hain Ltd
Johnston Sweepers	William Jackson Food Group
JouleVert	Wincanton
Kelly Group	WJ
Keltbray	Woodland Logistics (Chelmsford)
	Wrightbus
	Youth Offending Service

#### Transport and Road User Groups

Abellio	London Cab Drivers Club
Abellio London Limited/ Abellio West London Limited	London Chamber of Commerce and Industry (LCCI)
Action Disability (Kensington & Chelsea)	London City Airport
Action Vision Zero	London Cycling Campaign
Addison Lee	London European Partnership for Transport
All Party Parliamentary Cycling Group	London First
Arriva London	London General
Arriva London North Ltd,	London Hire Ltd



Association of British Drivers	London Living Streets
Association of Fleet Professionals LTD	London Luton Airport
Best Bike Training //Cycletastic	London Omnibus Traction Society
BikeXcite	London Private Hire Board
Bolt	London Road Safety Council
British Airways	London Suburban Taxi-drivers' Coalition
British Cycling	London Taxi PR
British Motorcycle Federation	London TravelWatch
British Motorcycles Federation	Merton Cycling Campaign
Campbell's	Metroline Travel Limited/ Metroline West Limited
Chauffeur and Executive Association	Mobility Forum (Kensington & Chelsea)
Citymapper	Mode Transport
CoMoUK	Motability
Computer Cab	Motorcycle Action Group
Confederation of British Industries	MTR Crossrail
Confederation of Passenger transport	National Express
Cross River Partnership	National Highways
CTC	National Motorcyclists Council
Cycle Confidence	Network Rail
Cycle Systems	Office for Disability Issues (DWP)
Cycle Training UK (CTUK)	Ola
cycling4all	PCOrentals
Cyclists in the City	Philip Kent cycle training
Cyclists Tourist Club (CTC)	Private Hire Board
Dial-a-Cab	RAC Motoring Foundation
DriverNet	Rail Delivery Group
Drivetech	Railfuture Ltd
Driving Instructors Association	Ramblers
Evolution Cycle Training	Retail Motor Industry Federation
FREENOW	Road Danger Reduction Forum
Get Sutton Cycling (Sutton's LCC branch)	RSSB
Gett	Skanska
GMB Union	South Herts Plus Cycle Training
Golden Tours (Transport) Ltd,	South West Rail
HCT plus	Southeastern railway
Heathrow Airport	Stagecoach
Heathrow Area Transport Forum	STMGROUPLTD
Heathrow Community Engagement Board	Sustrans
Heathrow Strategic Planning Group	Technicolour Tyre Company
IAM	The Big Bus Company Ltd,
Inclusion Barnet	The Driver-Guides Association
Inclusion London	Tony Gee and Partners
Inclusive Transport Forum	TPH for Heathrow Airport
Institute for Sustainability	Transport East

Institution of Civil Engineers	Transport Focus
International Council on Clean Transportation	Transport For All
ITS Automotive	Transport for the South East
Kenny Stuart LTD	Uber
Kingston Cycling Campaign	Unite the Union
Lewisham Station Users Group	United Cabbies Group
Licensed Taxi Drivers Association	Westminster Cycling Campaign
Licensed Private Hire Car Association	Whizz-Kidz
Licensed Taxi Drivers Association	Zipcar
Living Streets	

## Charities

A Brighter Future	Independent Food Aid Network
About Me Care & Support	Independent Living Agency
Access for Living	Insight
Access in London	Insight Platform
ACCESS UK	Isleworth Explorers Club
AccessAble	JAMI (Jewish Association for Mental Health)
Action and Rights for Disabled People in Newham	Jewish Care
Action and Rights of Disabled People in Newham	Jewish Deaf Association
Action Disability Group Kensington & Chelsea	Jewish Gay and Lesbian Group
Action for hearing loss	Joint Mobility Unit
Action on Disability and Work UK	Katherine Low Settlement
Action on Hearing Loss	Kensington & Chelsea Forum for Older Residents
Action Space	Kensington and Chelsea Forum
Advocacy for All	Kensington Residents Group
Advocacy Project	Kent Coast Volunteering
Age UK	Kilburn Older Voices Exchange (KOVE)
Age UK Barnet	Kith & Kids
Age UK Chiswick	Lambeth Dementia Alliance
Age UK City of London	Lambeth Food Partnership
Age UK Croydon	Latin American Disabled Peoples Project
Age UK Ealing	LDN 4U RBKC
Age UK Hammersmith and Fulham	LDN 4U Westminster
Age UK Harrow	Learning Disabilities Partnership Board
Age UK Havering	Leonard Cheshire
Age UK Hillingdon	Lewisham Disability Coalition
Age UK Hounslow	Lewisham Foodbank
Age UK Kensington & Chelsea	Lewisham Living Streets
Age UK Lambeth	Lewisham Nexus Service

Age UK Lewisham and Southwark	Lewisham Parent and Carers Forum
Age UK London	Lewisham SEND
Age UK Merton	Lewisham Speaking up
Age UK Orpington & District	Lifeline Projects
Age UK Richmond upon Thames	Living Streets - Hackney
Age UK Sutton	Living Streets - Islington
Age UK Waltham Forest	Living Streets - Kings Cross (Camden)
Age UK Wandsworth	Living Streets - Lewisham
Age UK Westminster	Living Streets - Merton
Age UK Westminster	Living Streets - Sutton
Ageing Better in Camden	Living Streets - Tower Hamlets
Ageing Well in Lewisham	Living Streets Southwark
Alzheimer's Society for Lambeth and Southwark	London Friend
Alzheimer's Society Sutton Office	London Gypsies & Travellers
Alzheimer's Society	London Older People's Strategy Group
Alzheimer's Society - Barnet	London Plus
Alzheimer's Society Croydon	London Recumbents
Alzheimer's Society Dementia Support Service Wandsworth	London TravelWatch
Alzheimer's Society Lambeth	London Vision
Alzheimer's Society Waltham Forest	London Vision Impairment Forum
Arnold House — Leonard Cheshire Disability	London Vision South East
Asian Peoples Disabilities Alliance	London Youth Support Trust
Aspire	Maldon and District Community Voluntary Service
Association of Muslims with Disabilities	Mencap
Attitude is Everything	Mencap Merton
Avenues London South Services	Merton Centre for Independent Living
B&D Access Group & IIDP	Merton Senior Citizens Forum
Balham Resource Centre	Merton Sensory Team
Barking Mobility Forum	Middlesex Association for the Blind
Barnet Association for the Blind	MIND
Barnet Borough Sight Impaired	MIND Croydon
Barnet Carers Centre	MIND in Barnet
Barnet Centre for Independent Living (BCIL)	Mind in Harrow
Barnet Independent Living Service (BILS)	MS Society
Barnet Mencap	Muscular Dystrophy UK
Barnet Torch Fellowship Group	NAS Lambeth Branch
Basildon, Billericay & Wickford CVS	National Autistic Society
Bexley Deaf Centre	National Autistic Society, Merton Group
Bexley Dodgers Boccia Club	National Federation of the Blind
Bexley Down's Syndrome Group	National Federation of the Blind of the UK
Bexley Mencap	National Trust
Bexley Pensioners Forum	NCT - Sutton, Epsom & District

Bexley Snap	NCVO
Bexley Voluntary Service Council	NHS England and NHS Improvement South East
Bexleyheath & District Club for the Disabled	Nia
BEYA Children's Centre	No Panic
Biggin Hill Community Association	North West London wheelchair services user
BlindAid	OBAC - Organisation for Blind African-Caribbeans
Breathe Easy Brent (British Lung Foundation)	One Place East
Brent Disability Group Forum	One to One
Brent Gateway Partnership	Park Avenue Disability Group Resource Centre
Brent Irish Advisory Service	Parkinson's UK
Brent Mencap	Parkinson's UK Waltham Forest
Brent MIND	Parkinson's UK Wandsworth brank
Brent Visual Impairment Service	Partnership for Young London
Brentwood CVS	Praxis Community Projects
British Blind Sport	President National Federation of the Blind of the UK
British Heart Foundation	Prince's Trust
British Youth Council (BYC)	Queen Elizabeth's Foundation for Disabled People
Bromley Mencap	Queen Elizabeth's Foundation Mobility Services
Bromley Mobility Forum	Race Equality Foundation
Bromley Voice	Rainbow Hamlets
Bromley Well	Rainbow Trust Children's Charity
Bromley Disabled Children's team	Rainham Foodbank
Buses4homeless	RBKC Mobility Forum
Business Disability Forum	Real - Local Voices and Accessible Transport Forum
Camden Carers	Redbridge Disability Group Association
Camden Carers' Group and Former Carers' Group	Redbridge Disability Group Consortium
Camden Chinese Community Centre Chinese Housebound Project	Redbridge CVS
Camden Disability Group Action	Refugee Action
Camden Disability Group Action	Research Institute for Disabled Consumers
Camden Learning Disabilities Service	Respond
Camden People First	Rethink advocacy
Camden Society Choices	Richmond Fellowship
Campaign for Better Transport	Richmond MENCAP
CareNet	Richmond Transport and Mobility Forum
Carers First	Richmond Upon Thames Forum for Older People



Carers Hub (Carers of Barking and Dagenham)	RNIB
Carers Trust Lea Valley Crossroads Care Service	Road Safety Markings Association
Castle Point Association of Voluntary Services	Roadpeace
Castlehaven Community Association	Royal London Society for Blind People
Celebrations Theatrical Group	RRAVS
Central Surrey Voluntary Action	Salvation Army
Centre 404	SAVS
Centre for accessible environments	Scope
Chelmsford CVS	Sense
Child Poverty Action Group	Sensory Needs Forum
Children's Activity Club (Monday and Tuesday Club)	Share Community
Chinese Mental Health Association (CMHA)	Shopmobility Waltham Forest
Choice in Hackney	Sidcup Youth Centre
Choice Support	Sight Centre in Bromley
Citizens UK	Sixty Plus
City Connections Service (Part of Age UK East London)	Slough CVS
Community 360	Social Care Consortium
Community food growing projects	South East London Vision
Community Voluntary Services Tendring	South East London Vision (SELVIS)
Compass	South Mobility Forum Croydon
Conquest Art	South Mobility Forum Merton
Corporate and Community Resilience Team	South Mobility Forum Wandsworth
Covent Garden Community Association	Southwark Disablement Association
Crossroads Care Enfield	Speak Out in Hounslow
Croydon Disability Group Forum	St Joseph's Pastoral Centre
Croydon Mencap	Stay Safe
Croydon Mobility Forum	Stay Well
Croydon People First	Stonewall
Cypriot Elderly and Disabled Group (Enfield)	Stroke Association
DASH	Surrey Community Action
Deaf and Disabled Persons Forum	Sutton & Surrey Senior Citizens Club
Deaf Ethnic Women's Association (DEWA)	Sutton Age UK
DeafBlind UK	Sutton Centre for Independent Living and Learning
Disability Alliance	Sutton Centre for Voluntary Sector
Disability Group Action in Islington	Sutton Community Transport
Disability Group Advice Service	Sutton Lodge Day Centre
Disability Group Advice Service	Sutton Mencap
Disability Group Inspired Alliance	Sutton South Hello
Disability Group Network Hounslow	Sutton Subring
Disability Group Rights UK	Sutton Women's Centre

Disability Horizons	Suzy Lamplugh
Disability Rights UK	Tamil Relief Centre
Disabled Go	Tandridge Voluntary Action
Disabled Motoring	Tapestry
Disabled Persons Transport Advisory Committee	Team Margot
Disablement Association Barking and Dagenham (DABD)	TfL's Valuing People
Dogs for Good	The Association of Guide Dogs for the Blind
Dovetail Community Outreach	The Bike Project
Ealing Centre for Independent Living	The British Dyslexia Association
Eastside Youth Havering	The Clover Cafe
Elders Voice	The Disability Group Confident Action Group (DCAG)
Elfrida Rathbone Camden	The Enfield Branch of the National Autistic Society
ELOP - East London out Project	The Equality Trust
End Violence Against Women	The Felix Project
Enfield Carers Centre	The IntoWork Team, St Clements & St James
Enfield Disability Group Action	The Kingston Association for the Blind
Enfield Health and Social Care Partnership	The Lesbian and Gay Foundation - LGBT Carers Online Forum
Enfield Lesbian Gay Bisexual & Transgender Network	The Purple Penguin Club
Enfield Vision	The Royal Association of Deaf People (RAD)
Enfield Visually Impaired Bowls Club	The Samaritans (North London branch)
European Dysmelia Reference Information Centre	The Sulgrave Youth Club
Eyes For Success	The Turk's Head Charity
Family and Childcare Trust	Thomas Pocklington Trust
Fawcett Society	Thurrock CVS
Fight for Sight	Tower Hamlets Accessibility Forum
Foodbank Wandsworth	Tower Hamlets Mental Health Partnership Group / Community Options Involvement Network
Fountains Mill Young People's Centre	Trailblazers, Muscular Dystrophy UK
Freedoms Ark	Transport Associates Network (Ann Frye)
Galop	Transport Focus
Gateway Club Orpington and Bromley	Transport for All
Gendered Intelligence	Trekstock
Genesis Kids and Youth Club	Trussell trust
Gingerbread - single parent families	Trust for London
GIRES	Vision Redbridge Libraries
Grace Organisation	Visually Impaired Camden
Greater London Forum for Older People	Visually Impaired in Camden

Greater London Forum for the Elderly	Voluntary Action Epping Forest
Greenwich Association of Disabled People	Voluntary Action Lewisham
Growing Hope (Brockley)	Voluntary Action Reigate & Banstead
Guide Dogs	Voluntary Support North Surrey (Volunteer Centre Spelthorne)
Guide Dogs for the Blind Association	Volunteer Centre Broxbourne & East Herts
H&F Local and Vocal hub	Volunteer Centre Harlow
Hackney CVS	Volunteer Centre Sutton
Hackney Disability Group Backup	Volunteer Uttlesford
Hackney People First Big Group meeting	Volunteering Bucks
HAIL (Haringey Association for Independent Living Ltd)	W3RT (Watford & Three Rivers Trust)
Hammersmith and Fulham Disability Group forum	W9 Empowerment Group
Haringey Mencap	Waltham Forest Dementia Action Alliance
Haringey Phoenix Group	Waltham Forest Mobility Forum
Haringey Wheelchair User Group	Waltham Forest Streets for All
Harrow Association for Disabled People (HAD)	Wandsworth Carers Centre
Harrow Macular Disease Society	Wandsworth Community Empowerment Network (WCEN)
Harrow Mencap	Wandsworth Community Transport
Harrow Samaritans	Wandsworth Community Transport (WCT)
Havering MIND	Wandsworth Learning Disabilities Network
Health Poverty Action	Wandsworth LGBT Forum
Healthwatch	Wandsworth Older People's Forum
Healthwatch Tower Hamlets	Wellbeing Connect
HEAR Forum	Welwyn Hatfield Community and Voluntary Service
Heatham House Youth Centre	Westminster City Council, Learning Disability Group Partnership
Hertfordshire Voluntary and Community Service	Westside Young People Centre
Hillingdon Access & Mobility Forum	Wheels for Wellbeing
Hillingdon Asian Women's Group	Whitehorse Youth Centre
Hillingdon Autistic Care and Support	Willesden District Scouts
Hillingdon Carers	Wingate and Finchley FC Disabled Fans' Forum
Hillingdon Chamber of Commerce	Winvisible (Women with Visible and Invisible Disabilities)
Hillingdon Somali Women's Group	Young Harrow Foundation
Hounslow Connect	Young Lambeth
Hounslow Deaf Club	Young Lewisham Project
Hounslow Disability Group Forum	Your Choice Barnet
Hounslow Voice Network (HVN)	Youth Action Diversity Trust
ICEC Foodbank	Youth Engagement Solutions Ltd
Imago	Zebra Cross Children's' Club
Inclusion London	

Independent Age	
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## Health

Air Quality & Health Delivery Group	NCT- Haringey
Anne Wall Centre	NCT- Harrow
Association of London Directors of Children's Services (ALDCS)	NCT Havering
Association of London Directors of Children's Services	NCT- Hillingdon
Asthma and Lung UK	NCT- Islington
Barking & Dagenham CCG	NCT- Kingston
Barking, Havering & Redbridge hospital	NCT- Lewisham
Barnet and Chase Farm Hospital	NCT- Newham
Barnet Bipolar Self Help support group	NCT- Orpington
Barnet Lone Parent Centre	NCT- RBK&C
Barnet Parent Carer Forum	NCT- Redbridge
Barnet, Enfield, and Haringey Mental Health NHS Trust	NCT- Richmond
Barts Health Trust	NCT- Streatham
Bethlem Royal Hospital	NCT- Tooting & Mitcham
Bexley Clinical Commissioning Group	NCT- Tottenham
Bexley NHS Care Commissioning Group	NCT- Tower Hamlets
Bluebird Care (Enfield)	NCT- Twickenham
BME Health Forum	NCT- Wandsworth
British Heart Foundation	NCT- Westminster
British Thoracic Society	NCT- Wimbledon
Bubic	NELFT NHS Foundation Trust
Carers' Support (Bexley)	Newham CCG
Carers UK	Newham University hospital
Cassel Hospital	NHS Brent CCG
CCG Greenwich	NHS Croydon CCG
CCG Havering	NHS Ealing Care Commissioning Group (CCG)
CCG Hounslow	NHS England and Improvement
CCG Kingston	NHS England and NHS Improvement South East
CCG Wandsworth	NHS England London Region
Central London NHS Trust	NHS Hillingdon CCG
Central Middlesex Hospital	NHS Property Services
Children's Service	NHS Redbridge
Crossroads Care Enfield	NHS Tower Hamlets CCG
Dads Network	North Central London NHS CCG
Enfield Informed Families	North East London Health and Care Partnership
Epsom & St Helier Hospital	North East London Health and Care Partnership (ICS)



General Medical Council	North East London NHS CCG
Go Golborne Project	North London Partners in Health and Care
Great Ormond Street Hospital for Children NHS Foundation Trust	North London Partners in Health and Care (ICS)
Green Cross First Aid Training Enfield	North West London Hospitals NHS Trust
Greener Practice North London	North West London Integrated Care System
Greener Practice South London	North West London NHS CCG
Greenwich Mums	Nursing and Midwifery Council
Grove Medical Centre	Oakleigh School and Early Learning Centre
Haringey Clinical Commissioning Group	Office for Health Improvement and Disparities - London Region
Havering CCG	Our Healthier South East London (ICS)
Healthwatch Croydon	Our Healthier South East London ICS
Healthwatch Enfield	Oxleas NHS Foundation Trust
Healthy London Partnership	Parent Forum Resource Group
Hillingdon Dads (SEND Family Support)	Positive Parents
Homecare Association	Priory Hospital Roehampton
Homerton University hospital	Queen Mary's University Hospital
North West London Integrated Care System	Royal College of GPs
Hounslow and Richmond Community Healthcare NHS Trust	Royal College of Nursing
Hounslow and Richmond Community Healthcare NHS Trust	Royal College of Paediatrics and Child Health
Impact on Urban Health	Royal Free London NHS Foundation Trust
Imperial College Healthcare NHS Trust	Royal Hospital for Neuro-Disability Group (West Hill)
Jags Foundation CIC	Royal National Orthopaedic Hospital
Just Say Parents Forum	Royal National Orthopaedic Hospital NHS Trust
Kingston, Tolworth, Surbiton hospitals	Royal Princess Hospital
Lambeth Parent Forum	Saint Francis Hospice and Carers Centre
LEDnet	South East London CCG
Leonard Sainer Day Care Centre (Jewish Care)	South East London NHS CCG
Lewisham CCG	South East London Vision
Lewisham Clinical Commissioning Group	South West London Health and Care Partnership
Lewisham Medical Centre	South West London health and Care Partnership (ICS)
London Association of Directors of Adult Social Services (London ADASS)	South West London NHS CCG
London Asthma Leadership & Implementation Group	St George's Hospital
LondonADASS	St George's University Hospitals NHS Foundation Trust
Marnier Parents Forum	St Helier Hospital
Mental health and wellbeing network	St Leonards hospital

Mumsnet	STS First Aid
Nafsiyat Intercultural Therapy Centre	SW London & St George's Mental Health Trust
National Care Association	The Huntercombe Hospital - Roehampton
NCT	The Manor House Centre for Psychotherapy and Counselling
NCT- Beckenham	The Royal Marsden Community Services
NCT- Bexley	Tower Hamlets CCG
NCT- Brixton	Tower Hamlets Parents Advice Centre
NCT- Bromley & Chislehurst	UCL Partners
NCT- Clapham	UK Health Security Agency - London Region
NCT- Croydon	University College Hospital
NCT- Crystal Palace	University College London Hospital NHS Trust
NCT- Dulwich	Waltham Forest CCG
NCT- Ealing	Wandsworth mental health resource centre
NCT- Enfield	Whipps Cross hospital
NCT- Greenwich	Whittington hospital
NCT- Hackney	World Health Organisation

#### Community Organisations

Abundance London	Kenley and District Residents' Association (KENDRA)
Action Disability Group Kensington & Chelsea	Kenley District Residents Association
Addiscombe and Shirley Park Residents Association	Kingsdown Avenue (lower end) LeKara
Addiscombe Cycling Club	Kingston Association for the Blind
African French Speaking Organisation	Kingston Centre for Independent Living
Ahmadiyya Muslim Women's Association	Kingston NCT
Al-Furqan Educational Trust	Kongolese Children's Association
All Saints C of E Church	Lambeth Chinese Community Association
All Souls Church	Learning Through Horses
Angling Trust	Lewisham Irish Centre
Animal Aid & Advice - North London	Lewisham Local
ASPRA	Lewisham Pensioners Forum
Athula Dassana International Buddhist Temple	Lewisham Salvation Army
Bait-U-Wahid Mosque	Lewisham Islamic Centre
Barnet Pensioners Association	London Borough Faiths Network
Barnet Somali Community Group	London Borough of Lewisham Neighbourhood Watch
Barnet Torch Fellowship Group	London Buddhist Vihara
Beautiful and Scenic Walks	London Forum of Amenity and Civic Societies

Bellingham Community Project	London Gypsy and Traveller Forum
Bengali Parents SEN Group	London Gypsy and Traveller Unit
Betar Bangla	London Region National Pensioners Convention
Bexley African Caribbean Community Association (BACCA)	London Senior Social
Bexley Association of Turkish Speakers (BATS)	Malden Rushett Residents Association
Bless Community Church	Maswell Park Church
Brahma Kumaris	Merton Children with Disabilities Team (Social care and short breaks)
Brent Chamber of Commerce	Merton Ward Park Residents' Association
Brent Multi-Faith Forum	Middlesex Association for the Blind
Brentford & Isleworth Quakers	Mitcham Lane Baptist Church
Brentford Free Church	Monks Orchard Residents' Association (MORA)
British Afghan Women's Society	Muslim Cultural & Welfare Association of Sutton
British Blind Sport	Muslim Cultural & Welfare Association of Sutton - Sister Group
Broad Green Residents' Association	Muslim Hands Open Kitchen
Brockley Society	National Trust
Bromley Mobility Forum	Nepalese Language and Culture Centre
Carers network	New Cross Gate Trust
Central Croydon Community Action	New Life Masih Ghar
Centre for Spirituality & Cultural Advancement	Norbury Green Residents' Association
Channing and Clyde Residents' Association	Norbury Park Residents Association
Chessington District Residents Association	Norbury Village Residents' Association
Chiswick Baptist Church	North London Asian Care
Chiswick Buzz	Oasis Church
Chiswick House	Old Chiswick Preservation Society
Christ Church Chiswick	Old Coulsdon Residents' Association
Christ Church Feltham	Our Lady & St. Christopher's Church
Church of the Good Shepherd	Our Lady of Grace & St. Edward RC Church
City Community and Children's Services	Our Lady of Sorrow & St. Bridget RC Church
Community Brain	Participation People
Conquest Art	People for Portland Road
Couldson West Residents' Association	Real - Local Voices
Cranford Baptist Church	Redbridge Pensioners Forum
Creative Youth	Redeem Christian Church of God – The Peace Sanctuary for All Nations
Croham Valley	Revitalising East Croydon Communities RECC
Croydon BAME forum	Richmond access forum
Croydon Churches Housing Association	Riddlesdown Residents Association
Croydon Citadel	Riverpark Church

Croydon Communities Consortium	Riverside Vineyard Church
Croydon Cycling Campaign	Romford Quakers
Croydon Islamic Community Trust	Russian Orthodox Church
Croydon Minster	Salvation Army
Croydon Mobility Forum & East Surrey Transport Committee	Sanderstead RA
Croydon Mosque and Islamic Centre	Sangam
Croydon Transport Focus	Sangam Association of Asian Women
Croydon Vision	Sikh Welfare & Awareness Team
Croydon Voluntary Action	Somali Parent and Children Play Association
Crystal palace transition town	South Croydon Community Association
Darussalam Masjid & Cultural Centre	South Norwood Islamic Community Centre
Deptford Folk	Southville Methodist Church
Disability Group Horizons	Speak Out in Hounslow
Disability Network Hounslow	Spring Park
Dominion Parish for All Nations	St Luke's Church
Dorjechang Buddhist Centre	St. Dunstan with Holy Angels Church
East Coulsdon Residents' Association	St. Dunstan's Church
East Coulsdon Residents' Association	St. Faith's Church
East Croydon Community Organisation	St. Francis of Assisi Church
East London Chinese Community Centre	St. George's Church
East London Garden Society	St. John The Evangelist RC Church
Emmanuel Baptist Church	St. Joseph's RC Church
Enfield Asian Welfare Association	St. Lawrence RC Church
Enfield Bangladesh Welfare Association	St. Leonard Church
Enfield Caribbean Association	St. Mary's Church
Enfield Over 50s Forum	St. Michael & All Angels Church
Enfield Racial Equality Council	St. Michael & St. Martin RC Church
Enfield Saheli	St. Michael's C of E Church
Enfield Somali Community Association	St. Nicholas with St. Mary Magdalen Church
Enfield Turkish Cypriots Association	St. Paul with the Good Shepherd
English Heritage	St. Paul's C of E Church
Essex Wildlife Trust	St. Paul's Church
Euro Datta Yoga Centre Hanuman Hindu Temple	St. Richard's of Chichester C of E Church
Evelyn Parents Forum	St. Vincent De Paul RC Church
Faiths Forum for London	Start Up Croydon
Faiths Together in Croydon	Streatham Action Transport Group
Feltham Congregation of Jehovah's Witnesses	Sydenham Society
Feltham Evangelical Church	Telegraph Hill Society
Feltham HIRA Association	The Blackheath Society
Forest Hill Society	The League of Jewish Women
Forestdale Residents' Association	The Shane Project



Friends of Alexandra Park	Thornton Heath Residents' Association
Friends of Barnet Environment Centre	Waltham Forest Community Hub
Friends of Park Hill Park	Wandsworth Mobility Forum
Gargaar Somali Welfare Association	Wandsworth Older People's Forum
Ghanaian Welfare Association	Wapping Bangladesh Association
GLA Black Majority Faith Leaders Forum	Wealdstone Evangelical Church
Goldy Goldy Women's group (cycling)	Webb Estate
Greek & Greek Cypriot Community of Enfield (GGCCE)	West Indian Self Effort (WISE)
Grove Estate	Wharfedale Gardens and Lonsdale Gardens RA
Grove Park Community Group	Whitgift Estate Residents' Association
Gunnersbury Baptist Church	Willesden Green Town Team
Gurdwara Guru Nanak Nishkam Sewak Jatha	Women's Institute (North West London)
Gurdwara Sri Guru Singh Sabha	XR Croydon
H.O.M.E. Residents' Association	Young Roots
Ha Meem Foundation	Southfields Grid Residents Association
Hackney and Tower Hamlets Friends of the Earth	Union of Catholic Mothers
Haringey Association for Independent Living (HAIL)	Royal Wimbledon Golf Club
Harrow People Magazine Harrow	The Addington Golf Club
Harrow Senior Residents Assembly	Royal Mid Surrey Golf Club
Hartley & Districts Residents' Association	Coombe Hill Golf Club
Hastings & Warren Road Residents' Association	Fulwell Golf Club
Havering CAB	Royal Blackheath Golf Club
Havering Council's Green Forum	Finchley Golf Club
Havering's Compact Forum	Highgate Golf Club
Highgate Society	Northwood Golf Club
Hillside Church	The Shire London Golf Club
Hindu Society	West Essex Golf Club
Holy Trinity Church	Hendon Golf Club
Holy Trinity Church	North Middlesex Golf Club
Hornsey Pensioners Action Group	Bush Hill Park Golf Club
Hounslow Chamber of Commerce	Dulwich And Sydenham Hill Golf Club
Hounslow Clinical Care Group (NHS)	Royal Wimbledon Golf Club
Hounslow Community Church	The Addington Golf Club
Hounslow Disability Forum	Royal Mid Surrey Golf Club
Hounslow Evangelical Church	Coombe Hill Golf Club
Hounslow Friends of Faith	Fulwell Golf Club
Hounslow Jamia Masjid & Islamic Centre	Royal Blackheath Golf Club
Hounslow London Cycling Campaign	Finchley Golf Club
Hounslow Methodist Church	Highgate Golf Club
Hounslow Pensioners' Forum	Northwood Golf Club
Hounslow Spiritualist Centre	The Shire London Golf Club

Hounslow United Reform Church	West Essex Golf Club
Hounslow West Evangelical Church	Hendon Golf Club
Hounslow Youth Council	North Middlesex Golf Club
Hussaini Islamic Mission	Bush Hill Park Golf Club
Immanuel Church Brentford	Dulwich And Sydenham Hill Golf Club
Inter Faith Network	Southfields Grid Residents Association
Iranian Community Service	Black Majority Church Leaders meeting
Isleworth Deen Centre	Union of Catholic Mothers
Jami (Jewish Association for Mental Health)	

## Environmental

Air Quality News	Green Alliance
Air Team UK	Greenpeace
C40 Cities	Grow Back Greener grantees
Canal & River Trust	Impact on Urban Health
Canal & River Trust London	Islington Clean Air Parents
Choked Up	Joint Air Quality Unit
Clean Air Day - Global Action Plan	LEDNET
Clean Air Fund	London Climate Change Partnership
Clean Air London	London Wildlife Trust
Cleaner Cities Campaign	LoTAG
Client Earth	Mums for Lungs
Ella Roberta Foundation	Natural England
Energy for London	NHS London Sustainability Network
Environment Agency	Possible
Environmental Research Group (Imperial College London)	The Climate Coalition
Friends of the Earth	UK Health Alliance on Climate Change
Global Action Plan	UKRI Clean Air Champions
Grantham Institute	

## Other

Abbey Primary	Kings College London Student Union
Alexandra School	Kingston Community School
All Saints Benhilton CofE	Kingston Grammar School
All Saints Carshalton CofE	Laleham Lea School
Arup	London Borough of Brent Faith Liaison
ASLEF	London College of Fashion SU
Association of Town Centre Management	London Faiths Forum
Avenue Primary	London Higher
Bandon Hill Primary	London Metropolitan University Student Union
Barnet and Southgate college	London School of Economics Student Union

Barrow Hedges Primary	London Wetland Centre (South)
BBC	London Youth Assembly
Beddington Infants	Merton College
Beddington Park Primary	Mumderground
Bedelsford School	Mumsnet
Big Brother Watch	National Grid
Birbeck University Student Union	NCT
Black Majority Church Leaders	Newham College
British Land	Netmums
British Veterinary Association	New City College
British Veterinary Nursing Association	Nonsuch High School
British Youth Council (BYC)	Northumbria University London Student Union
Brookfield Primary Academy	Oakwood School
Brookways Primary	Old Palace of John Whitgift
BT	OnCue Transport
Burlington Infants	Opinari Ltd
Burlington Jnrs	Partnership for Young London
Cambridge Tutors College	PaxTrans Ltd
Canbury School	PCS
Carew Academy	Peer Outreach Workers
Carshalton Boys Sports College	Phoenix Housing Group
Carshalton High School for Girls	Planning Design
Castle Hill School	Portaramp UK Limited
Cheam Common Infants	Prince's Trust
Cheam Common Juniors	Privacy International
Cheam Fields Primary	Queen Mary University Student Union
Cheam High School	Ravensbourne University
Cheam Park Farm Primary	ReLondon
Chessington School	Richard Challoner
Christ Church New Malden	RMT London Taxi
Christ Church Primary	RMT Union
City Lit	Royal Academy of Dramatic Art
City University Student's Union	Royal College of Art
College of North West London	Royal College of Music
Collingwood School	Royal Institute of British Architects
Coombe Boys School	Royal Institute of Chartered Surveyors
Coombe Girls School	Royal Russell Trinity
Coombe Hill Infants	Royal Town Planning Institute (RTPI)
Coombe Hill Juniors	SOAS
Corpus Christi RC School	South Thames College
Croydon College	Southborough High School
Croydon High School	Space Syntax
Culvers House Primary	St David's School
Cumnor House for Girls	St Philomena's RC High for Girls

Cumnor House School	Surbiton High School
Devonshire Primary	Surveillance Camera Commissioner
Dorchester Primary	Sutton Grammar School
Dysart School	Suzy Lamplugh
Eagle House School Sutton	Talk London members
EDF Energy	TfL Youth Panel
Educare Small School	Thames Water
Ellingham Primary	The Cedar's School
Elmhurst School for Boys	The New School
End Violence Against Women	The Royal Parks
ETOA – European tourism association	The Royal Parks
Fern Hill Primary	Tiffin School
FIA Foundation	Tolworth Girls School
Foresters Primary	UK Power Networks
GBM Drivers	UK100
Glenthorne High School	Unions Together
Goldsmiths University Student Union	Unite the Union
Grand Avenue Primary	University of East London
Green Lane Primary	University of Greenwich
Green Wrythe Primary	University of Roehampton
Greenshaw High School	University of Westminster
Hackbridge Primary	Urban Movement
Harris Academy	Walk London
Harrow College	Wallington County Grammar
Highview Primary	Wallington High School
Historic England	Whitgift School
Holy Cross Prep	Women in Transport
Holy Trinity Wallington	World Resources Institute
Homefield Prep	Young People's Action Group
Imperial College London Student Union	Barnet Symphony Orchestra
Information Commissioner's Office	



## Appendix G – AECOM Code Frame: MTS only

This table shows the codes used by AECOM to conduct their thematic analysis of consultation responses relating to the Mayor's Transport Strategy revisions and the triple challenges only.

The full code frame that was used for thematic analysis of the entire consultation is included and reported on in the separate Report to the Mayor: "Our proposals to help improve air quality, tackle the climate emergency, and reduce congestion by expanding the ULEZ London-wide and other measures (scheme consultation)."

<b>Code no.</b>	<b>Code label</b>
<b>C500</b>	Support / agree with the revisions to the MTS (general comments)
<b>C501</b>	Support / agree with the revisions to the MTS to expand the ULEZ
<b>C502</b>	Support the revision to the MTS but feel that the wording needs changing / suggestions of alternative wording
<b>C503</b>	MTS should be go further to achieve stated aims / should be more ambitious
<b>C504</b>	Oppose / disagree with the revisions to the MTS (general comments)
<b>C505</b>	Oppose / disagree with the revisions to the MTS to expand the ULEZ
<b>C506</b>	Suggest there should be a vote / referendum on MTS revisions / ULEZ expansion
<b>C507</b>	Revisions to MTS / ULEZ expansion are not justified / insufficient supporting evidence provided
<b>C508</b>	Was not aware of the MTS / its role in improvements / planning
<b>C509</b>	Other comments about the MTS revisions
<b>C530</b>	Support / agree that air quality/health and wellbeing is an important topic / needs to be improved
<b>C531</b>	Oppose / disagree that air quality/health and wellbeing is an important topic / does not need to be improved
<b>C532</b>	Support / agree that climate emergency is an important topic / environmental impact needs to be improved
<b>C533</b>	Oppose / disagree that climate emergency is an important topic / environmental does not need to be improved
<b>C534</b>	Support / agree that traffic congestion is an important topic / needs to be improved
<b>C535</b>	Oppose / disagree that traffic congestion is an important topic / does not need to be improved

# **Our proposals to help improve air quality, tackle the climate emergency, and reduce congestion by expanding the ULEZ London-wide and other measures**

May 2022

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# 1. Background and overview

## Purpose of this document

This document provides information on our proposals to help improve air quality, tackle climate change and reduce congestion, including:

- expanding the Ultra Low Emission Zone (ULEZ) scheme London-wide;
- making changes to Auto Pay for the Congestion Charge, ULEZ and Low Emission Zone (LEZ); and
- making changes to the Penalty Charge Notice level for the Congestion Charge and ULEZ.

The Mayor is also proposing to revise his Transport Strategy (MTS) to set out the triple challenges of toxic air pollution, the climate emergency and congestion that London is facing, notwithstanding achievements in delivering existing MTS policies and proposals. A new proposal would reinforce the importance of seeking to address these challenges and the role of road user charging including a London-wide ULEZ in doing so.

Information about why the proposals have been developed, the expected impacts on traffic and emissions as well as a summary of the potential wider impacts, including impacts on public health as identified in the Integrated Impact Assessment (IIA) are set out in the following sections.

This document also provides information on the long-term challenges facing London and how we are starting to explore the potential for future road user charging in the Capital.

## Background to the proposed changes

As of the date of this consultation, the London Low Emission Zone (LEZ) applies London-wide. However, the ULEZ only applies in central and inner London.

The original ULEZ in central London was implemented in April 2019 and later expanded to inner London in October 2021. In March 2021 TfL also tightened the Low Emission Zone (LEZ) standards for heavy vehicles, which apply London-wide. These schemes have contributed to the triple challenge of reducing transport emissions to protect the health of Londoners, achieving net zero carbon emissions by 2030 and cutting congestion.

However, air quality remains a challenge, including in outer London. In September 2021, the World Health Organization (WHO) updated its recommended guidelines for air

pollutants<sup>1</sup> reflecting the overwhelming evidence of the health impacts of air pollution, even at low levels.

In 2019, there were around 4,000 premature deaths in London related to air pollution. The greatest number of those premature deaths were in London's outer boroughs, where the ULEZ doesn't currently apply. This is because even though pollution is lower in the outer boroughs, there is a higher proportion of older people in these areas, who are more vulnerable to the impacts of air pollution.<sup>2</sup> Over 500,000 Londoners suffer from asthma and are vulnerable to the effects of highly polluted air, with more than half of these people living in outer London. There has also been a slower rate of improvement in air quality in outer London than in central and inner London.

On 18 January 2022, the Mayor announced four potential approaches to address toxic air pollution, the climate emergency and traffic congestion in London. The approaches that were under consideration by the Mayor were:

- Extending the ULEZ London-wide with the current vehicle charge levels and emissions standards.
- Extending the ULEZ London-wide and adding a small clean air charge for all but the cleanest vehicles.
- A small, London-wide, clean air charge for all but the cleanest vehicles.
- A Greater London boundary charge for non-London registered vehicles entering Greater London.

After considering the options, on 4 March 2022 the Mayor of London, Sadiq Khan announced that he had asked Transport for London (TfL) to consult on the first option: expanding the current ULEZ London-wide in 2023 because this would strike the right balance between maximising the health and environmental benefits for Londoners while minimising the impacts on drivers. In addition, he said that the long-term and fairest solution to these challenges will ultimately be a more sophisticated form of road user charging, designed to be simple and fair for customers. This would enable all existing road user charges, such as the Congestion Charge and ULEZ, to be replaced. He asked TfL to start exploring how this concept could be developed, while acknowledging that it is still many years away from being ready to implement such a scheme.

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<sup>1</sup> [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health#:~:text=Guideline%20values,-NO&text=The%20current%20WHO%20guideline%20value,effects%20of%20gaseous%20nitrogen%20dioxide.](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health#:~:text=Guideline%20values,-NO&text=The%20current%20WHO%20guideline%20value,effects%20of%20gaseous%20nitrogen%20dioxide.)

<sup>2</sup> <https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/health-burden-air-pollution-london>

In the meantime, while our aim is to tackle each of the triple challenges of air pollution, climate emergency and traffic congestion, ULEZ expansion in the near term is expected to be effective in addressing air quality, as well as having secondary benefits for carbon and congestion.

## **Overview of proposed changes**

The proposals that form this consultation are:

- An extension of the ULEZ London-wide from 29 August 2023 with charge levels for vehicles not meeting minimum emission standards (ULEZ Charges), hours, days and emission standards set at the same level as the current scheme. Certain vehicles in the 'disabled' and 'disabled' passenger tax class, wheelchair accessible private hire vehicles and minibuses used for community transport will benefit from an extended 'grace period'<sup>3</sup>.
- Removal of annual £10 per vehicle Auto Pay registration fee for the ULEZ, Congestion Charge and LEZ in January 2023 (Auto Pay allows owners to set up an account so they automatically pay the relevant charge and so will not incur a penalty for non-payment).
- Increase the Penalty Charge Notice (PCN) level from £160 to £180 for non-payment of the ULEZ and Congestion Charge from January 2023. This charge is reduced by 50 per cent if paid in 14 days.
- A revision to the current 2018 Mayor's Transport Strategy (MTS), which would support the proposed London-wide extension of the ULEZ.

We would like your views on these proposals and on shaping any potential future of road user charging scheme. A summary of the consultation and a questionnaire can be found [here](#).

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<sup>3</sup> A grace period provides additional time for vehicles who do not currently meet the standard to meet the relevant (Euro) standard, without incurring a charge

## Structure of this document

This document is in eight chapters:

- **Chapter 1** provides the context and background to the Mayor's air quality proposals.
- **Chapter 2** covers the rationale for improving air quality, tackling climate change and reducing traffic congestion in London.
- **Chapter 3** discusses the history of the ULEZ scheme and previous consultations undertaken on the scope and implementation of the scheme.
- **Chapter 4** describes the case for the proposed London-wide extension of the ULEZ scheme in reducing emissions and meeting the Mayor's objectives.
- **Chapter 5** details how proposals have been developed and shaped including how the options have been assessed.
- **Chapter 6** discusses the impact of the proposals and how these have been assessed.
- **Chapter 7** discusses shaping the future of road user charging
- **Chapter 8** outlines the next steps.



## 2. Triple challenges: air pollution, climate emergency and traffic congestion

The Mayor's Transport Strategy (MTS), published in 2018, sets out his vision to create a fairer, greener, healthier and more prosperous London. A shift away from car travel in favour of walking, cycling and public transport will be critical to realising this vision and that is why the central aim of the strategy is for 80 per cent of all trips in London to be made on foot, by cycle or using public transport by 2041. This will support "Good Growth", which works to re-balance development in London towards more genuinely affordable homes, reduce car dependency and create a more sustainable and socially integrated city. Achieving the aims of the MTS must start with an ambitious approach to London's streets, as that is where most travel happens.

The coronavirus pandemic and its impact on our lives over the past two years has changed our relationship with our streets, our neighbourhoods and our city. During the lockdowns of 2020 and 2021, as traffic levels fell, Londoners experienced their local areas from a new perspective. With reduced capacity on public transport due to social distancing, we became more reliant on walking and cycling for our trips as well as our leisure time. We witnessed the impact of reduced traffic on air quality, severance (where destinations that are geographically close cannot be reached easily), noise, and the general experience of our local areas.

As we begin to move on from the worst stages of the pandemic, we face three major challenges in London:

- While we have seen significant progress in reducing harmful **air pollution** over the past decade, we know that we need to go further to protect human health
- It has become clear that we are facing a **climate emergency**, and that the impacts of extreme weather can affect us all
- We have also seen **traffic congestion** return as London returns to business as usual with costs to the economy and our quality of life

## Air pollution

*88 per cent of state schools in London are in areas where air pollution exceeds WHO interim targets<sup>4</sup>*

*In 2019 toxic air is estimated to have contributed to the premature deaths of around 4,000 Londoners<sup>5</sup>*

The Mayor has a duty to achieve the legal limits for air pollutants in Greater London.

Air pollution has a negative impact on the health of Londoners. It has a disproportionate impact on more vulnerable and deprived people. There is also growing evidence linking exposure to air pollution with the worst effects of coronavirus: exposure to air pollution before the pandemic increases the risk of hospital admissions from coronavirus, as well as other lung infections such as pneumonia and bronchitis.<sup>6</sup> The two pollutants causing the greatest concern, based on their impact on human health, are<sup>7</sup>:

- Nitrogen dioxide (NO<sub>2</sub>): At high concentrations, NO<sub>2</sub> causes inflammation of the airways. Long-term exposure is associated with an increase in symptoms of bronchitis in asthmatic children and reduced lung development and function.
- Particulate matter (PM): Long-term exposure contributes to the risk of developing cardiovascular and respiratory diseases, including lung cancer. Research shows that particles with a diameter of 10 microns and smaller (PM<sub>10</sub>) are likely to be inhaled deep into the respiratory tract. The health impacts of particles with a diameter of 2.5 microns or smaller (PM<sub>2.5</sub>) are especially significant as smaller particles can penetrate even deeper.

In 2020, TfL and the Greater London Authority (GLA) commissioned researchers from the Environment Research Group (ERG) at Imperial College London to assess the impact on health of the Mayor's air quality policies, and air pollution in London, using current (2019) and future levels of air pollution up to 2050 (projected from 2013). Their key findings were

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<sup>4</sup> LAEI 2019: <https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2019>. The lowest WHO interim target for PM<sub>2.5</sub> is 10 µg/m<sup>3</sup>

<sup>5</sup> [Health burden of air pollution in London, Imperial College, 2021: https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/health-burden-air-pollution-london](https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/health-burden-air-pollution-london)

<sup>6</sup> Investigating links between air pollution, COVID-19 and lower respiratory infectious diseases, Imperial College London, 2021: <https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/investigating-links-between-air-pollution-and-covid-19>

<sup>7</sup> <http://www.who.int/mediacentre/factsheets/fs313/en/>

that in 2019, in Greater London, the equivalent of between 3,600 to 4,100 deaths (61,800 to 70,200 life years lost<sup>8</sup>) were estimated to be related to PM<sub>2.5</sub> and NO<sub>2</sub>.

If no further action is taken to reduce air pollution, around 550,000 Londoners will develop diseases related to poor air quality over the next 30 years. In this case the cost to the NHS and social care system in London is estimated to be £10.4 billion by 2050.<sup>9</sup> The greatest number of deaths related to air pollution<sup>10</sup> are likely to be in outer London boroughs, mainly due to the higher proportion of elderly people in these areas, who are more vulnerable to the impacts of air pollution.<sup>11</sup>

This is because lung function declines with age and older people are more likely to have co-morbidities. Children are also more vulnerable to breathing in polluted air. Children's airways are smaller and still developing, and they breathe more rapidly than adults. Buggies and prams put small children at the level of car exhausts.

## Climate Emergency

*Nearly a quarter of London's CO<sub>2</sub> emissions come from cars and goods vehicles<sup>12</sup>*

*Road traffic in London emits the equivalent CO<sub>2</sub> generated in heating over two million homes for a year<sup>13</sup>*

In 2020, the Mayor brought forward his ambition for a net zero carbon London, (where the amount of carbon we produce is no more than the amount taken away) to 2030 in recognition of the scale of the climate emergency. In February 2022, the UN's Intergovernmental Panel on Climate Change (IPCC) warned that global warming, reaching 1.5°C in the near-term, would cause unavoidable increases in multiple climate hazards and present multiple risks to ecosystems and humans<sup>14</sup>. Across sectors and regions, the

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<sup>8</sup> The original studies were analysed in terms of 'time to death' aggregated across the population. Strictly, it is unknown whether this total change in life years was from a smaller number of deaths fully attributable to air pollution or a larger number of deaths to which air pollution partially contributed. The former is used with the phrase 'equivalent' to address this issue. See COMEAP (2010) for a fuller discussion

<sup>9</sup> <https://www.london.gov.uk/press-releases/mayoral/ulez-to-save-billions-for-nhs>

<sup>10</sup> Note that this is not a direct causative relationship at the individual level; it is a collective statistical impact across the population

<sup>11</sup> <https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/health-burden-air-pollution-london>

<sup>12</sup> LAEI 2019

<sup>13</sup> Estimate based on LAEI 2019 (6.4m tonnes CO<sub>2</sub> from road traffic) and ONS average UK home heating emissions (2,806kg CO<sub>2</sub>e):

<https://www.ons.gov.uk/economy/environmentalaccounts/articles/covid19restrictionscuthouseholdemissions/2021-09-21>

<sup>14</sup> [https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC\\_AR6\\_WGII\\_SummaryForPolicymakers.pdf](https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf)

report concluded that the most vulnerable people and systems are observed to be disproportionately affected by climate change. In urban settings, observed climate change has already caused impacts on human health, livelihoods and key infrastructure.

We have already seen the impact that extreme weather events have had on Londoners and the city's infrastructure. A recent report commissioned by the Mayor found that in order to meet the target of getting to net zero carbon in London by 2030, car vehicle kilometres need to reduce by at least 27 per cent in the Capital by the end of the decade under his preferred pathway<sup>15</sup>. This highlights the need to take action to reduce CO<sub>2</sub> emissions. Not doing so will have negative and potentially irreversible consequences for global warming, resulting in rising sea levels and extreme weather conditions. These in turn can have potentially disastrous consequences for human and environmental wellbeing. Due to the Urban Heat Island effect, London can be five degrees hotter than surrounding countryside during the day, and 10 degrees hotter at night. It is estimated that there were over 400 excess deaths in Londoners over 65 years old during the summer 2018 heatwaves.<sup>16</sup>

## **Traffic congestion**

*Last year the average driver in London lost the equivalent of six days to congestion<sup>17</sup>*

*Nearly two-thirds of the cost of congestion in London can be attributed to delay on the road network in outer London<sup>18</sup>*

The pandemic has had a significant impact on travel in London over the last two years. The first lockdown, announced in March 2020, led to traffic falling by 65 per cent compared to 2019 levels. However, traffic on London's road network recovered substantially outside of lockdown periods in 2020 and 2021. The recovery of public transport demand was slower, prompting concerns of a car-led recovery. In early April 2022, traffic volumes were around 10 per cent below their pre-pandemic levels, with bus and Underground demand respectively 20 and 30 per cent below pre-pandemic levels.

Cars (regardless of their emissions) take up a lot of road space relative to the number of people they move. The MTS outlines the Healthy Streets Approach, which is designed to put human health and experience at the heart of planning a city. Reducing car dependency

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<sup>15</sup> [https://www.london.gov.uk/sites/default/files/nz2030\\_element\\_energy\\_final.pdf](https://www.london.gov.uk/sites/default/files/nz2030_element_energy_final.pdf). The Mayor's preferred pathway is the 'accelerated green' scenario

<sup>16</sup> Heatwave mortality monitoring – Summer 2018, PHE, 2018: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/942648/PHE\\_heatwave\\_report\\_2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/942648/PHE_heatwave_report_2018.pdf)

<sup>17</sup> <https://inrix.com/press-releases/2021-traffic-scorecard-uk/>

<sup>18</sup> [Traffic Note 4: Total vehicle delay for London 2019, TfL 2020](#)



is critical to the success of the Approach, which seeks to avoid streets that are congested, noisy and unpleasant to spend time in.

While a transition from petrol and diesel-fuelled vehicles towards zero-emission vehicles will continue to reduce the adverse impacts of tailpipe emissions, these vehicles still produce non-exhaust particulate emissions (e.g. from tyre and brake wear). Addressing air quality therefore means fewer vehicles, as well as cleaner vehicles, on our streets.

Last year, the cost of traffic congestion in London was estimated at £5.1 billion with the average driver losing 148 hours to congestion per year<sup>19</sup>. Nearly two-thirds of the cost of congestion in London can be attributed to delay on the road network in outer London.<sup>20</sup> Congestion also delays vital bus services (discouraging passengers to shift to bus usage), as well as delaying essential freight and servicing trips. It also makes public spaces unpleasant for walking and cycling, and worsens air pollution.

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<sup>19</sup> <https://inrix.com/press-releases/2021-traffic-scorecard-uk/> This figure does not take into account the cost of congestion on bus passengers and bus operating costs.

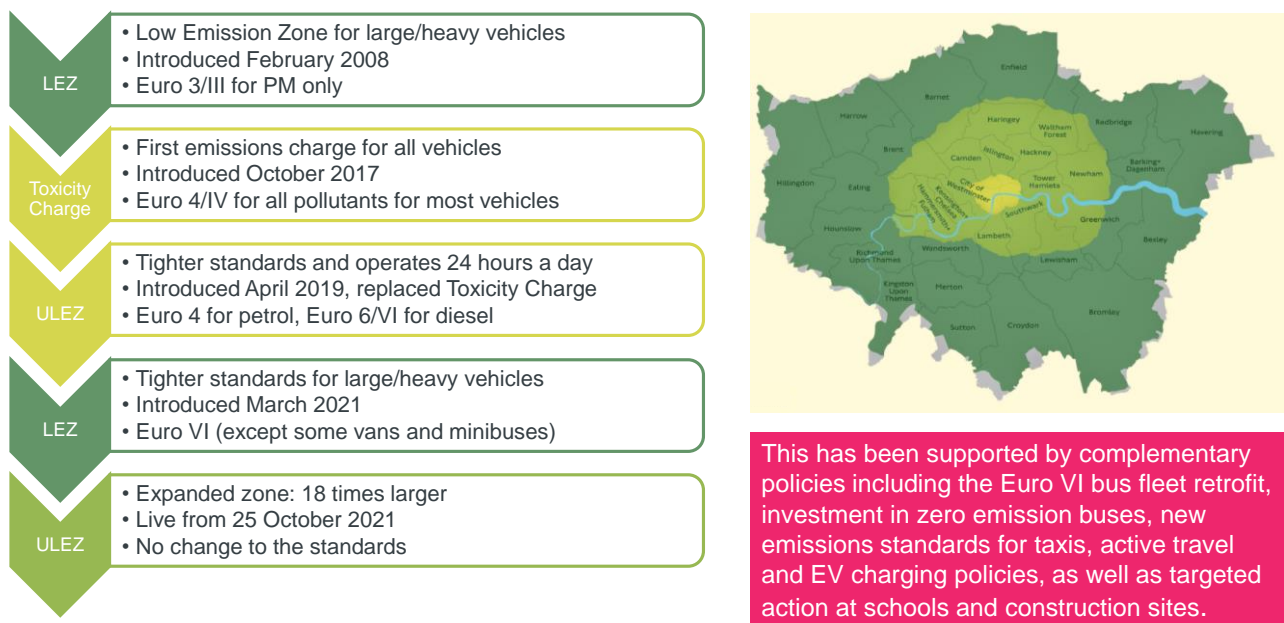
<sup>20</sup> Traffic Note 4: Total vehicle delay for London 2019, TfL 2020

### 3. The Ultra Low Emission Zone

#### History of low emission zones

There have been progressive policies for low emission zones in London, beginning with a focus on heavy vehicles before moving to light vehicles, these are summarised in Figure 1 below.

Figure 1: Policies for low emission zones



The Low Emission Zone (LEZ) for large/heavy vehicles was introduced in February 2008, first requiring heavy goods vehicles over 12 tonnes to meet the Euro III for PM standard, with more vehicle types included and progressively tighter emission standards over time. It covers most of Greater London and operates 24 hours a day, every day of the year including weekends and public holidays. Vehicles need to meet the LEZ emissions standards or pay a daily charge. A map of the LEZ area is shown in Figure 1. It is proposed that the London-wide ULEZ uses the same boundary as the current LEZ.

The first emissions charging scheme to include cars and small vans, was the Toxicity Charge (T-Charge). It was confirmed by the Mayor in February 2017. The T-Charge operated Monday to Friday from 7am – 6pm and mandated a £10 T-Charge on top of the Congestion Charge for motorists driving a pre-Euro 4 vehicle in central London.

Following this, on 8 April 2019 the Mayor launched the world's first ULEZ in central London, replacing the T-Charge with tighter emission standards<sup>21</sup> and operating 24 hours a day and seven days a week.

Under the ULEZ scheme, cars, motorcycles, vans and other specialist vehicles (up to and including 3.5 tonnes) and minibuses (up to and including 5 tonnes) must meet the following minimum exhaust emission standards to travel within the zone or they are required to pay a daily ULEZ charge of £12.50:

- Euro 3 (NO<sub>x</sub>) for motorcycles, mopeds, motorised tricycles and quadricycles.
- Euro 4 (NO<sub>x</sub>) for petrol cars, vans and other specialist vehicles, up to and including 3.5 tonnes gross vehicle weight (GVW) and minibuses, up to and including 5 tonnes GVW.
- Euro 6 (NO<sub>x</sub> and PM) for diesel cars, vans and other specialist vehicles, up to and including 3.5 tonnes GVW and minibuses, up to and including 5 tonnes GVW.

At the launch of the ULEZ in central London, HGVs, vans and specialist heavy vehicles over 3.5 tonnes GVW, as well as buses, coaches and minibuses over 5 tonnes GVW were required to meet Euro VI (NO<sub>x</sub> and PM). These vehicles are also subject to London-wide Low Emission Zone (LEZ) standards across Greater London.

On 1 March 2021, the Mayor tightened LEZ standards across London for heavy vehicles with HGVs, buses and coaches required to meet the ULEZ, Euro VI (NO<sub>x</sub> and PM) emissions standards or pay a daily charge.

The LEZ daily charge is £100 for heavy vehicles that do not meet Euro VI (NO<sub>x</sub> and PM) but meet Euro IV (PM), £300 for heavy vehicles that do not meet Euro IV (PM) and £100 for larger vans (up to 3.5t GVW) and minibuses that do not meet Euro 3. If the standards are not met and a LEZ charge is not paid, a penalty charge notice may be issued. The LEZ penalty charge is £1,000 for heavy vehicles that meet Euro IV (PM) but do not meet Euro VI (NO<sub>x</sub> and PM), £2,000 for heavy vehicles that do not meet Euro IV (PM) and £500 for larger vans and minibuses (reduced to £500, £1,000 and £250 respectively if paid within 14 days).

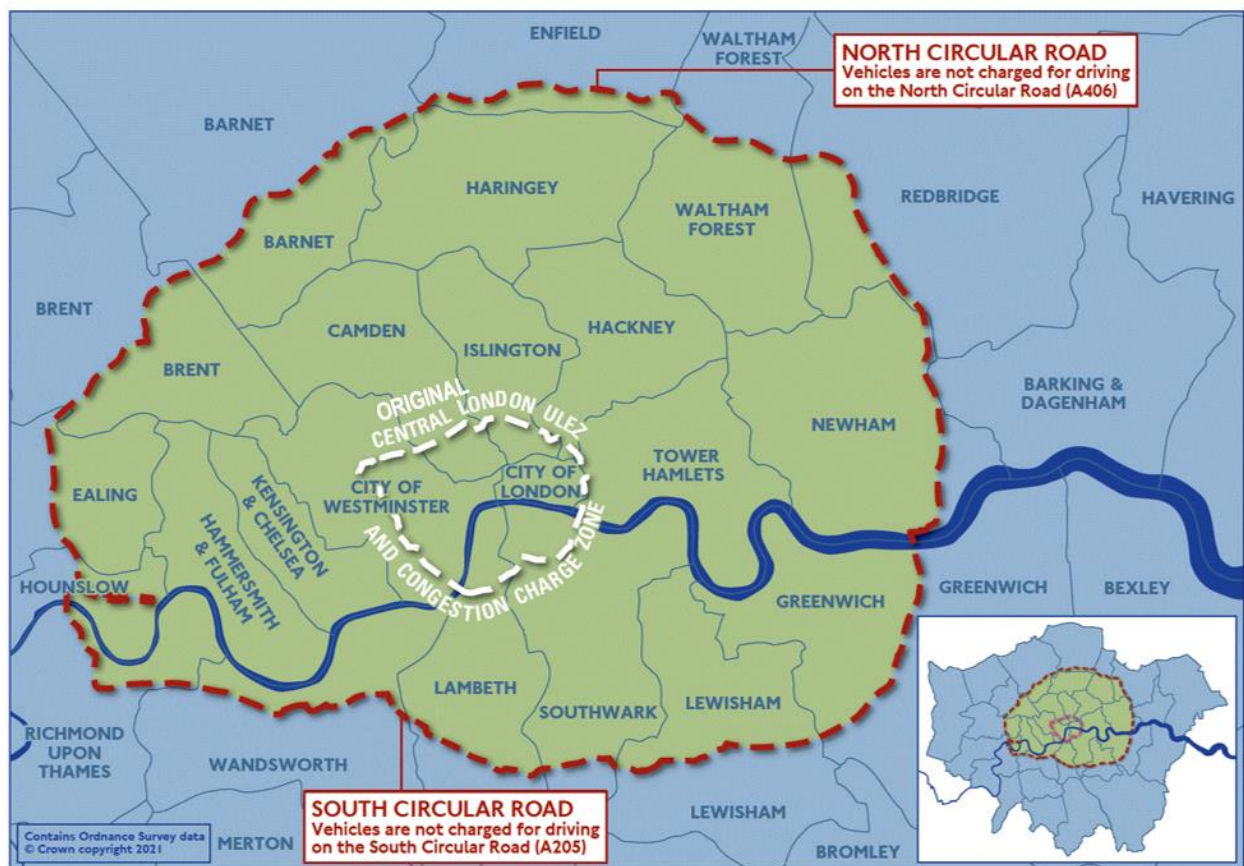
On 25 October 2021, the Mayor expanded the ULEZ from central to inner London: up to, but not including, the North and South Circular Roads. The zone is now 18 times larger

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<sup>21</sup> As a basis TfL's scheme uses the standardised European "Euro" emissions standards rating as the basis for measuring and defining a vehicle's exhaust emissions. They are used to define the acceptable limits for exhaust emissions under ULEZ and LEZ. Euro standards for light vehicles use an Arabic numeral (e.g. Euro 5); those for heavy vehicles use a Roman numeral (e.g. Euro V).

than before with nearly four million people living in the zone. Measuring 380km<sup>2</sup>, it covers one quarter of London and is the largest zone of its kind in Europe. A map showing the current inner London area of the ULEZ is shown in Figure 2.

Figure 2: Existing ULEZ





A map showing the LEZ boundary and evolution of the ULEZ scheme is shown below in Figure 3.

Figure 3: Current LEZ and ULEZ boundary

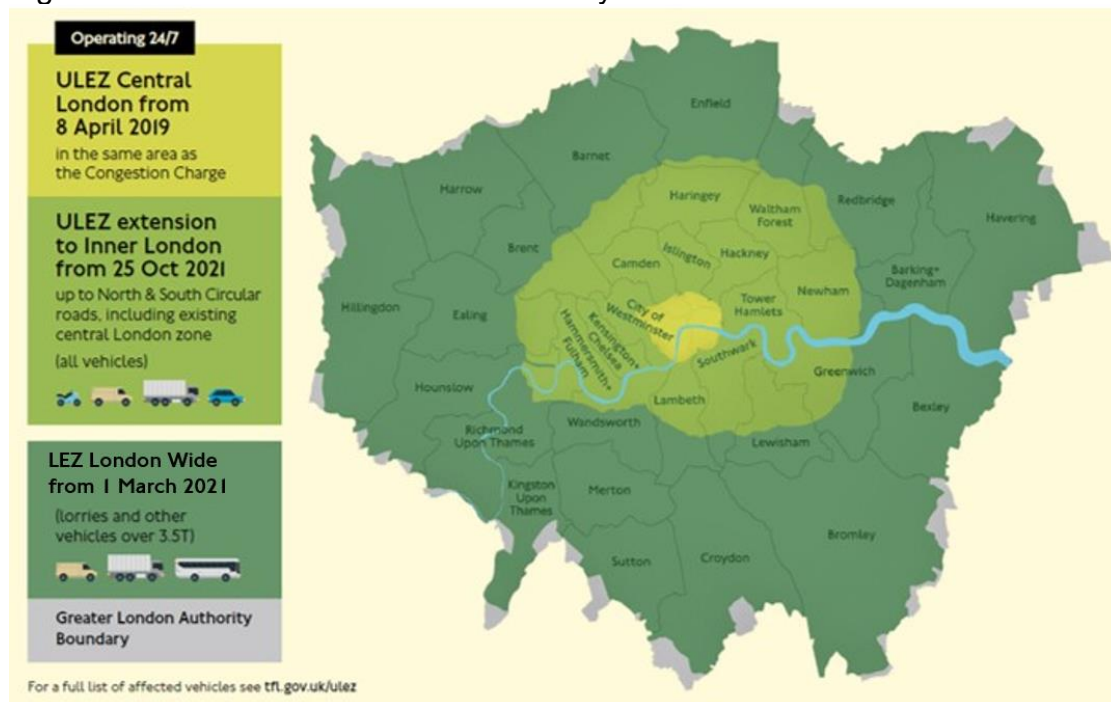


Table 1 summarises the way emissions standards have changed for large and heavy vehicles.

Table 1: Emissions standards for large and heavy vehicles over time

	LEZ standards: London wide		T-charge/ULEZ standards: central London	
Date	Standard for HGVs, buses and coaches	Standard for larger vans and minibuses	Standard for HGVs, buses and coaches	Standard for larger vans and minibuses
2008*	Euro III (PM only)	N/A	N/A	N/A

January 2012	Euro IV (PM only)	Euro 3 (PM only)	N/A	N/A
October 2017			Euro IV (PM and NO <sub>x</sub> )	Euro 4 (PM and NO <sub>x</sub> )**
April 2019			Euro VI (PM and NO <sub>x</sub> )	Euro 4 for petrol vehicles and Euro 6 for diesel (PM and NO <sub>x</sub> )***
March 2021	Euro VI (PM and NO <sub>x</sub> )		N/A	

\*February 2008 for HGVs over 12 tonnes, July 2008 for HGVs over 3.5 tonnes, buses and coaches

\*\* T-charge standards for larger vans and minibuses were petrol Euro 4 (NO<sub>x</sub> only) and diesel Euro 4 (PM and NO<sub>x</sub>). The standards were only applied during congestion charge hours (Monday – Friday 7am – 6pm)

\*\*\* On 25 October 2021 the ULEZ expanded up to the North and South Circular Roads. The standards remained the same.

There are a small number of exemptions to the ULEZ charges for the following vehicle types:

- Military vehicles
- Showman's vehicles
- Vehicles not constructed or adapted for general use on the roads (e.g. mobile cranes)
- Historic tax class vehicles or vehicles constructed prior to 1 January 1973
- London-licensed taxis, as they are subject to separate emissions standards

For a temporary period (sometimes known as a 'grace period' or a 'sunset period') some vehicle types not meeting the ULEZ emissions standards do not pay any charges, giving them longer to meet them:

- Vehicles with 'disabled' and 'disabled passenger vehicle' tax class
- Minibuses operated by not-for-profit organisations
- Wheelchair accessible Private Hire Vehicles (PHVs)

NHS patients who are clinically assessed as too ill, weak or disabled to travel to an appointment on public transport, or at moderate or at high risk of coronavirus during a

pandemic, can claim back any ULEZ charge and Congestion Charge paid for journeys to receive NHS treatment. Claims are reimbursed by participating NHS Trusts.

The Mayor provided £61m of funding in various stages from February 2019 for a vehicle “scrappage scheme”, targeted at small businesses, charities, Londoners on low incomes and disabled Londoners, to help them adapt to the ULEZ, resulting in the removal of over 15,200 polluting non-ULEZ standards compliant vehicles from London’s roads. The scheme closed on 24 November 2021 after all funding was claimed.

Table 2: Scrappage scheme data

Vehicle type	Grant level	Vehicles scrapped
Cars	£2,000	9,660
Motorcycles	£1,000	52
Vans and minibuses	£7,000 to scrap, or scrap and replace with a Euro 6 vehicle £9,500 to scrap and replace with an electric vehicle	5,200
HGVs, buses or coaches	£15,000 to scrap or retrofit	123 (11 retrofits)

## Previous ULEZ consultations

Each development of the ULEZ scheme has been the subject of consultation with stakeholders and the public. These have shaped the development of the scheme today. Table 3 details the previous consultations on ULEZ and outlines their purpose and dates.

Reports and documentation for all consultations can be found here:  
<https://tfl.gov.uk/corporate/publications-and-reports/ultra-low-emission-zone>.

Table 3 Previous ULEZ public and stakeholder consultations

Date of Consultation	Purpose
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27 October 2014 – 9 January 2015	The first public consultation on the ULEZ in central London. After considering the feedback from the consultation, the previous Mayor approved the proposal for the Ultra Low Emission Zone (ULEZ) which would have set new exhaust emissions standards and a daily non-compliance charge to encourage cleaner vehicles to drive in central London from September 2020. This was confirmed in March 2015.
1 July 2015 - 25 August 2015	Consultation on updated ULEZ taxi and PHV licensing proposals, which were confirmed in October 2015.
5 - 29 July 2016	The current Mayor (elected May 2016) launched an engagement exercise on the Talk London website on initial ideas to tackle air quality in line with his manifesto commitments to bring forward the start of ULEZ in central London and to extend it to inner London <sup>22</sup> .
10 October– 18 December 2016	Consultation proposals to introduce the Emissions Surcharge (T-Charge) and how ULEZ could be improved, including the potential to bring forward the start date of the ULEZ in central London and expanding it to inner London.
4 April–25 June 2017	Consultation on proposals to introduce the central London ULEZ in April 2019, 16 months earlier than originally planned. It also included proposals to strengthen the ULEZ emissions standards to include particulate matter.
21 June 2017 - 2 October 2017	Consultation on Mayor's Transport Strategy, including proposals for the early introduction of ULEZ and its expansion covering inner London
30 November 2017 – 28 February 2018	Consultation on proposals to tighten the Low Emission Zone (LEZ) heavy vehicle standards (London-wide) from 26 October 2020 <sup>23</sup> and to extend the ULEZ from central to inner London from 25 October 2021.
20 May 2022 – 29 July 2022	This consultation on the proposal to extend the ULEZ to apply London-wide

<sup>22</sup> See <http://data.london.gov.uk/dataset/clean-air-consultation-july-2016>

<sup>23</sup> This was subsequently delayed until 1 March 2021



## Impacts of the previous and current LEZ and ULEZ schemes

### *Low Emission Zone*

It has been hugely successful in reducing PM emissions from heavy vehicles and helped to bring London into compliance with PM<sub>10</sub> legal limits, as well as reducing NO<sub>x</sub> emissions. The LEZ was assessed to have reduced emissions from London vehicles including significant reductions of emissions from London's buses, together these contributed to London's ability to meet legal limits for PM<sub>10</sub>.

### *Central London ULEZ*

Following the introduction of the ULEZ in central London in April 2019, there have been considerable improvements in air quality both within and outside the central zone. The compliance rate is the percentage of vehicles detected in the zone that meet the emission standard.

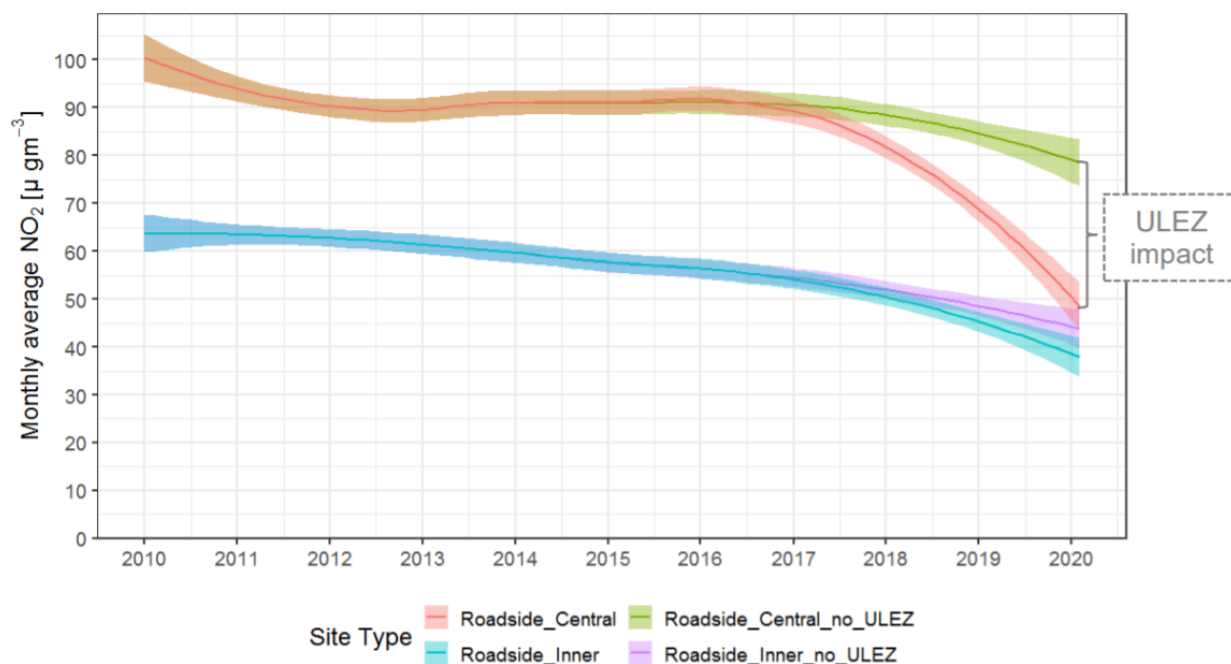
In February 2017, when the scheme was first announced, the compliance rate was 39 per cent. Immediately before the ULEZ came into force (March 2019), the compliance rate had risen to 61 per cent (during congestion charging hours). By January 2020 the compliance rate in congestion charging hours was 77 per cent. There was also a reduction in the total volumes of non-compliant vehicles entering the zone. From March 2019 to January 2020, there was a 49 per cent reduction in the total number of non-compliant vehicles detected in the zone in congestion charging hours.<sup>24</sup>

Concentrations of NO<sub>2</sub> at roadside sites in the central zone in February 2020 were 39 µg/m<sup>3</sup> less than in February 2017, which is a reduction of 44 per cent. Figure 4 shows the impact of the ULEZ on NO<sub>2</sub> trends at roadside sites.

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<sup>24</sup> Central London ULEZ- Ten Month Report  
<https://tfl.gov.uk/corporate/publications-and-reports/ultra-low-emission-zone>. Congestion Charging hours were 7am – 6pm on weekday from March 2019 to January 2020

Figure 4: Trends in NO<sub>2</sub> in central and inner London compared to a no ULEZ scenario



The reduction in NO<sub>2</sub> in the central zone contributed to a reduction in the number of state schools in areas exceeding limits for NO<sub>2</sub> from 450 in 2016 to just 20 in 2019<sup>25</sup>.

#### *Inner London ULEZ (current scheme)*

The expansion of the ULEZ to inner London (up to the North and South Circular Roads) in October 2021 extended the benefits of the central London scheme. TfL had already ensured in January 2021 that the main bus network met the same emissions standard as the ULEZ – all buses in operation were Euro VI or cleaner.

Compliance two weeks prior to launch was 87 per cent compared to 39 per cent in February 2017 when the plans for the larger area were first announced. This huge rate of pre-commencement compliance was in part the result of TfL's far reaching information campaign to raise awareness of the scheme before it came into operation. More than one million letters were sent to those seen driving in the area with non-compliant vehicles and more than 600,000 leaflets were sent to residents living close to the boundary. Four million emails were sent to people on TfL's customer database, and there was an extensive advertising campaign spanning radio, TV, posters, press, social media and online.

<sup>25</sup> <https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2019>

The benefits continued to increase once the scheme was in operation. The Expanded ULEZ First Month Report stated that compliance increased to 92 per cent in its first month of operation. Also, compared to two weeks before expansion there was a 37 per cent reduction in non-compliant vehicles, equating to 47,000 fewer non-compliant vehicles per day.<sup>26</sup>

On an average weekday there were also 11,000 fewer vehicles driving each day in the zone. This equates to a one per cent reduction although it will take more time for settled traffic patterns to emerge post-launch and these will be further reported on in future.

## **Interaction with road user charging schemes**

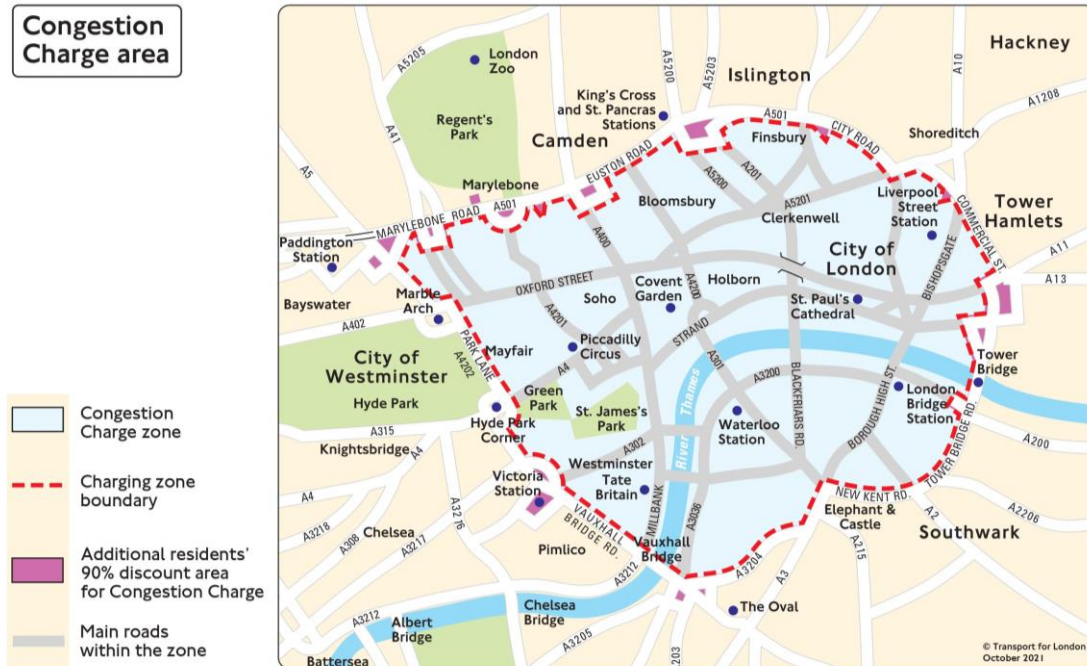
### *Congestion Charge*

The Congestion Charge aims to reduce congestion within a specified area of central London. The charge operates between 07:00 and 18:00 on weekdays and between 12:00 and 18:00 at weekends and on bank holidays. There is no charge between Christmas Day and New Year's Day bank holiday (inclusive). The charge is currently set at £15. A map of the Congestion Charge Zone (CCZ) is shown in figure 5.

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<sup>26</sup> [https://www.london.gov.uk/sites/default/files/ulez\\_first\\_month\\_report\\_december\\_2021.pdf](https://www.london.gov.uk/sites/default/files/ulez_first_month_report_december_2021.pdf)

Figure 5: Congestion Charge Zone (CCZ)



The scheme requires that a charge must be paid for each day on which a vehicle is kept or used in the CCZ during the charging hours. The Congestion Charge has a number of discounts and exemptions, for example a 90 per cent discount for registered residents. Generally, customers have to register for a discount and provide proof of eligibility. Exemptions, however, are usually automatically applied.

The Congestion Charge was first introduced in central London in February 2003, following extensive public and stakeholder consultation. The scheme aims to reduce traffic and congestion in central London by reducing the number of vehicles that enter the CCZ during charging hours.

Following its introduction, the Congestion Charge was very effective in reducing traffic and congestion in the CCZ. There was a 30 per cent reduction in congestion within the CCZ, and a 15 per cent reduction in circulating traffic. In addition, by reducing the overall volumes of traffic within the CCZ and increasing the efficiency of circulating traffic, the Congestion Charge was responsible for a reduction in emissions. This equated to approximately a 12 per cent emissions reduction of both NO<sub>x</sub> and PM<sub>10</sub> from road traffic and 20 per cent reduction in emission of CO<sub>2</sub> from road traffic, based on a 24-hour annual average day.



### *Silvertown and Blackwall Tunnel Schemes*

As part of the delivery of the Silvertown Tunnel, which is scheduled to open in 2025, drivers will pay a charge for using the Blackwall and Silvertown Tunnels. The exact charge levels for various types of vehicles using the new tunnel will be decided closer to the opening date, in accordance with the conditions set out in the Development Consent Order (DCO), which enables the construction of the Silvertown Tunnel.

This user charge will pay for building and maintaining the tunnel - but its main purpose is to manage traffic levels and the associated environmental, social and economic impacts. This is a legal requirement set out in the DCO. Any surplus revenue will be reinvested in delivery of the MTS.

## 4. Case for new proposals

### The Mayor's Transport Strategy

The Mayor's Transport Strategy (MTS), published in March 2018, outlines the Mayor's vision for transport in London, and sets out the policies and proposals that will contribute to achieving it. The overarching aim of the MTS is to reduce Londoners' dependency on cars and to increase the active, efficient and sustainable (walking, cycling and public transport) mode share of trips in London to 80 per cent by 2041. An increase in the number of journeys made by sustainable modes, alongside a reduction in private car use, will not only support the overarching aim of the MTS but is also key to addressing poor air quality, the climate emergency and traffic congestion.

The MTS sets out the Mayor's objective to reduce harmful air pollution from road transport. It explains that air pollution can exacerbate health conditions and shorten the lives of Londoners. It further notes that the communities suffering the most from poor air quality are often the most vulnerable in society. The ULEZ contributes to addressing these challenges and is supported by policies set out in the MTS.

Policy 6 of the MTS states:

*"The Mayor, through TfL and the boroughs, and working with stakeholders, will take action to reduce emissions – in particular diesel emissions – from vehicles on London's streets, to improve air quality and support London reaching compliance with UK and EU legal limits as soon as possible. Measures may include retrofitting vehicles with equipment to reduce emissions, promoting electrification, road charging, the imposition of parking charges/levies, responsible procurement, the making of traffic restrictions/ regulations and local actions."*

The MTS also has a proposal which relates directly to the ULEZ, Proposal 24, which states:

*The Mayor, through TfL will seek to introduce the central London Ultra Low Emission Zone (ULEZ) standards and charges in 2019, tighter emissions standards London-wide for heavy vehicles in 2020, and an expanded ULEZ covering inner London in 2021.*

Proposal 24 has, in effect, served its purpose with each of the measures mentioned having been implemented. It does not provide for the extension of ULEZ London-wide which is one of the proposals being consulted on.

TfL and the Mayor have taken account of the effects of the existing ULEZ and the tightened LEZ standards as well as the need to go further to address the triple challenges faced by Londoners when developing new proposals.

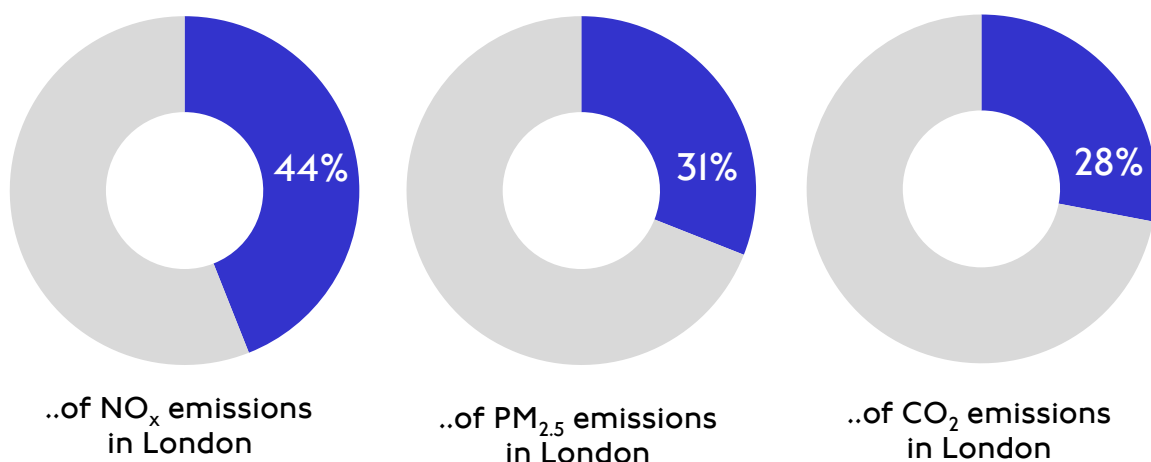
Therefore, as part of this consultation we are seeking views on making a limited amendment to the MTS to provide for a new proposal that will help London take the next steps in addressing the triple challenges and achieving the MTS' overarching aims. Further detail on this is provided below and the proposed revision is a separate document on the consultation website, which can be found [here](#).

## Reducing vehicle emissions and resulting pollution

The challenges of air pollution, climate change and traffic congestion mean we need to urgently reduce road transport emissions and traffic in London. Despite recent improvements in air quality, air pollution in London remains the biggest environmental risk to the health of all Londoners.

Figure 6 Road transport emissions as a proportion of total emissions

Road transport accounts for...



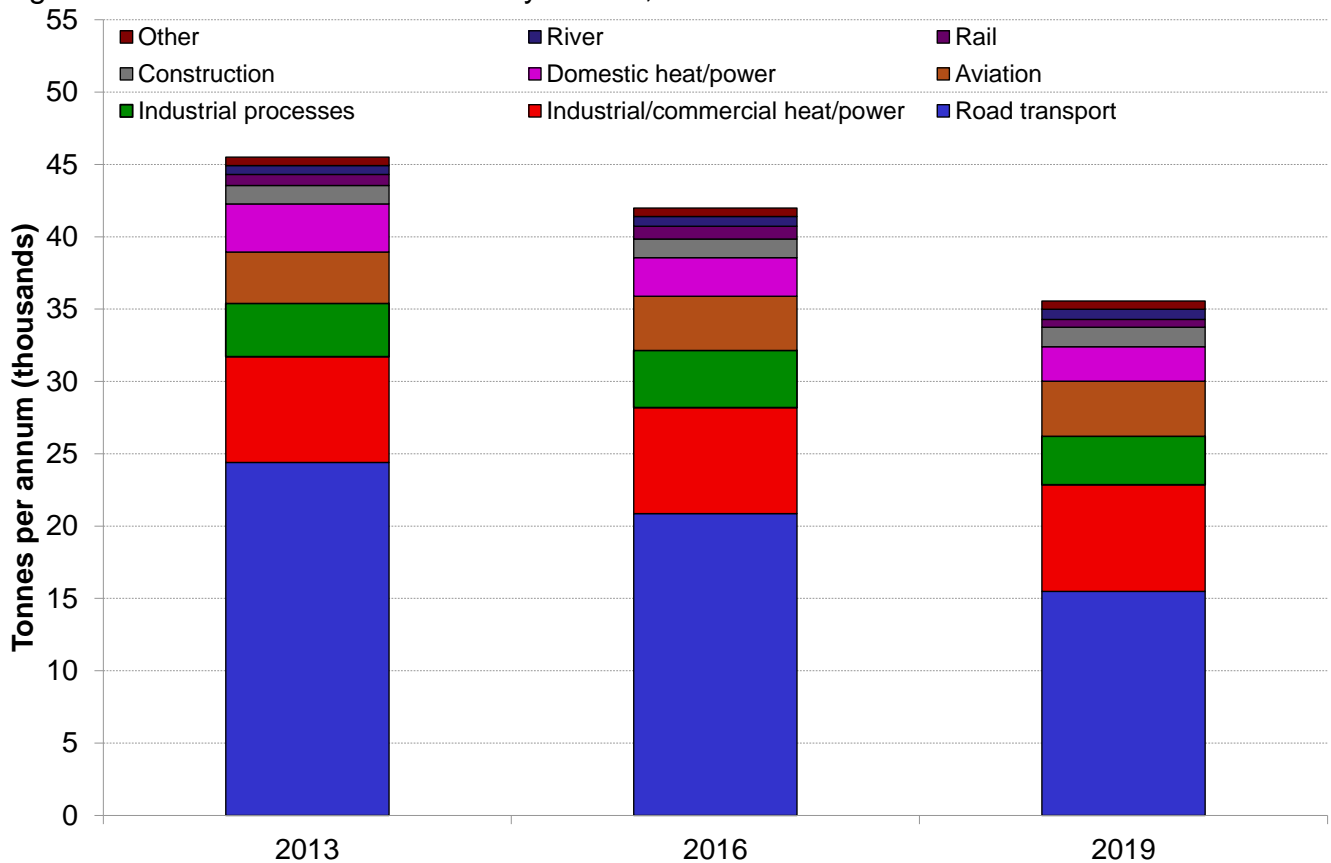
Source: London Atmospheric Emissions Inventory (LAEI), 2019

London-wide NO<sub>x</sub> emissions decreased by 18 per cent between 2016 and 2019. The main reduction in emissions came from road transport, which were 31 per cent lower in 2019 compared to 2016. However, road transport remains the predominant source of NO<sub>x</sub> emissions in London (figure 7).

Between 2016 and 2019, PM<sub>2.5</sub> emissions from road transport reduced by 14 per cent. This is higher than the overall reduction in PM<sub>2.5</sub> emissions from all combined sources over the same time period (a reduction of five per cent). However, road transport still contributes a substantial proportion of PM<sub>2.5</sub> emissions. In 2016, road transport accounted for 33 per cent of PM<sub>2.5</sub> emissions and in 2019 this had only fallen slightly to 31 per cent.

The expansion of the ULEZ to the North and South Circular Roads, along with cleaning up the bus and taxi fleets are expected to reduce PM<sub>2.5</sub> emissions from road transport. However, the dominant proportion of road transport emissions are now non-exhaust emissions including tyre and brake wear along with road wear and resuspension of particles as vehicles travel on roads, which also contributes to London's particulate emissions. Therefore, is it essential to also reduce the number of trips made by motor vehicles and enable more walking, cycling and public transport where possible (modal shift).

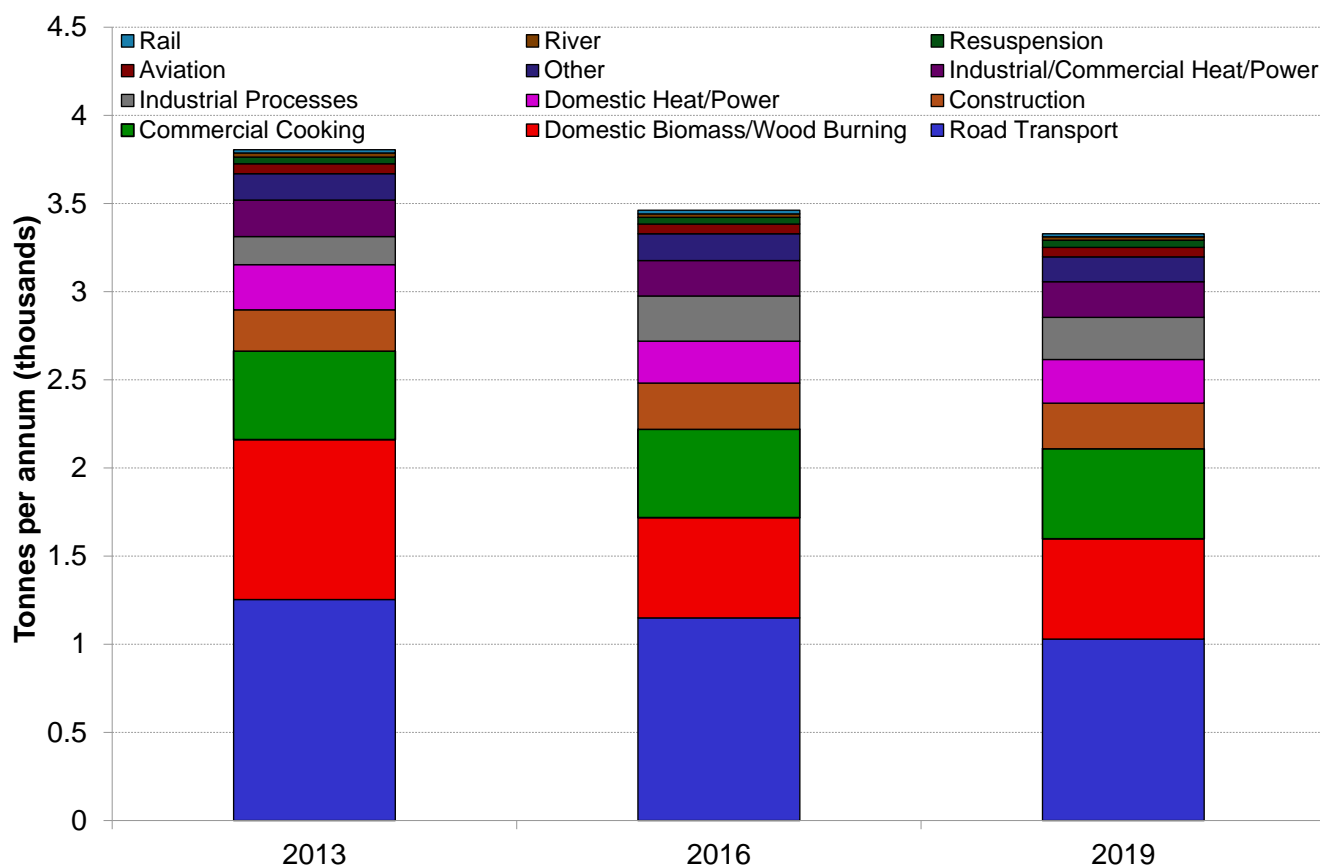
Figure 7: NO<sub>x</sub> emissions in London by source, 2013-2019



Source: LAEI



Figure 8: PM<sub>2.5</sub> emissions in London by source, 2013-2019



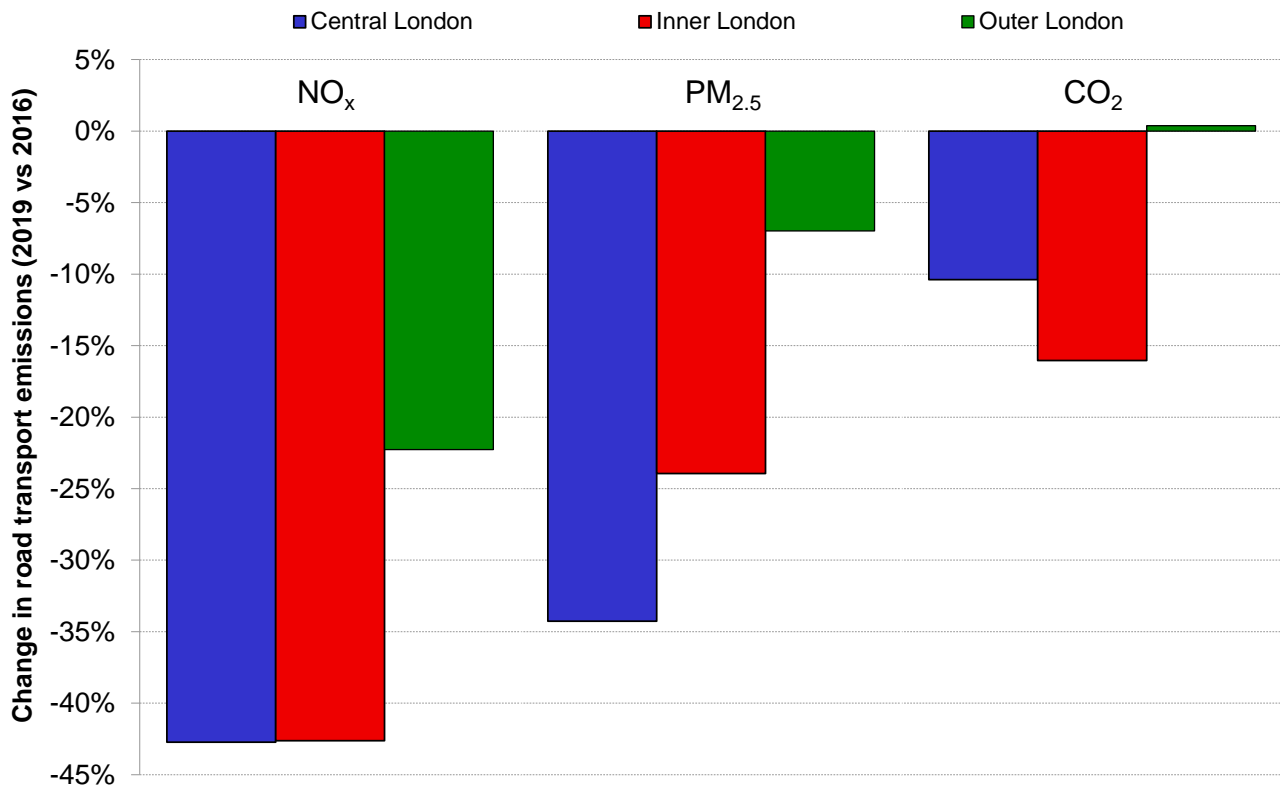
Source: LAEI

## Emissions in outer London

The reduction in NO<sub>x</sub> emissions from road transport since 2013 has not happened equally across London. Inner London road transport NO<sub>x</sub> emissions halved between 2013 and 2019. Comparatively, outer London NO<sub>x</sub> emissions from road transport fell by 31 per cent over the same time period, and in 2019 accounted for 28 per cent of London-wide NO<sub>x</sub> emissions. Similarly, PM<sub>2.5</sub> emissions from road transport fell by almost a quarter in inner London between 2016 and 2019, whereas in outer London they fell by seven per cent. As a result, outer London therefore accounts for an increasing proportion of NO<sub>x</sub>, PM<sub>2.5</sub> and CO<sub>2</sub> emissions from road transport and more needs to be done to ensure improvements in air quality are felt by all Londoners. In 2019, outer London accounted for 64 per cent of London-wide road transport NO<sub>x</sub> and CO<sub>2</sub> emissions, and 65 per cent of London-wide road transport PM<sub>2.5</sub> emissions.

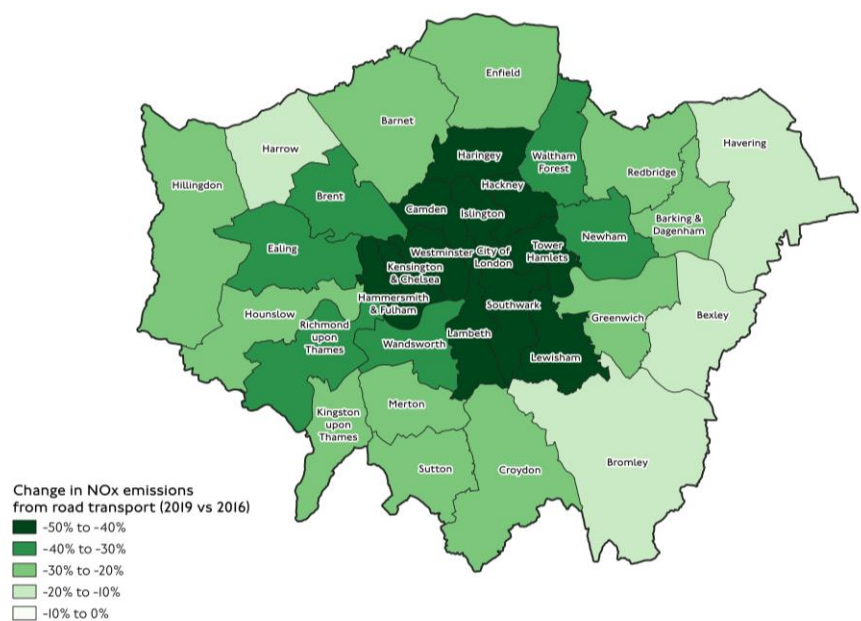
Figure 9 shows the success of schemes to improve air quality in central and inner London between 2016 and 2019; however, this also demonstrates that reductions in toxic emissions in outer London have been slower than in the rest of London. Reductions in NO<sub>x</sub>, PM<sub>2.5</sub> and CO<sub>2</sub> emissions from road transport between 2016 and 2019 are shown by borough in figures 10 to 12, further demonstrating the disparity in emissions improvements between inner and outer London.

Figure 9: Change in NO<sub>x</sub>, PM<sub>2.5</sub> and CO<sub>2</sub> emissions from road transport by spatial area, 2019 vs 2016



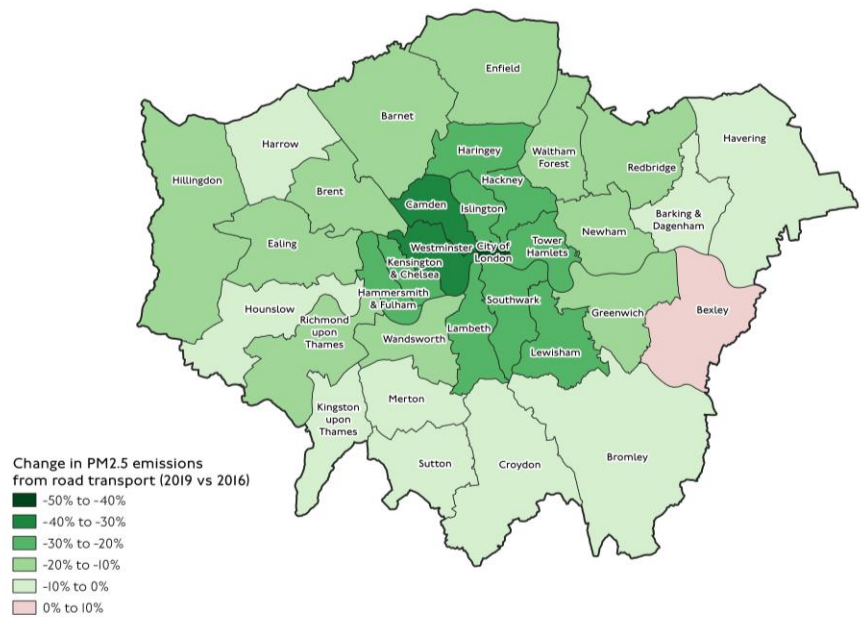
Source: LAEI

Figure 10 Change in NO<sub>x</sub> emissions from road transport by borough (2019 vs 2016)



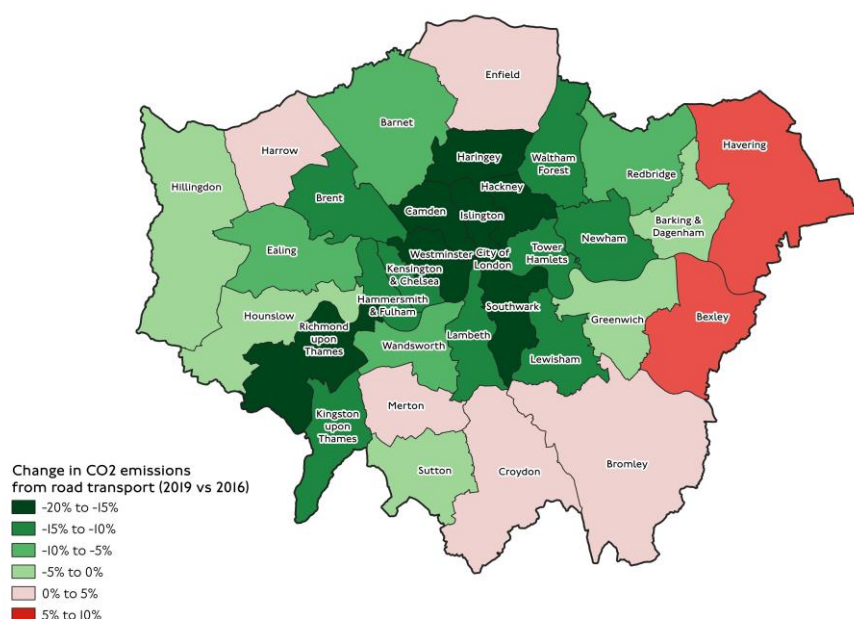
Source: LAEI

Figure 11 Change in PM<sub>2.5</sub> emissions from road transport by borough (2019 vs 2016)



Source: LAEI

Figure 12 Change in CO<sub>2</sub> emissions from road transport by borough (2019 vs 2016)



Source: LAEI

## Updated World Health Organization guidelines

In September 2021, the WHO updated its recommended guidelines for air pollutants<sup>27</sup>. These guidelines reflect the overwhelming evidence of the health impacts of air pollution, even at low levels. In addition to the guidelines, the WHO has also provided interim targets aimed at promoting a gradual shift from high to lower concentrations in locations where air pollution is particularly high. The updated guidelines, interim targets and the UK's current legally binding air quality limits (which require compliance as soon as possible but by or before 2025) are shown in Table 4.

<sup>27</sup> [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health#:~:text=Guideline%20values,-NO&text=The%20current%20WHO%20guideline%20value,effects%20of%20gaseous%20nitrogen%20dioxide.](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health#:~:text=Guideline%20values,-NO&text=The%20current%20WHO%20guideline%20value,effects%20of%20gaseous%20nitrogen%20dioxide.)



The UK government is now consulting on new legal limits for PM<sub>2.5</sub> and the Mayor has made the case for these to be aligned with the new interim WHO targets and for the legal limit for NO<sub>2</sub> to be updated as well<sup>28</sup>.

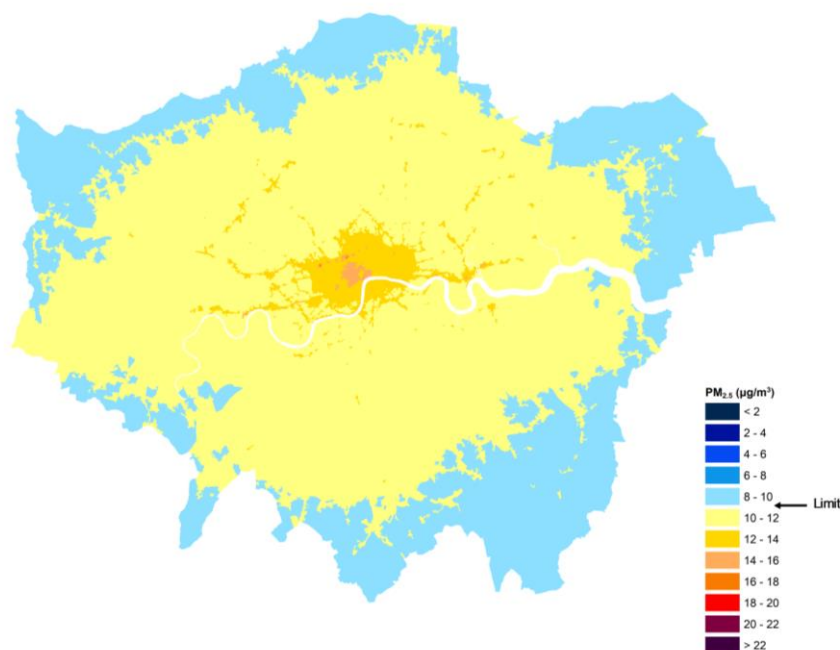
Table 4: Recommended WHO 2021 air quality guideline levels compared to interim targets and UK limits

Pollutant	2010 Air Quality Limits	WHO Interim target*				2021 WHO Air Quality Guideline
		1	2	3	4	
PM <sub>2.5</sub> µg/m <sup>3</sup>	25	35	25	15	10	5
PM <sub>10</sub> µg/m <sup>3</sup>	40	70	50	30	20	15
NO <sub>2</sub> µg/m <sup>3</sup>	40	40	30	20	-	10
*WHO interim targets are proposed as incremental steps in a progressive reduction of air pollution and intended for use in areas where pollution is high						

All London residents live in areas that are within the PM<sub>2.5</sub> UK legal limits (25 µg/m<sup>3</sup>), as shown in Figure 13. However, more needs to be done to reduce the significant number of Londoners which live in areas exceeding the lowest WHO interim target of 10 µg/m<sup>3</sup> (Table 5) and the even lower guideline of 5 µg/m<sup>3</sup>. Although there has been a reduction in Londoners living in areas of exceedance since 2016, 88 per cent of Londoners still live in areas which do not meet the lowest interim target (10 µg/m<sup>3</sup>), and all Londoners live in locations where concentrations exceed the guideline limit of 5 µg/m<sup>3</sup>.

<sup>28</sup> <https://content.tfl.gov.uk/next-steps-for-reducing-emissions-from-road-transport.pdf>

Figure 13: Annual mean PM<sub>2.5</sub> concentrations, 2019



Source: LAEI

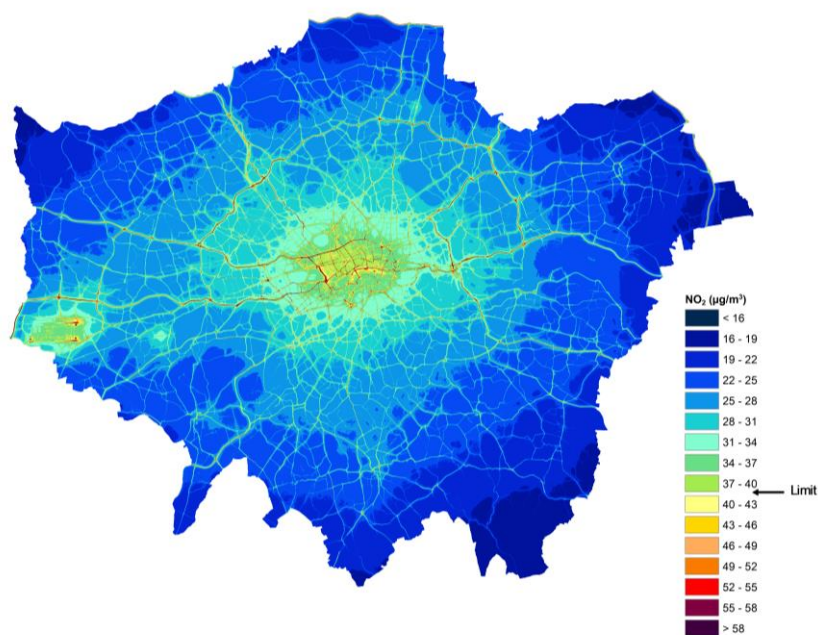
Table 5: London residents living in areas of PM<sub>2.5</sub> exceedance by concentration level

PM <sub>2.5</sub> concentration	London residents living in areas of exceedance		Proportion of population living in areas of exceedance	
	2016	2019	2016	2019
15 µg/m <sup>3</sup>	259,300	6,000	3%	0.1%
10 µg/m <sup>3</sup>	8,798,900	7,962,700	100%	88%
5 µg/m <sup>3</sup>	8,798,900	9,082,700	100%	100%

Source: LAEI

There has been a significant reduction in the number of London residents who live in areas which exceed the UK legal limits (40 µg/m<sup>3</sup>) for NO<sub>2</sub> since 2016, with fewer than two per cent of Londoners (around 170,000) living in areas of exceedance in 2019 (Table 6). However, almost a third of London residents live in areas which exceed 30 µg/m<sup>3</sup>, the level 2 interim target set by the WHO, and all Londoners live in areas which exceed the guideline limit of 10 µg/m<sup>3</sup>. It is clear that more needs to be done to reduce the number of Londoners living in areas where NO<sub>2</sub> concentrations exceed interim target levels of 30 µg/m<sup>3</sup> and 20 µg/m<sup>3</sup> to minimise the number of Londoners who are regularly exposed to harmful levels of air pollution.

Figure 14: Annual mean NO<sub>2</sub> concentrations, 2019



Source: LAEI

Table 6: London residents living in areas of NO<sub>2</sub> exceedance by concentration level

NO <sub>2</sub> concentration	London residents living in areas of exceedance		Proportion of population living in areas of exceedance	
	2016	2019	2016	2019
40 µg/m <sup>3</sup>	2,065,700	173,700	23%	2%
30 µg/m <sup>3</sup>	7,933,400	2,796,300	90%	31%
20 µg/m <sup>3</sup>	8,798,900	8,995,100	100%	99%
10 µg/m <sup>3</sup>	8,798,900	9,082,700	100%	100%

Source: LAEI

## Health impacts of air pollution

Toxic air pollutants (PM<sub>2.5</sub> and NO<sub>2</sub>) from road traffic, have a damaging impact on Londoners' health, stunting the growth of children's lungs and worsening chronic health conditions such as asthma, lung and heart disease. Not only is this harming the quality and duration of individual lives, it also has wider costs - a recent study estimated that, if no

action is taken to reduce current levels of pollution the cumulative cost of air pollution to the NHS and social care system in London is estimated to be £15.4 billion<sup>29</sup>.

Toxic air pollution is not just a central and inner London problem. The levels of NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> pollution are higher in central and inner London. However, while NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> have all been reducing in London, the rate of reduction has been significantly slower in outer London<sup>30</sup>. For example, the rate of reduction of NO<sub>x</sub> from road transport has been at half the rate in outer London compared to that seen in both central and inner London.

Furthermore, as of 2019, everyone living in outer London (as well as those living in inner London) lived in areas where NO<sub>x</sub> and PM<sub>2.5</sub> levels exceeded the WHO's guideline rates.

Toxic air pollution also gives rise to the greatest health impacts in outer London. Even though levels of NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> are lower, the greatest share of premature deaths related to poor air quality are in outer London boroughs, due to the higher proportion of older Londoners living in these boroughs. In 2019, the London boroughs with the highest number of premature deaths related to air pollution were Bromley, Barnet, Croydon and Havering.

We know that - alongside other complementary policies such as a clean, ULEZ-compliant TfL bus fleet - implementing the ULEZ in central and inner London has been effective in reducing harmful emissions from road transport. An expansion of the ULEZ can ensure that these air quality improvements are felt across London, and all Londoners can benefit from policies to combat toxic air pollution.

## **Health inequalities relating to air pollution**

Health inequalities are systematic, avoidable and unfair differences in mental or physical health between groups of people. These inequalities typically relate to age, ethnicity and income.

In 2021, a joint TfL/GLA study<sup>31</sup> explored the relationships between air quality and inequalities<sup>32</sup>. The study confirmed earlier findings that communities with higher levels of deprivation, or higher proportions of people from non-White ethnic backgrounds, are more likely to be exposed to higher levels of air pollution.

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<sup>29</sup> [https://www.london.gov.uk/sites/default/files/modelling\\_the\\_long-term\\_health\\_impacts\\_of\\_changing\\_exposure\\_to\\_no2\\_and\\_pm2.5\\_in\\_london\\_final\\_250220\\_-4.pdf](https://www.london.gov.uk/sites/default/files/modelling_the_long-term_health_impacts_of_changing_exposure_to_no2_and_pm2.5_in_london_final_250220_-4.pdf)

<sup>30</sup> <https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2019>

<sup>31</sup> [https://www.london.gov.uk/sites/default/files/air\\_pollution\\_and\\_inequalities\\_in\\_london\\_2019\\_update\\_0.pdf](https://www.london.gov.uk/sites/default/files/air_pollution_and_inequalities_in_london_2019_update_0.pdf)

<sup>32</sup> Using data up to 2019



While there have been improvements in air quality across London, improvements have been slower in more deprived areas. For this analysis PM<sub>2.5</sub> exceedance is based on the WHO interim target 4 (10 µg/m<sup>3</sup>) and NO<sub>2</sub> exceedance is based on WHO interim target 2 (30 µg/m<sup>3</sup>). These levels have been selected as they are the next step on the path to deliver a shift from high concentrations to lower concentrations, and to ultimately work towards meeting WHO guideline levels.

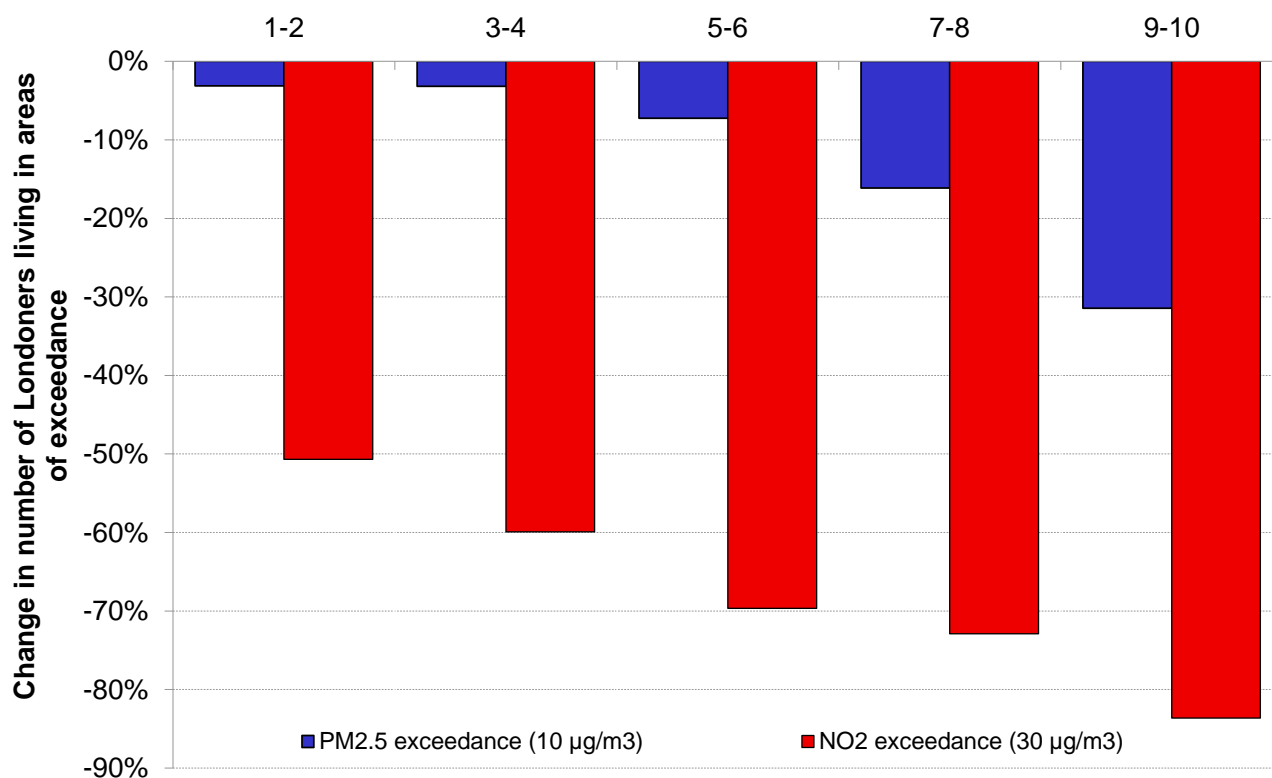
Between 2016 and 2019, Londoners living in areas exceeding the WHO interim target for NO<sub>2</sub> (30 µg/m<sup>3</sup>) fell by 65 per cent London-wide, the ULEZ made a material contribution to this success. However, this improvement was not evenly distributed, with residents living in London's most deprived areas<sup>33</sup> experiencing a 51 per cent reduction, compared to the 84 per cent reduction experienced in London's least deprived areas<sup>34</sup>, as shown in Figure 15. This disparity is also evident when looking at the change in the number of Londoners living in areas which exceed the WHO interim target for PM<sub>2.5</sub> (10 µg/m<sup>3</sup>). In deprived areas, the number of residents living in areas of exceedance fell by just three per cent between 2016 and 2019, whilst the figure for London's least deprived areas was 31 per cent.

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<sup>33</sup> Most deprived 20 per cent nationally, as defined by the Index of Multiple Deprivation

<sup>34</sup> Least deprived 20 per cent nationally, as defined by the Index of Multiple Deprivation

Figure 15: Change in Londoners living in areas of PM<sub>2.5</sub> and NO<sub>2</sub> exceedance by deprivation level, 2019 vs 2016.



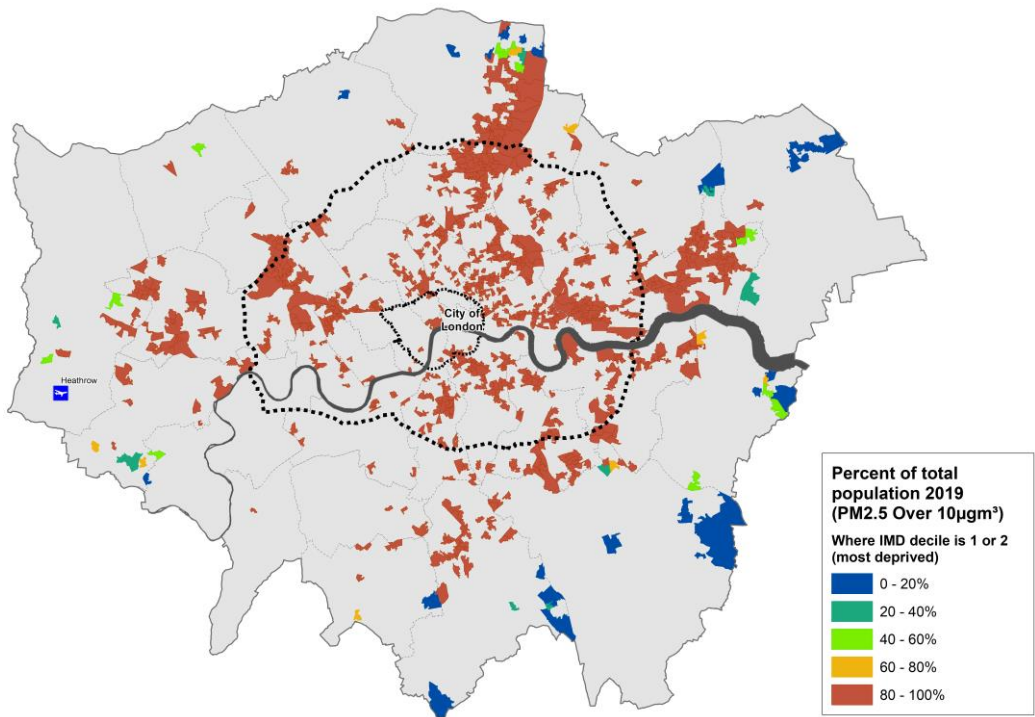
Source: LAEI (2016, 2019), Index of Multiple Deprivation (2019).

Note: Levels of exceedance are 10 µg/m<sup>3</sup> for PM<sub>2.5</sub> (WHO interim target 4) and 30 µg/m<sup>3</sup> for NO<sub>2</sub> (WHO interim target 2).

The inequality of air quality improvements means that Londoners living in more deprived areas continue to be disproportionately impacted by poor air quality. In 2019, 45 per cent of residents living in London's most deprived areas lived in locations exceeding the interim target for NO<sub>2</sub> of 30 µg/m<sup>3</sup>, compared to 12 per cent in London's least deprived areas. Similarly, Figure 16 and Figure 17 show the difference in population exceeding the WHO interim target of 10 µg/m<sup>3</sup> for PM<sub>2.5</sub> in London's most deprived areas, compared to London's least deprived areas.

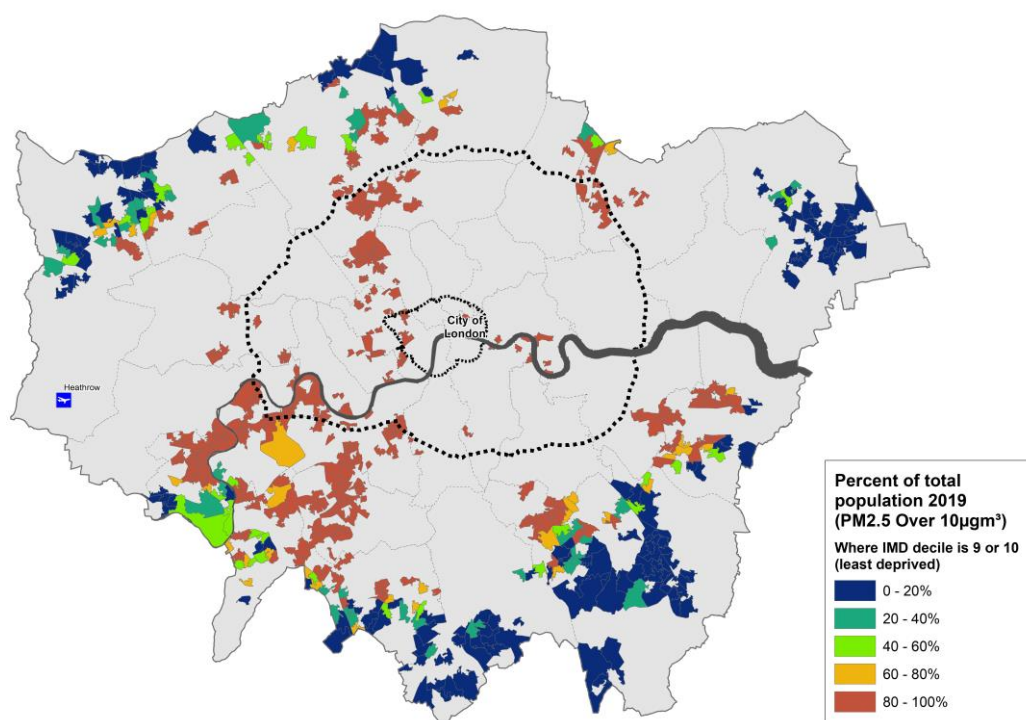
Londoners living in deprived areas are disproportionately exposed to, and impacted by, poor air quality and this situation persists despite overall improvements in air quality across the city. Low-income Londoners, who are less likely to own a car, are among this group which is disproportionately affected.

Figure 16 Population living in areas exceeding  $\text{PM}_{2.5}$   $10 \mu\text{g}/\text{m}^3$  and areas ranked as 20 per cent most deprived



Source: LAEI (2019), IMD (2019)

Figure 17 Population living in areas exceeding PM<sub>2.5</sub> 10 µg/m<sup>3</sup> and areas ranked as 20 per cent least deprived



Source: LAEI (2019), IMD (2019)

## Reducing carbon emissions

We know from experience in central and inner London that the ULEZ is effective in reducing the usage of older, more polluting vehicles which in turn reduces harmful air pollutant emissions and improves air quality and Londoners' health<sup>35</sup>. Most vehicles in London are already compliant with the ULEZ emissions standards; but it is important that the owners of those remaining non-compliant vehicles that are encouraged to switch to walking, cycling or public transport where possible, or use cleaner vehicles, including car club vehicles, for essential journeys. As well as addressing the primary aim of the ULEZ expansion - tackling the key air pollutants described above - this switch will also help to reduce carbon emissions to help tackle the climate emergency and reduce traffic congestion by removing private vehicles from the road.

<sup>35</sup> [https://www.london.gov.uk/sites/default/files/ulez\\_first\\_month\\_report\\_december\\_2021.pdf](https://www.london.gov.uk/sites/default/files/ulez_first_month_report_december_2021.pdf)



We also need to do more to reduce carbon emissions in London. At the national level, the Climate Change Act 2008 requires the UK to achieve a 100 per cent reduction in greenhouse gas levels compared to 1990 levels by 2050.

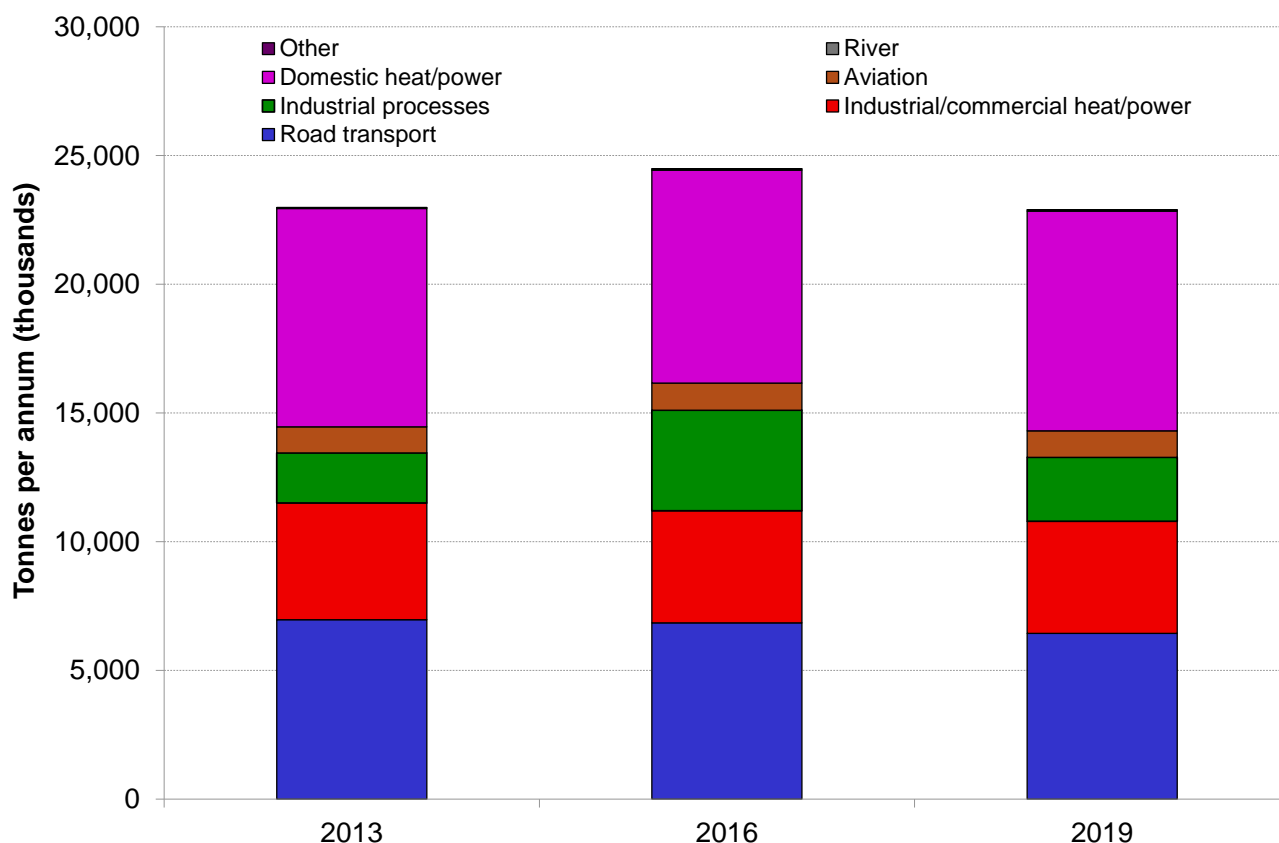
In 2018, the Mayor published his London Environment Strategy and 1.5°C Climate Action Plan. These set out pathways, policies and actions needed to achieve a zero carbon London by 2050. Since then, the science has shown the need for even more urgent action and the stark consequences of failing to act. Recognising this urgency, the Mayor has declared a climate emergency for London and set a target for London to be net zero carbon by 2030. This puts London at the forefront of global cities and UK action on climate change. The 2030 net zero carbon target is central to the London Recovery Board's Green New Deal mission.<sup>36</sup>

Figure 18 shows that between 2016 and 2019 carbon emissions only reduced by six per cent, with the figure for road transport emissions falling by the same amount. In 2019, 28 per cent of carbon emissions were from road transport, which remained unchanged from 2016. It is clear that we need to accelerate the rate at which carbon emissions are reducing in order to achieve net zero by 2030.

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<sup>36</sup> [https://www.london.gov.uk/sites/default/files/london\\_net\\_zero\\_2030\\_-\\_an\\_updated\\_pathway\\_-\\_gla\\_response\\_1.pdf](https://www.london.gov.uk/sites/default/files/london_net_zero_2030_-_an_updated_pathway_-_gla_response_1.pdf)

Figure 18: CO<sub>2</sub> emissions in London by source, 2013-2019



Source: LAEI

As well as addressing the primary aim of the ULEZ expansion - tackling the key air pollutants described above – the expansion of the ULEZ into outer London switch will also help to reduce CO<sub>2</sub> and reduce traffic congestion by a modest amount by removing private vehicles from the road.

We know from experience in central and inner London that the ULEZ is effective in reducing the usage of older, more polluting vehicles which in turn reduces harmful air pollutant emissions and improves air quality and Londoners' health<sup>37</sup>. Most vehicles in London are already compliant with the ULEZ emissions standards; but it is important that the owners of those remaining vehicles that are non-compliant are encouraged to switch to walking, cycling or public transport where possible, or use cleaner vehicles, including car club vehicles, for essential journeys.

<sup>37</sup> [https://www.london.gov.uk/sites/default/files/ulez\\_first\\_month\\_report\\_december\\_2021.pdf](https://www.london.gov.uk/sites/default/files/ulez_first_month_report_december_2021.pdf)

The expansion of the ULEZ to inner London was accompanied by three vehicle scrappage schemes to support this shift which cost a total of £61 million. For the London-wide ULEZ proposal the Mayor is considering a large-scale and targeted vehicle scrappage scheme to support Londoners, including, for example, those on low incomes, disabled people, charities and businesses.

The recent expansion of the ULEZ to inner London also produced a modest overall reduction in vehicle usage. To the extent that the expansion of the ULEZ to outer London achieves a similar effect, it will encourage a modal shift towards renewable means of transport such as walking, cycling or public transport. This modal shift will contribute to reductions in carbon emissions and congestion, which contribute to tackling the climate emergency.

## 5. Development of proposals

### Option development

The previous chapters have shown that while there has already been significant progress in reducing the negative effects of air pollution, there is still a long way to go to achieve the new WHO air quality guideline limits and protect health. The MTS evidence base<sup>38</sup> and further option analysis (considering a wide range of traffic reduction measures, not limited to road user charging schemes) have shown that road user charging policies also have the potential to deliver small but material reductions in carbon emissions and traffic volumes, with associated benefits.

In December 2021, TfL presented the Mayor with a range of road user charging approaches that could be developed in the next few years to tackle emissions and resulting air pollution<sup>39</sup>. The approaches presented to the Mayor were<sup>40</sup>:

- Extending the ULEZ to cover almost all of Greater London (i.e. “London-wide ULEZ”)
- Implementing a low-level daily Clean Air Charge for all but the cleanest vehicles
- A combined ULEZ expansion and Clean Air Charge
- Introducing a Greater London Boundary Charge for vehicles driving into London

A preliminary assessment of the potential of the four approaches was undertaken to understand their impacts, including impacts on air quality, traffic volumes and CO<sub>2</sub> emissions.

The Mayor considered the benefits and drawbacks of each of the four approaches and concluded that the proposal for a London-wide ULEZ in 2023 was the optimal approach to develop further and take to public and stakeholder consultation due to its higher impact on emissions whilst limiting the number of people impacted by the charge. The ULEZ is consistent with the original scheme objective of reducing air pollutant emissions from road transport <sup>41</sup>. We have updated these objectives to reflect current challenges in 2022, and these are listed below.

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<sup>38</sup> <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports#mtsevidence>

<sup>39</sup> <https://content.tfl.gov.uk/next-steps-for-reducing-emissions-from-road-transport.pdf>

<sup>40</sup> “Next generation charging” (London-wide) was also presented to the Mayor for his consideration but would take considerably longer to develop.

<sup>41</sup> <https://content.tfl.gov.uk/ulez-consultation-2014-report-to-the-mayor.pdf> The original ULEZ objectives can be found on page 8.



- Reduce air pollutant emissions from road transport, particularly those with greatest health impacts, to support Mayoral strategies and contribute to achieving compliance at UK legal levels and further than this, meeting World Health Organization interim targets (see Table 4);
- Reduce CO<sub>2</sub> emissions from road transport, to support Mayoral strategies and contribute to the ambition that London will be net zero carbon by 2030; and
- Promote mode shift to sustainable transport and, for those who do need to drive, support Londoners to shift to the cleanest vehicle available.

## **The proposals for consultation**

### ***Expanding the ULEZ London-wide (to the LEZ boundary) from 29 August 2023***

#### *Background and context*

The ULEZ was first introduced in April 2019 in central London and was expanded up to inner London in October 2021. The development of the scheme and air quality benefits are discussed in detail in chapter three.

#### *What is proposed*

To improve air quality in outer London and to reduce emissions as quickly and effectively as possible to protect human health, we are proposing to expand the ULEZ to the current LEZ boundary on 29 August 2023. The LEZ boundary covers 96 per cent of Greater London, is proven to be an effective boundary for the LEZ scheme, has existing signage which could be adapted and would provide drivers with appropriate routes to avoid entering the zone if they do not comply with ULEZ emissions standards. A detailed map of the LEZ boundary can be found [here](#).

The proposed expansion is intended to improve air quality in outer London by encouraging individuals to use sustainable transport or switch to cleaner vehicles, thereby contributing to the reduction in the number of older, more polluting vehicles in London. It will also make a smaller contribution to reducing carbon emissions and congestion. All revenue raised from charges that is not spent on implementation and operational costs would be reinvested to facilitate the delivery of the MTS including in outer London.

A series of exemptions and discounts are in place for the existing ULEZ scheme (*Table 7*).

Table 7 Existing exemptions and discounts

Type	Arrangement description
Exemption for a grace period (until 26.10.25)	'Disabled' and 'disabled passenger' tax class vehicles*
Exemption for a grace period (until 26.10.25)	Wheelchair accessible private hire vehicles (London licensed)
100 per cent discount for a grace period (until 29.10.23)	Minibuses used for community transport
Exemption	London licensed taxis (Reducing emissions from taxis is being achieved through other policies. Since 2018 all London licenced taxis new to licencing are required to be Zero Emissions Capable, and maximum vehicle age limits are applied.)
Exemption	Historic vehicles (those built more than 40 years ago, with a historic tax class), and all vehicles constructed before 01/01/1973
Exemption	Military vehicles
Exemption	Specialist non-road going vehicles (e.g. construction or agricultural vehicles)
100 per cent discount	Showman's vehicles

We propose to extend grace periods in line with those proposed for previous iterations of the scheme to reflect the need for these groups to have time to prepare for the newly charged area in the time available. Some impacts are also expected to be mitigated through a new large-scale and targeted vehicle scrappage scheme to support Londoners.

Table 8 Grace periods

<b>Grace period for...</b>	<b>Number of years at April 2019 launch</b>	<b>Number of years at Oct 2021 launch</b>	<b>Number of years at proposed Aug 2023 launch</b>
Disabled' and 'disabled passenger' tax class vehicles	<b>4.5 years</b> (was due to end Sep 2023)	<b>4 years</b> (was extended to Oct 2025)	<b>4 years</b> (proposed two year extension to 24 Oct 2027)
Wheelchair accessible private hire vehicles	<b>6.5 years</b> (due to end Oct 2025)	<b>4 years</b> (no change to end date)	<b>4 years</b> (proposed two year extension to 24 Oct 2027)
Minibuses used for community transport	<b>N/A</b> (did not exist due to nature of central zone)	<b>2 years</b> (due to end Oct 2023)	<b>2 years</b> (proposed two year extension to 26 Oct 2025)

### ***Removing the annual £10 per vehicle Auto Pay registration fee for the ULEZ, Congestion Charge and LEZ***

#### ***Background and context***

Customers who are registered for Auto Pay are automatically charged for the number of charging days their registered vehicle is used during charging hours within the Congestion Charge Zone, and if it doesn't meet the standards, the LEZ and ULEZ. Customers are billed monthly. Auto Pay for private drivers was introduced in January 2011, with customers able to pre-register from 22 November 2010. A scheme for fleets was available from the start of the Congestion Charge in 2003 (later replaced by Fleet Auto Pay).

The benefit of Auto Pay (for both fleet and private vehicles) is that it removes the risk of customers being issued with a Penalty Charge Notice (PCN) for non-payment if their registered vehicle is driven within a charging zone during charging hours and they forget to pay the daily charge. Customers also benefit from the convenience of automated billing which removes the administrative burden of paying daily charges and mitigates the risk of

having to pay a higher charge after the day of travel or incurring penalty charges for failing to pay.

### *What is proposed*

Currently, we charge a £10 annual fee for each vehicle that is registered for Auto Pay (including Fleet Auto Pay). We are proposing to stop charging this fee to help remove a barrier for people to sign up to Auto Pay. This is particularly relevant for infrequent drivers or those who do not often enter charging zones, where the annual £10 fee may put off registration for infrequent or 'just in case' use. This change is proposed to take place on 30 January 2023.

The proposed expansion of the ULEZ means there are likely to be higher numbers of people paying charges in London. Removing the administration fee for Auto Pay is likely to support these individuals by allowing customers to avoid getting a PCN by signing up to Auto Pay for free.

The proposal to remove the administration fee ensures that there is no cost differential between those paying daily charges and those paying by Auto Pay and further incentivises a convenient payment channel that also allows people to avoid higher charges for paying after the day of travel or incurring a PCN.

### ***Increasing the penalty charge level from £160 to £180 for non-payment of the ULEZ charge and Congestion Charge***

#### *Background and context*

If the ULEZ charge or Congestion Charge are not paid within the time allowed (up to three days from date of travel), and the vehicle is not exempt or registered for a 100 per cent discount, a PCN may be issued.

The level of penalty charge (PCN level) for non-payment of the ULEZ charge is £160, discounted to £80 if paid within 14 days. The PCN level has been £160 since the scheme was implemented on 8 April 2019.

The PCN level for non-payment of the Congestion Charge is also £160, discounted to £80 if paid within 14 days. The PCN level for the Congestion Charge was last increased on 2 January 2018, when it increased from £130 to £160.<sup>42</sup>

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<sup>42</sup> Prior to this, the PCN level was varied on three occasions; in 2004, it increased from £80 to £100, in 2007 it increased to £120 and in 2013 it increased to £130.



### *What is proposed*

We are proposing to increase the penalty charge level for the ULEZ and Congestion Charge<sup>43</sup> from £160 to £180 from 30 January 2023. Due to a number of factors, including inflation, increases in public transport fares and the level of the Congestion Charge itself<sup>44</sup> reducing the relative disbenefit of the penalty charge, the deterrent effect of receiving a PCN over time has decreased. For the Congestion Charge, the proportion of Vehicle Registration Marks (VRMs) given multiple PCNs has increased from 25.1 per cent in 2018 to 28.3 per cent in 2021. For the ULEZ, the proportion has increased from 25 per cent to 32.3 per cent<sup>45</sup> between 2019 (when the scheme was introduced) and 2021. The PCN level needs to increase for both schemes to maintain the deterrent effect and achieve scheme objectives.

### ***Minor administrative changes***

We are also proposing to make minor administrative changes to the Congestion Charge and Low Emission Zone Scheme Orders. These proposed changes are summarised below:

- Remove reference to being able to purchase a licence for a specified period of days (7, 31 or 365 charging days) for those liable to pay the full charge and replace with 'a licence for consecutive charging days' not referencing the specified period of days
- Remove reference to specific payment channels in the Scheme Orders and replace with 'by any payment channel provided by TfL'
- Remove reference to specific payment method in the Scheme Orders and replace with 'by any payment method accepted by TfL'
- Remove reference to specific communication channels in the Scheme Order and replace with 'by any communications channel provided by TfL'

### ***Revising the Mayor's Transport Strategy***

The MTS is the principal policy tool through which the Mayor exercises his responsibilities for the planning, development, provision, and management of transport in London. The

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<sup>43</sup> Link to Proposed Congestion Charge and Low Emission Zone changes Impact Assessment: <https://haveyoursay.tfl.gov.uk/15619/widgets/44946/documents/27069>

<sup>44</sup> The Congestion Charge was increased from £11.50 to £15 as part of the package of temporary changes which were introduced on 22 June 2021 in response to the transport challenges of the Covid-19 pandemic. This increase was introduced as a permanent change on 20 December 2021.

<sup>45</sup> Repeat offenders have been calculated separately for each contravention year, and are based upon unique vehicles for which more than one PCN has been issued for the relevant scheme and year of contravention.

Mayor is required to prepare and publish a transport strategy and to keep that strategy under review.

The MTS<sup>46</sup> was published in 2018 following a public and stakeholder consultation.<sup>47</sup> It contains Proposal 24:

*The Mayor, through TfL, will seek to introduce the central London Ultra Low Emission Zone (ULEZ) standards and charges in 2019, tighter emissions standards London-wide for heavy vehicles in 2020, and an expanded ULEZ covering inner London in 2021.*

It has become clear that further action needs to be taken beyond the measures included in Proposal 24 (which have now all been successfully introduced) if we are to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion that London is now facing and achieve the other aims of the MTS. To ensure the MTS and the proposal to expand the ULEZ to cover all of Greater London are in alignment, it is necessary to revise the MTS to add a supplementary proposal to Proposal 24. The following is being proposed:

### **Proposal 24.1**

*The Mayor, through TfL and the boroughs, will seek to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion through road user charging schemes including by expanding the Ultra Low Emission Zone London-wide.*

New proposal 24.1 would be accompanied by narrative which describes each of the three challenges and why it is important that they are addressed. As reducing vehicle kilometres is key, road user charging will form part of the solution as well as continuing to support the delivery of other MTS objectives. The full text of the proposed MTS revision is set out in a separate document on the consultation website, which can be found [here](#). If adopted, the revised text would be published as an addendum to the 2018 MTS.

### *Impacts assessment in respect of the proposed MTS revision*

When revising the MTS, the Mayor must have regard to the effect the revised strategy would have on the health of persons in Greater London, health inequalities between persons living in Greater London, the achievement of sustainable development in the UK and climate change and its consequences as well as other matters such as consistency with national policy and other strategies. He must include those policies and proposals that he considers are best calculated to promote improvements in health and the reduction of health inequalities and to contribute to the achievement of sustainable development and

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<sup>46</sup> [Mayor's Transport Strategy, 2018](#)

<sup>47</sup> TfL's Report on the consultation, 2018: <https://content.tfl.gov.uk/mts-consultation-report-4.pdf>

the mitigation of or adaptation to climate change (except to the extent that it is not reasonably practicable to do so). The Mayor must also have regard to the equalities impacts, in line with the public sector equality duty<sup>48</sup>, and to the requirements of the Strategic Environmental Assessment (SEA) regulations<sup>49</sup>.

As set out in the consultation document, TfL commissioned Jacobs to undertake an Integrated Impact Assessment (IIA) of the likely significant impacts on a range of matters arising from the proposals currently under consultation. With regard to the proposed MTS revision, the IIA encompasses a Strategic Environmental Assessment (SEA) and resulting environmental report, an Equalities Impact Assessment (EQIA), a Health Impact Assessment (HIA) and an Economic and Business Impact Assessment (EBIA).

Jacobs' approach to undertaking the impacts assessment of the proposed MTS amendment, as well as two potential alternatives to the proposal<sup>50</sup>, was set out in a Scoping Report. In accordance with regulation 12(5) of the SEA Regulations, this was sent to the following consultation bodies: Environment Agency, Historic England and Natural England for their comment in advance of the start of the consultation (summarised in Appendix A). Feedback has informed the impacts assessment, and where appropriate the separate assessment of the proposed scheme itself.

The [IIA of the proposed MTS revision](#) is included within the suite of consultation documents, and contains a detailed description of the process followed including the stakeholder engagement undertaken. In summary, the assessment concluded that there are no impacts identified across all three options (the proposed revision and two alternative options) that are significant enough at this strategic level to change the existing scoring on the environmental, economic, and social and health objectives of the MTS.

## Next steps

At the end of this consultation, TfL will analyse the responses received from the public and stakeholders about its proposals to extend the ULEZ London-wide; and the other Congestion Charge and LEZ-related proposals set out above - removal of the Auto Pay

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<sup>48</sup> This duty is contained in section 149 of the Equality Act 2010. It applies to the Mayor and TfL's exercise of public functions and is a duty to have 'due regard' to the need to: eliminate discrimination, harassment, victimisation and any other prohibited conduct; advance equality of opportunity between people who share a relevant protected characteristic and those who do not, and to foster good relations between people who share a protected characteristic and those who do not. Protected characteristics for the purpose of the duty are age, disability, gender reassignment, pregnancy and maternity, race, religion or belief, sex, and sexual orientation, and in respect of the first element of the duty, marriage and civil partnership status.

<sup>49</sup> The Environmental Assessment of Plans and Programmes Regulations 2004/ 1633

<sup>50</sup> The two potential alternatives assessed were two of the potential approaches mentioned at page 5, Alternative A was extending ULEZ London-wide alongside a small clean air charge and B was the small clean air charge alone.

annual registration fee under Congestion Charge, ULEZ and LEZ, the increase in penalty charge levels under Congestion Charge and ULEZ and the other minor scheme changes – and will present its analysis to the Mayor, with recommendations about whether the proposals should proceed or be modified in light of issues raised. The Mayor will then consider the consultation responses, the IIA and advice provided in the decision document and decide whether or not to confirm the proposals, with or without modifications.<sup>51</sup>

In relation to the proposed MTS revision, the Mayor will consider TfL's report on the public and stakeholder consultation responses together with the IIA and advice provided in the decision document and decide whether to publish it. Before publication, the Mayor is required to lay a copy of the pre-publication draft before the London Assembly, which may move a motion to reject it within 21 days.

Following the publication of any revisions to the MTS, a SEA-related Post-Adoption Statement (PAS) must be published, setting out how environmental considerations, and the responses of consultees (including statutory consultees) have been taken into account.

## **Privacy considerations**

In all our work we follow the principles of data minimisation and privacy by design. In operating the current Congestion Charge, LEZ and ULEZ Road User Charging (RUC) schemes, we collect personal data, principally through the use of Automatic Number Plate Recognition (ANPR) enforcement cameras across London, the creation and use of customer accounts, the processing of payments and PCNs and via the provision of customer service.

In addition, we use data derived from vehicle numberplates (Vehicle Registration Marks: VRMs) collected by the ANPR cameras, to monitor and analyse road traffic in London and for transport planning purposes. When doing this, we replace the VRM with an alternative set of letters and numbers. This is called 'pseudonymisation' and is a way of distinguishing vehicles by using a unique identifier that does not reveal its 'real world' identity and helps protect people's privacy.

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<sup>51</sup> A variation order amending the Congestion Charge Scheme Order has been made by TfL to implement the Auto Pay and PCN level proposals under that scheme, subject to being confirmed by the Mayor (with or without modifications). A draft variation order to implement the proposals relating to the ULEZ and LEZ is also included with the consultation documents. This order cannot be formally made by TfL until the Mayor decides whether or not to approve the MTS revision (subject to submission to the London Assembly). If approved and published, TfL will make a variation order (in materially the same form as the draft), which it will then submit to the Mayor to decide whether to confirm it (with or without modifications). Copies of the two variation orders and consolidated texts of the two Scheme Orders are included in the consultation materials



The data from most of our ANPR cameras is shared with the Metropolitan Police Service (MPS) for the purposes of preventing and detecting crime, including serious crime and terrorism. A Mayoral Delegation allowing TfL to share its ANPR data with the MPS has been in place since 2015. A replacement Delegation<sup>52</sup> is due to come into force to allow the continuation of this data sharing (including the sharing of new contextual image data with the MPS resulting from camera technology upgrades) in the circumstances of the current inner London ULEZ and its proposed London-wide expansion, and includes arrangements to secure the MPS complies with appropriate data protection, privacy and information sharing principles. The MPS is the controller of any data they receive from our ANPR cameras and are responsible for using it in compliance with relevant data protection legislation. It is estimated that 2.5 million vehicles are seen in London every day of which around 900,000 are already seen within the current ULEZ.

We have adopted a data minimisation approach to all the current RUC schemes, which includes the numbers and locations of on-street cameras, a robust retention schedule for all personal data processed (including ANPR data and associated contextual images), stringent contractual obligations on our contractors to support compliance and a commitment to transparent processing. To that end we have published a detailed [privacy notice](#) as well as previous [DPIAs](#) undertaken in relation to RUC. In order to effectively operate and enforce an enlarged ULEZ, it is anticipated that approximately 2,750 additional ANPR cameras may be needed. The final number of the cameras required will be assessed to ensure that they are the minimum necessary in order to effectively enforce and deliver the scheme – as well as ensuring that they are in appropriate locations. We will also consider whether any of the existing cameras used within the current ULEZ can be removed as the expansion of the zone may mean they are no longer needed.

A draft [Data Protection Impact Assessment](#) (DPIA) is included in the consultation materials.

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<sup>52</sup> MD 2977, which can be found here: <https://www.london.gov.uk/decisions/md2977-delegation-tfl-grant-anprc-data-access-mps>

## 6. Impacts of proposals

### Expanding the ULEZ London-wide from 29 August 2023

This section summarises the expected impacts of an expanded London-wide ULEZ on vehicle compliance, traffic (including congestion), mode shift, air quality (including emissions), business and economics, and people (including health and equalities). It contains our analysis of the likely significant impacts and a summary of the IIA report commissioned by independent consultants.

To assess the impacts of the proposed expansion, we have utilised TfL's package of strategic models, including our London highway demand model (LoHAM) and our travel demand model for London (MoTiON), as well as expertise in emissions modelling. Air pollution modelling was produced by Imperial College London in collaboration with TfL. Further detail on the methodology and sources of data can be found in Appendix B.

The impacts presented here are based on a scenario that assumes travel behaviour has broadly returned to a pre-pandemic situation and a central forecast for compliance with ULEZ standards is achieved. This is reasonable as traffic levels have quickly and broadly returned to pre-pandemic levels, unlike public transport which is still suppressed. Further work has been undertaken to assess the impacts of the proposals in an uncertain future, which is increasingly important given the unprecedented events of the past two years. For example, we have assessed the impacts of the scheme against a scenario where there are longer term implications of the pandemic for travel behaviour. Different compliance rates have also been assessed, including lower and higher compliance rates and how long it takes for the compliance rate to be achieved. Taking this approach provides reassurance and ensures the robustness of the estimated scheme impacts. Details of this 'Hybrid Forecast' and compliance rate sensitivity tests are described in Appendix B.

As highlighted earlier, we commissioned an independent consultant (Jacobs) to assess the potential likely significant impacts (positive and negative) of the consultation proposals and to suggest potential mitigations for any identified negative impacts. The assessment considered impacts on the environment, people (health and equality), and business and economy. The full London-wide ULEZ IIA report can be found [here](#). Summaries of the IIA report's findings can also be found later in this section.

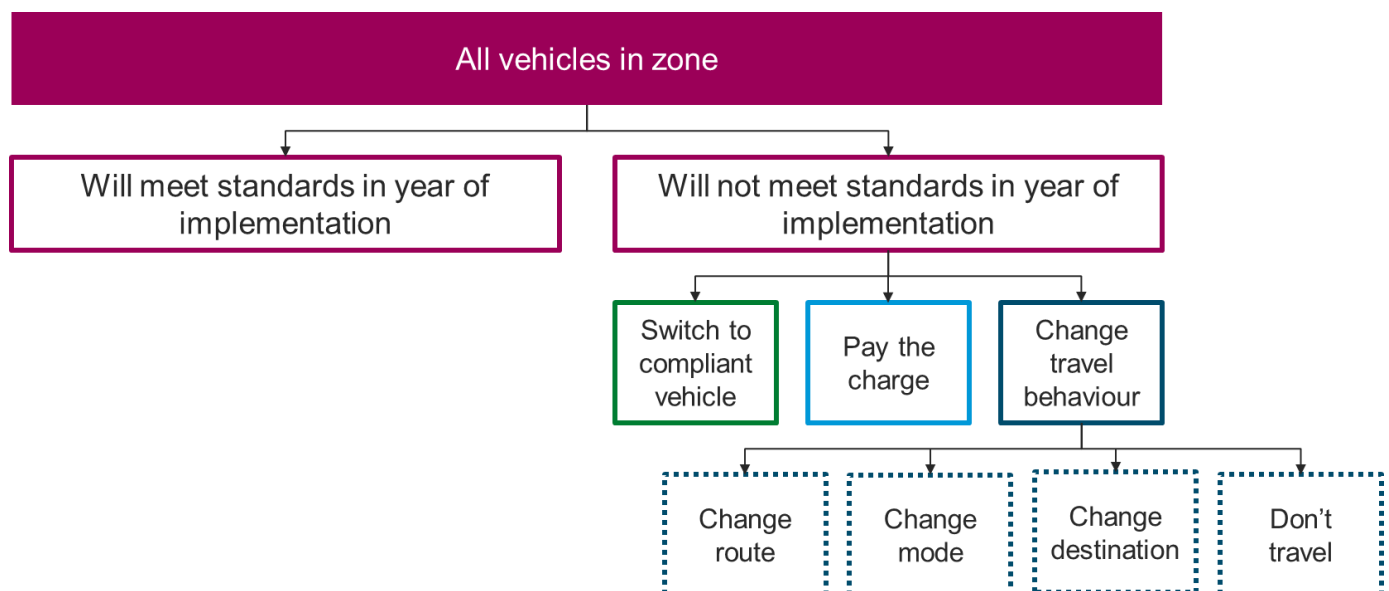
The primary study area for impacts presented in the first half of this section is the Greater London area. The London-wide ULEZ IIA report, which is summarised in the latter half of this section, focuses on the impacts on the ULEZ expansion area (the area between the existing inner London ULEZ and the LEZ boundary) and areas adjacent to Greater London. The air quality impacts presented in this section and in the London-wide ULEZ IIA

report are based on the London Atmospheric Emissions Inventory which covers Greater London, as well as the area from the GLA boundary up to and including the M25.

### *Response of vehicle users*

A key part of the assessment is estimating how people might respond to the proposed changes. Those who have (or use) vehicles that do not meet the ULEZ standard have a choice in how they respond to the introduction of the scheme (Figure 19).

Figure 19: Summary of possible responses to the scheme



The primary objective of an expanded ULEZ is to improve air quality and reduce emissions in outer London. Therefore, the scheme aims to encourage frequent users of the zone who primarily travel using a non-compliant vehicle to switch to a sustainable mode or change to a compliant vehicle.

For those who travel less frequently in, to and around the expanded (i.e London-wide) zone, it may not be cost effective to change their vehicle specifically to comply with the ULEZ standards. These users are more likely to 'stay and pay' the £12.50 daily charge for the small number of trips they make. Those who drive in London more frequently are more likely to change their vehicle. In both cases there will be a number of users unwilling to pay the ULEZ daily charge or change to a different vehicle and therefore will either choose to change mode, change destination, change route (if travelling between two locations outside of London), or not travel at all.

### *Summary of impacts*

The impacts of the proposed ULEZ expansion London-wide on compliance, vehicle kilometres, mode shift and air quality are outlined in detail in the subsequent sections. In summary, the introduction of a London-wide ULEZ could have the following impacts:

- A reduction of non-compliant cars from 160,000 to around 46,000 at the end of 2023 and a reduction in non-compliant vans from 42,000 to 26,000.
- A reduction in non-compliant car kilometres of 40 per cent in outer London, and 38 per cent London-wide. A 52 per cent reduction in non-compliant van kilometres in outer London, and 45 per cent London-wide.
- The mode shift impact would be the greatest in outer London with a 2.4 per cent reduction in car trips, 1.7 per cent increase in walking and cycling trips, 1.2 per cent increase in bus trips and a 0.7 per cent increase in rail trips.
- A reduction of NO<sub>x</sub> emissions from cars and vans in outer London of 9.6 per cent and 6.6 per cent respectively. London-wide reductions in road transport NO<sub>x</sub> emissions are estimated to be 5.4 per cent, equivalent to 362 tonnes of NO<sub>x</sub>.
- Overall, taking into account all road transport emissions, an estimated reduction in NO<sub>x</sub> vehicle emissions in outer London of 6.9 per cent.
- An 11.3 per cent reduction in tailpipe PM<sub>2.5</sub> emissions in London, and an overall reduction in PM<sub>2.5</sub> emissions from road transport of 1.5 per cent, this is equivalent to eight tonnes of PM<sub>2.5</sub>.
- An average reduction in NO<sub>2</sub> concentrations in outer London of 1.6 per cent, and reduction in central and inner London of 0.7 per cent and one per cent respectively. As a result, nearly 30,000 additional Londoners would live in areas meeting the WHO interim target of 30 µg/m<sup>3</sup> and 340,000 additional Londoners would live in areas meeting the tighter interim target of 20 µg/m<sup>3</sup>.
- Almost all of London's most deprived communities would experience an improvement in air quality – 99.9 per cent live in areas with improved NO<sub>2</sub> concentrations and 97 per cent live in areas with improved PM<sub>2.5</sub> concentrations (albeit marginal).
- It is estimated that, without the ULEZ expansion London-wide, 106 schools would not meet the WHO interim target of 30 µg/m<sup>3</sup> NO<sub>2</sub>. With London-wide ULEZ in place, this would reduce to 91 schools, improving 15 schools in central and inner London. A further 145 schools, most of them in outer London, would also meet the tighter WHO interim target of 20 µg/m<sup>3</sup>.

### *Vehicle compliance impacts*

The most significant impact on air quality and emissions will be as a result of people switching from non-compliant to ULEZ standards compliant vehicles, especially those who travel more frequently.



We have estimated that out of around two million unique cars seen in London every day, around 92 per cent will already be compliant by the end of 2023<sup>53</sup>. The introduction of a London-wide ULEZ could increase compliance to over 95 per cent in London. This equates to a reduction in the number of non-compliant cars from 160,000 to around 46,000, with around 70,000 switching to compliant vehicles and 44,000 fewer cars due to behaviour change.<sup>54</sup>

It is estimated that around 280,000 to 290,000 vans are seen in London every day. Around 85 per cent of these are forecast to be compliant by the end of 2023. With the ULEZ expansion London-wide, compliance is estimated to increase to around 91 per cent, reducing the number of non-compliant vans from around 42,000 to 26,000. No demand response for vans has been assumed in the modelling as, primarily, it is expected that any businesses that leave the market as a result of the new emissions standards will be replaced by other businesses that have compliant vehicles or are willing to pay the charge. However, there may be a small change in demand for those that use their van for discretionary (and/or infrequent) purposes or those that could feasibly switch to using a cargo bike instead of a van.

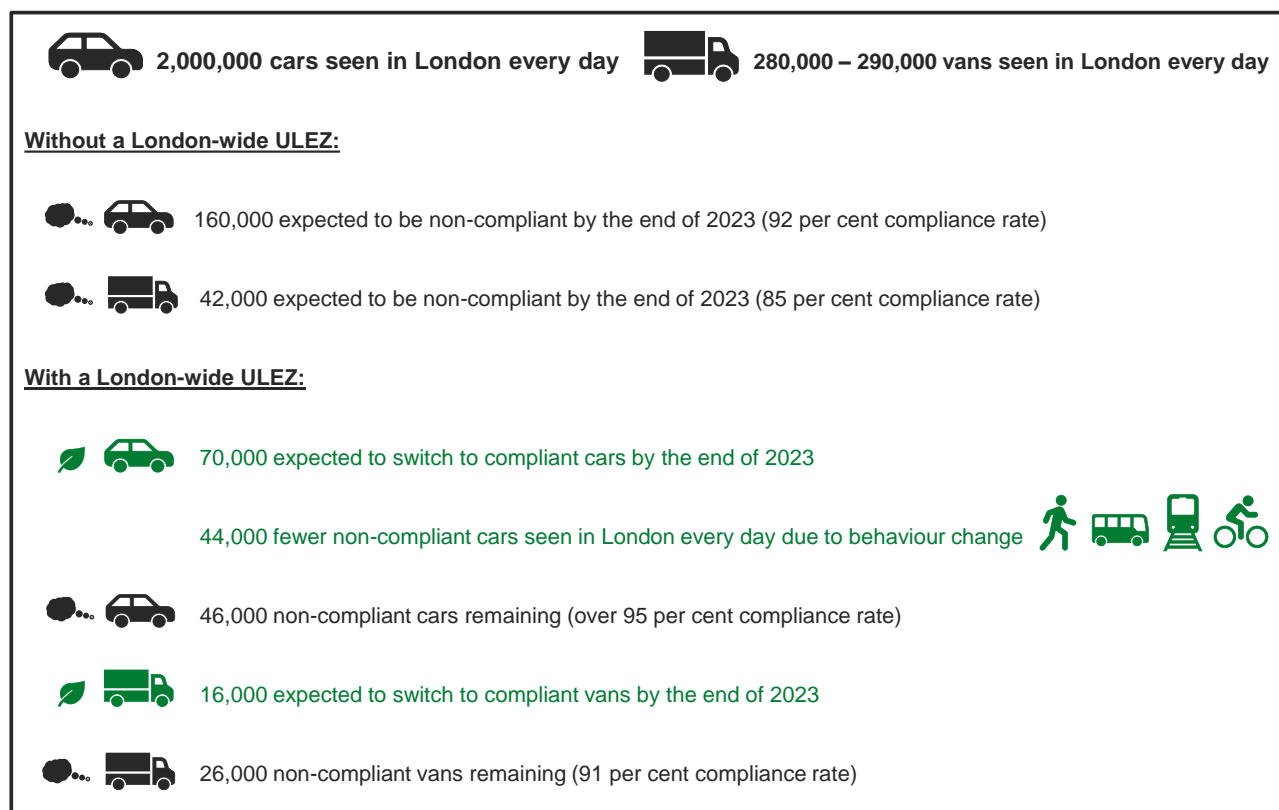
*Figure 20* shows the compliance rates for the daily vehicle population (daily unique vehicles seen) by the end of 2023, with and without London-wide ULEZ.

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<sup>53</sup> Note that figures reported for cars exclude Private Hire Vehicles (PHVs), unless stated otherwise.

<sup>54</sup> Based on our central compliance scenario. Emerging traffic data suggests that compliance rates based on vehicle kilometres is suitable for unique vehicles. Our estimates for unique vehicles in outer London will evolve as the camera network in outer London develops.

Figure 20 Scheme impacts on London-wide daily unique vehicles



### *Traffic impacts (including congestion changes)*

Expanding the ULEZ to outer London is expected to have a modest impact on total London-wide car kilometres; it will reduce them by about 0.5 per cent. Most of this reduction is from people with non-compliant cars choosing to change mode, not travel or avoid London. The reduction in non-compliant car kilometres is estimated to be 38 per cent London-wide. As non-compliant car kilometres are estimated to be only a small proportion of overall car kilometres, this means the reduction in overall car kilometres is small.

The impact on car kilometres will be greatest in outer London, with a one per cent reduction in total car kilometres and a 40 per cent reduction in non-compliant car kilometres. Despite the reduction London-wide, there could be a one per cent increase in car kilometres in inner London. This is likely due to destinations and more direct routes becoming available to those who previously were able to avoid the ULEZ daily charge by not driving into inner London. However, non-compliant car kilometres in inner London are estimated to reduce by 28 per cent, as a result of the expansion of ULEZ to outer London, on top of the reductions that will result from the scheme currently in place. There is not

expected to be a significant impact on total van kilometres, though there is expected to be a reduction in van kilometres from vehicles which do not comply with ULEZ standards (a 45 per cent reduction in non-compliant van kilometres London-wide).

Table 9: Expected impact on traffic across London, split by ULEZ standards compliant and non-compliant vehicle kilometres

	<b>London-wide</b>	<b>Central London</b>	<b>Inner London</b>	<b>Outer London</b>	<b>Non-GLA<sup>55</sup></b>
Total car kilometres 	-0.5%	-0.9%	+1.0%	-1.0%	-0.2%
Non-compliant car kilometres 	-38%	-19%	-28%	-40%	-11%
Non-compliant van kilometres 	-45%	-4%	-15%	-52%	-24%

As a result of the expected reduction in overall traffic in London, there is forecast to be a slight increase in average speeds and reduction in travel times London-wide. This is primarily from the traffic reduction expected in outer London. As traffic is expected to increase slightly in inner London, there is forecast to be a slight reduction in average speeds and a slight increase in travel times. Table 10 shows the expected impact in the AM peak (0800 to 0900), interpeak (average hour between 1000 and 1600) and PM peak (1700 to 1800).

<sup>55</sup> From the GLA boundary up to and including the M25.

Table 10 Expected impact on travel time and speeds across London by time period

	Travel time (vehicle hours)			Average speed (km/h)		
	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak
Central	-0.1%	-0.5%	-0.1%	-0.2%	0.2%	-0.1%
Inner	0.5%	0.8%	1.4%	-0.2%	-0.2%	-0.9%
Outer	-1.7%	-1.3%	-1.6%	1.0%	0.4%	0.9%
London-wide	-0.9%	-0.5%	-0.5%	0.5%	0.1%	0.1%

### *Mode shift impacts*

A London-wide ULEZ is expected to have a small but material impact on car trips<sup>56</sup> in London<sup>57</sup> reducing by around 146,000<sup>58</sup> every day. This equates to 1.7 per cent of all car trips. The reduction in car trips (1.7 per cent) is larger than the reduction in car kilometres (0.5 per cent) indicating that the proposed expansion has a greater impact on shorter journeys. Previous analysis on active travel potential estimates that nearly half of car trips made by London residents could be cycled in around 10 minutes<sup>59</sup>.

Out of the 146,000 fewer car trips in London, just under 70 per cent are expected to switch to sustainable modes. This means an additional 55,000 (0.7 per cent) walking or cycling trips, 26,000 (0.6 per cent) bus trips and 19,000 (0.3 per cent) rail trips every day in London. This would have a small but positive impact on the London-wide active, efficient and sustainable mode share.

The proposed London-wide ULEZ is expected to have the biggest impact on mode shift in outer London with a 2.4 per cent (166,000) reduction in car trips, 1.7 per cent (64,000) increase in walking and cycling trips, 1.2 per cent (29,000) increase in bus trips and a 0.7 per cent (17,000) increase in rail trips.

<sup>56</sup> This figure combines car driver and car passenger trips

<sup>57</sup> In this context, 'in London' means trips to, from and within Greater London

<sup>58</sup> The absolute trip numbers for central, inner and outer London (when separated) do not add up to the London-wide total. This is because if a trip goes through multiple areas it is counted in each of those areas. For example, if a trip goes between outer and inner London, it will contribute to one trip in inner and one trip in outer (when areas are separated), but only one trip London-wide.

<sup>59</sup> [https://www.london.gov.uk/sites/default/files/health\\_impact\\_of\\_cars\\_in\\_london-sept\\_2015\\_final\\_0.pdf](https://www.london.gov.uk/sites/default/files/health_impact_of_cars_in_london-sept_2015_final_0.pdf)

### *Air quality impacts*

The area covered by the air quality impact analysis is based on the London Atmospheric Emissions Inventory (LAEI), with central, inner and outer London defined by the Congestion Charge Zone, the current inner London ULEZ boundary (up to but excluding the North and South Circular Roads) and the Greater London area (GLA) boundary respectively. The modelling also covers the area from the GLA boundary up to and including the M25, defined in this analysis as 'non-GLA'. A map showing the area covered by the LAEI is shown in Appendix C. Note also that figures reported for cars exclude Private Hire Vehicles (PHVs), unless stated otherwise.

### *Road transport NO<sub>x</sub> emissions*

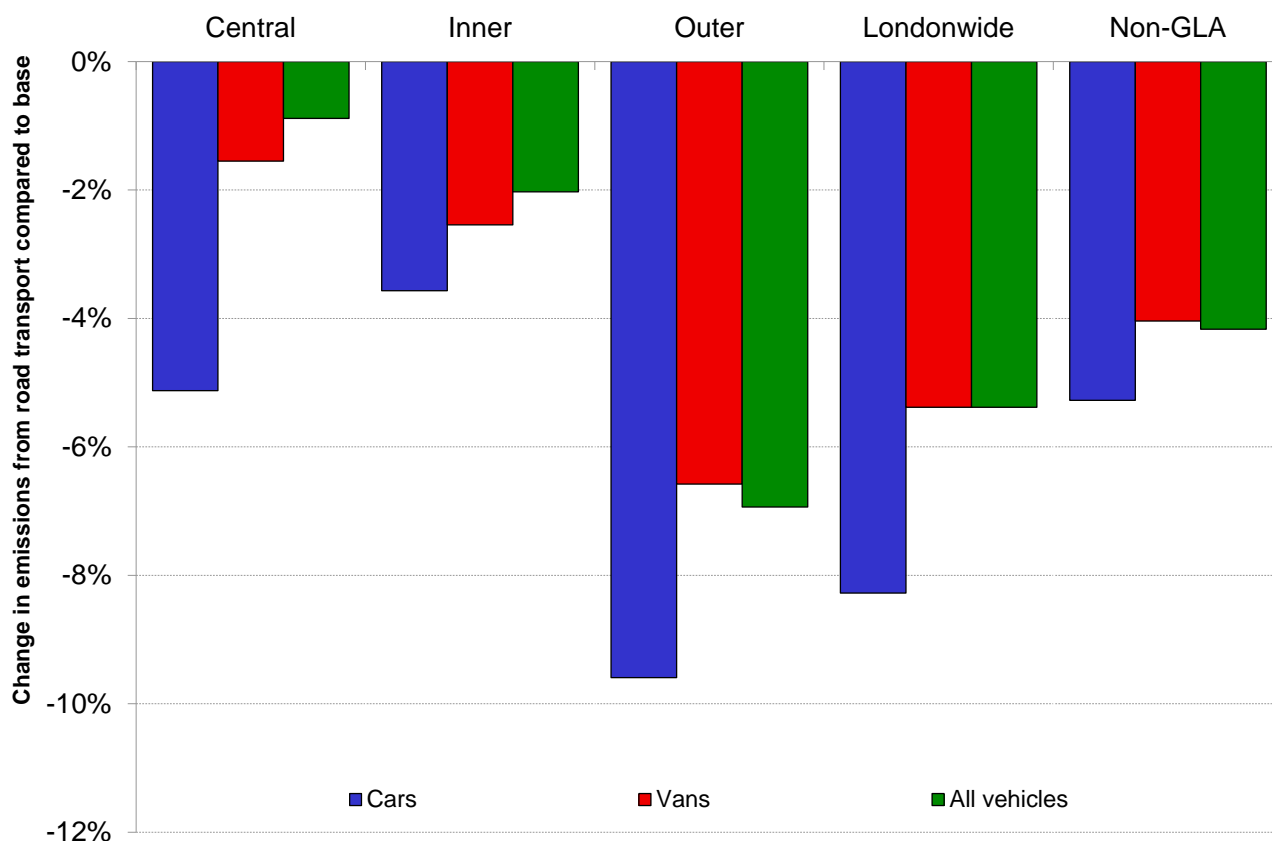
Figure 21 shows the impact of the ULEZ expansion proposal on NO<sub>x</sub> emissions compared to the 2023 baseline, for cars, vans and all vehicles by spatial area. The proposed expansion has the greatest impact on NO<sub>x</sub> emissions from cars in outer London (a reduction of 9.6 per cent) and vans in outer London (a reduction of 6.6 per cent). However, the benefits of expansion to outer London are felt across Greater London, including a reduction in NO<sub>x</sub> emissions from cars in central and inner London of 5.1 per cent and 3.6 per cent respectively, compared to the 2023 baseline. The impact of the ULEZ expansion proposal on borough-level NO<sub>x</sub> emissions is summarised in Appendix D with a range of between 0.9 per cent reduction (City of London) to an 8.5 per cent reduction in London Borough of Sutton, with the greatest reductions taking place in outer London boroughs.

Overall, taking into account all road transport emissions it is estimated that the London-wide expansion of the ULEZ would deliver a reduction in NO<sub>x</sub> vehicle emissions in outer London of 6.9 per cent, as well as a reduction in inner London of two per cent, and 0.9 per cent in central London. London-wide reductions in road transport NO<sub>x</sub> emissions are estimated to be 5.4 per cent, equivalent to 362 tonnes of NO<sub>x</sub>.

A reduction of road transport NO<sub>x</sub> emissions of 5.5 per cent is estimated in the area outside London up to and including the M25, which is the area covered by the modelling. The scale of impact is slightly smaller than for the outer London area because the impact on vehicle compliance is estimated to be lower there than inside the expanded ULEZ zone as only vehicles entering to drive in the zone are impacted.



Figure 21: Road transport NO<sub>x</sub> emissions by area and vehicle type, 2023 with London-wide ULEZ vs 2023 without



Reductions of road transport NO<sub>x</sub> emissions are estimated across most areas of London. Reductions are also expected on the Transport for London Road Network (TLRN) in all boroughs and along the North and South Circular Roads in all boroughs, as well as at key locations including town centres.

It is expected that the outer London ULEZ expansion could deliver an 8.3 per cent reduction in car NO<sub>x</sub> emissions, and a 5.4 per cent reduction in van NO<sub>x</sub> emissions London-wide. Some slight increases in NO<sub>x</sub> emissions are expected on a small number of roads within the current inner London ULEZ. It is estimated that approximately two per cent of road lengths in the current ULEZ may have an increase of more than one per cent in NO<sub>x</sub> emissions, compared to 98 per cent estimated to have no change or improved emissions. This is due to the expansion of the zone to outer London leading to some re-routing and re-distribution of trips which previously avoided the current inner London ULEZ. However, overall there is a decrease in NO<sub>x</sub> emissions from both cars and vans in inner London – a reduction of 3.6 per cent and 2.5 per cent respectively.

### *PM<sub>2.5</sub> emissions*

Figure 22 shows the reduction in PM<sub>2.5</sub> emissions compared to the 2023 baseline, for cars, vans and all vehicles. This is shown for outer London and Greater London, and by PM<sub>2.5</sub> emissions type. On average across London, around 90 per cent of PM<sub>2.5</sub> emissions from road transport are due to non-exhaust sources including brake and tyre wear, and due to abrasion of the road surface over time. These sources tend to follow patterns of changes in vehicle kilometres, whereby increases in kilometres tends to increase non-exhaust emissions.

It is estimated that the ULEZ expansion London-wide would deliver a 11.3 per cent reduction in tailpipe PM<sub>2.5</sub> emissions in London, and an overall reduction in PM<sub>2.5</sub> emissions from road transport of 1.5 per cent, this is equivalent to 8 tonnes of PM<sub>2.5</sub>.

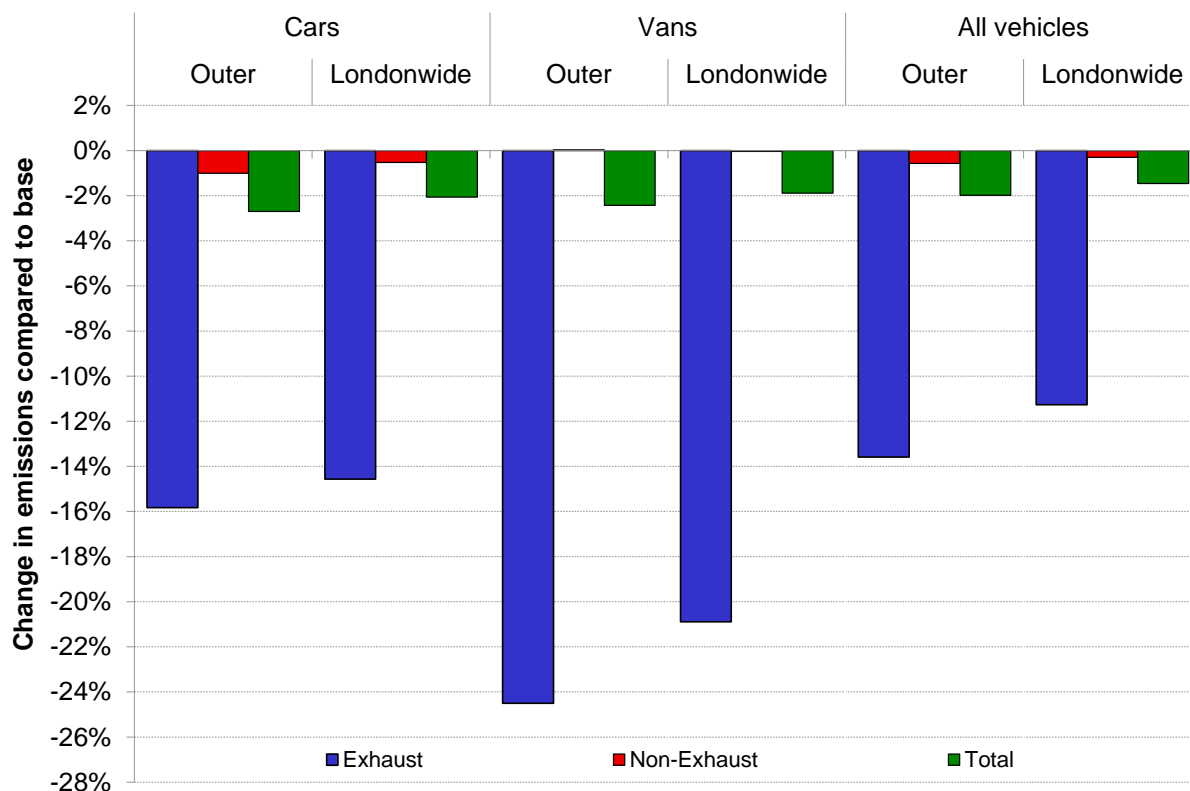
The ULEZ expansion London-wide would reduce overall PM<sub>2.5</sub> emissions (exhaust and non-exhaust) from cars and vans in outer London by 2.7 per cent and 2.4 per cent respectively. The expansion would also deliver a reduction in PM<sub>2.5</sub> emissions from cars in central London of 1.7 per cent, 0.2 per cent for vans and 0.4 per cent for all vehicles. Whilst there could be a slight increase in non-exhaust PM<sub>2.5</sub> emissions from cars in inner London (one per cent), due to a small amount of trip re-distribution and re-routing, the scheme could lead to a small overall reduction in PM<sub>2.5</sub> road transport emissions (including exhaust) from all vehicles in inner London of 0.2 per cent, including no change in PM<sub>2.5</sub> from cars, and a 0.8 per cent reduction of van PM<sub>2.5</sub> emissions.

An expanded ULEZ could reduce London-wide PM<sub>2.5</sub> exhaust emissions from cars and vans by 14.6 per cent and 20.9 per cent respectively. The greatest impact on tailpipe PM<sub>2.5</sub> emissions is for vans in outer London, reducing emissions by 24.5 per cent compared to the baseline; there is also a reduction in PM<sub>2.5</sub> tailpipe emissions from cars in outer London of 15.8 per cent.

Over time, exhaust emissions contribute a lower proportion of emissions of PM<sub>2.5</sub> compared to non-exhaust sources. Challenges also remain with regards to potential increases in tyre wear and abrasion of road surface especially where electric vehicles may be heavier compared to petrol or diesel counterparts.

The impacts of the ULEZ expansion on PM<sub>2.5</sub> emissions at a borough level are summarised in Appendix D with a range up to a three per cent reduction (in the London Borough of Sutton) and the greatest reductions taking place in outer London boroughs. Reductions of road transport PM<sub>2.5</sub> exhaust emissions are estimated across London. Reductions are also expected on the TLRN in all boroughs, and along the North and South Circular, as well as at key locations including town centres. Taking account of some changes in local traffic flows and speeds means that some very small increases in non-exhaust PM<sub>2.5</sub> emissions may occur in some localised areas.

Figure 22: Road transport PM<sub>2.5</sub> emissions by emission type and area, 2023 with London-wide ULEZ vs 2023 without



There are a few roads in inner London where the ULEZ expansion would have a greater than one per cent increase in PM<sub>2.5</sub> emissions for all vehicles compared to the 2023 baseline. This is likely a result of a small number of trips re-distributing and re-routing as a result of the expanded zone. However, there is a negligible impact on PM<sub>2.5</sub> car emissions in inner London (<0.1 per cent increase) overall and ULEZ expansion London-wide could deliver a reduction in exhaust PM<sub>2.5</sub> emissions from cars of 9.7 per cent in inner London. There is also a reduction in overall PM<sub>2.5</sub> emissions from vans in inner London as a result of the expansion – a reduction of 0.8 per cent of total PM<sub>2.5</sub> emissions from vans, and a reduction of 8.8 per cent of exhaust PM<sub>2.5</sub> emissions from vans.

### Carbon emissions

In addition to driving a shift to cleaner vehicles, the ULEZ expansion London-wide would also encourage a shift to active, efficient and sustainable modes, thus delivering a reduction in carbon emissions. The greatest reduction in carbon emissions in London is from cars in outer London; a reduction of 1.4 per cent compared to the 2023 baseline without the expansion. There is a slight increase in carbon emissions in inner London (0.3 per cent) due to some re-routing around the current inner London ULEZ boundary.

However, overall the expansion proposals would deliver a 0.4 per cent reduction in London-wide carbon emissions from road transport equivalent to 23,000 tonnes, including a 0.9 per cent reduction in carbon emissions from cars. Carbon emissions are expected to reduce by 1.6 per cent outside London<sup>60</sup>, equivalent to 43,000 tonnes of carbon.

The impacts at a borough level are summarised in Appendix D.

### *Pollutant concentrations*

It is important to emphasise that forecast levels and the change in pollutant concentrations are based, as with all impacts, on the expansion impacts in 2023 compared to the 2023 base. Concentrations in outer London tend to be lower than in central and inner London due to better dispersion along major roads, which reduces the impact of traffic emissions at the roadside and because background concentrations influenced by other sources tend to be lower away from the centre of London. However, concentrations in outer London are improving at a slower rate compared to the rest of London and many outer London residents live in areas which exceed the lowest WHO interim target for NO<sub>2</sub> of 20 µg/m<sup>3</sup>.

Concentrations in 2023 are expected to be around 20 per cent lower than levels predicted for 2019 based on the London Atmospheric Emissions Inventory (LAEI). This is as result of reductions in emissions due to programmes such as bus electrification, and the uptake of zero emission capable vehicles, notably cars, vans and taxis. Whilst the proposed expansion reduces emissions in 2023, there is uncertainty around the return of traffic levels over the medium term. Traffic levels in the 2023 reference case remain slightly below pre-pandemic levels and activity at Heathrow airport remains subdued compared to before the pandemic. Further details of dispersion modelling assumptions are provided in Appendix C. Delivery of the expansion of ULEZ to outer London, however, would enable us to bring forward air quality improvements and ensure air quality benefits can be delivered across outer London despite potential changes to travel demand over the medium term. Interventions such as London-wide ULEZ also help to ensure that emissions reductions in London will continue, to help get beyond legal compliance and to achieve much greater ambitions for meeting the WHO guidelines for air quality which will bring significant health benefits to Londoners.

### *NO<sub>2</sub> concentrations*

London-wide average concentrations of NO<sub>2</sub> are predicted to reduce by 1.3 per cent with the London-wide ULEZ in place. Average concentrations of NO<sub>2</sub> across all zones and boroughs in London, and outside London are predicted to improve as a result of reduced road transport NO<sub>x</sub> emissions. Impacts are higher in outer London where average

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<sup>60</sup> In the area covered by the LAEI, from the GLA boundary up to and including the M25.

reductions of 1.6 per cent are forecast compared to one per cent in inner London and 0.7 per cent in central London. Borough level data is provided in Appendix D.

Table 11 Annual average NO<sub>2</sub> concentrations µg/m<sup>3</sup> (population weighted)

	<b>LAEI 2019</b>	<b>Base 2023</b>	<b>London- wide ULEZ 2023</b>	<b>Scheme Reduction (µg/m<sup>3</sup>)</b>	<b>Scheme % Reduction</b>
Central	38.7	30.8	30.6	-0.2	-0.7%
Inner	31.5	24.4	24.2	-0.2	-1.0%
Outer	25.7	20.2	19.9	-0.3	-1.6%
Greater London	28.4	22.2	22.0	-0.3	-1.3%
Non-GLA	22.2	18.0	17.8	-0.2	-1.1%

Figures 23 and 24 show the predicted annual average NO<sub>2</sub> concentrations with the London-wide ULEZ and the change in NO<sub>2</sub> concentrations compared to the 2023 baseline. These show that overall improvements in NO<sub>2</sub> concentrations are predicted across London and outside the GLA boundary as a result of the ULEZ expansion to outer London, with the biggest reductions occurring close to roads due to the scheme focus on reducing road traffic emissions.

Figure 23 Annual mean NO<sub>2</sub> concentrations 2023 with the London-wide ULEZ

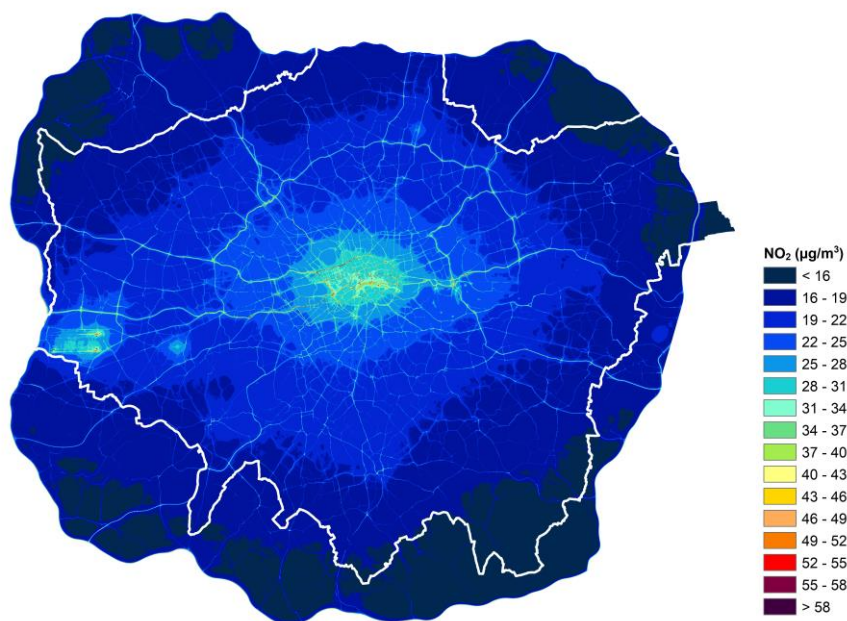
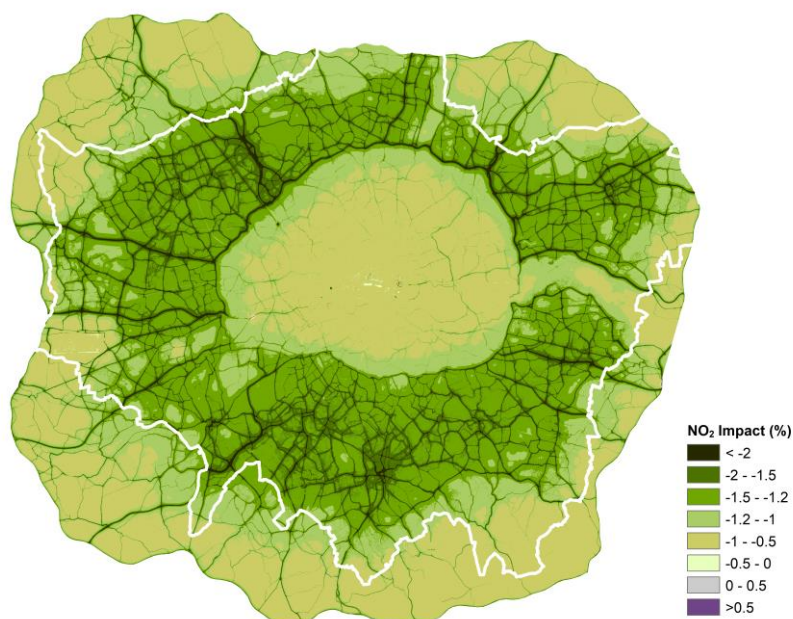




Figure 24 Impact of London-wide ULEZ impact on NO<sub>2</sub> concentrations



### *PM<sub>2.5</sub> concentrations*

Average concentrations of PM<sub>2.5</sub> are estimated to be around seven per cent lower than levels in 2019. The London-wide average PM<sub>2.5</sub> concentration with the London-wide ULEZ in place in 2023 is estimated to be 10.1 µg/m<sup>3</sup>, just above the WHO interim target of 10 µg/m<sup>3</sup>. Whilst the ULEZ expansion provides a small reduction in PM<sub>2.5</sub> emissions, overall average concentrations of PM<sub>2.5</sub> across all zones and boroughs in London, and those outside London are predicted to remain largely the same with the expansion. Concentrations considered across smaller areas, including those at census output area where population exposure statistics are derived show very small improvements in PM<sub>2.5</sub> which do result in overall improvement in exposure to PM<sub>2.5</sub>. Borough level data is provided in Appendix D.

Figure 25 and Figure 26 below show the predicted annual average PM<sub>2.5</sub> concentrations with the proposed London-wide ULEZ and the change in PM<sub>2.5</sub> concentrations. These show small overall improvements in PM<sub>2.5</sub> across most of London with the impacts tending to be slightly higher close to major roads. The A12, A13, A2 and A40 inside the North and South Circular Roads are predicted to experience very small increases in PM<sub>2.5</sub> concentrations of around 0.1 µg/m<sup>3</sup>, however, these changes in concentrations do not

result in a deterioration of population exposure London-wide because of wider but equally small improvements in PM<sub>2.5</sub> concentrations.

Table 12 Annual average PM<sub>2.5</sub> concentrations µg/m<sup>3</sup> (population weighted)

	LAEI 2019	Base 2023	London- wide ULEZ 2023
Central	12.8	12.0	12.0
Inner	11.3	10.5	10.5
Outer	10.3	9.6	9.6
Greater London	10.8	10.1	10.1
Non-GLA	9.6	9.0	9.0

Figure 25 Annual mean PM<sub>2.5</sub> concentrations 2023 with the London-wide ULEZ

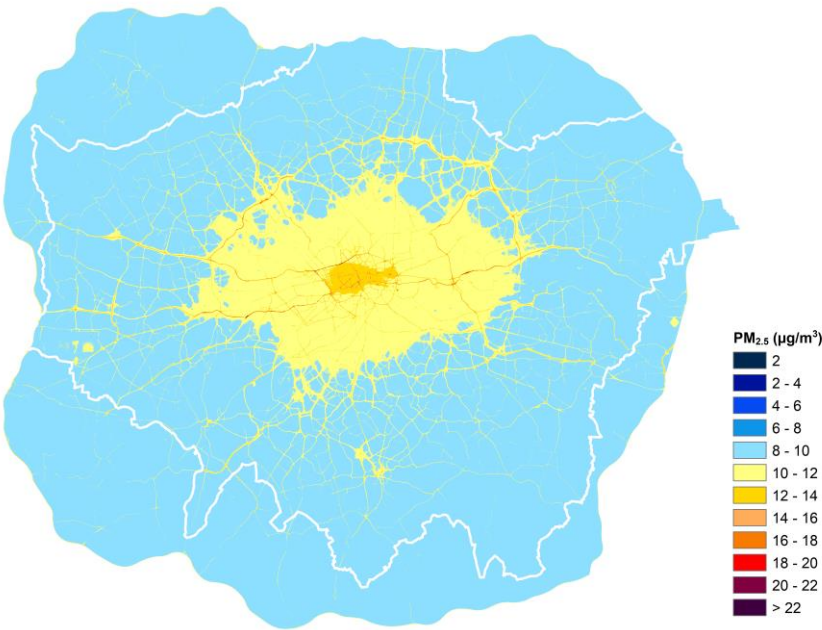
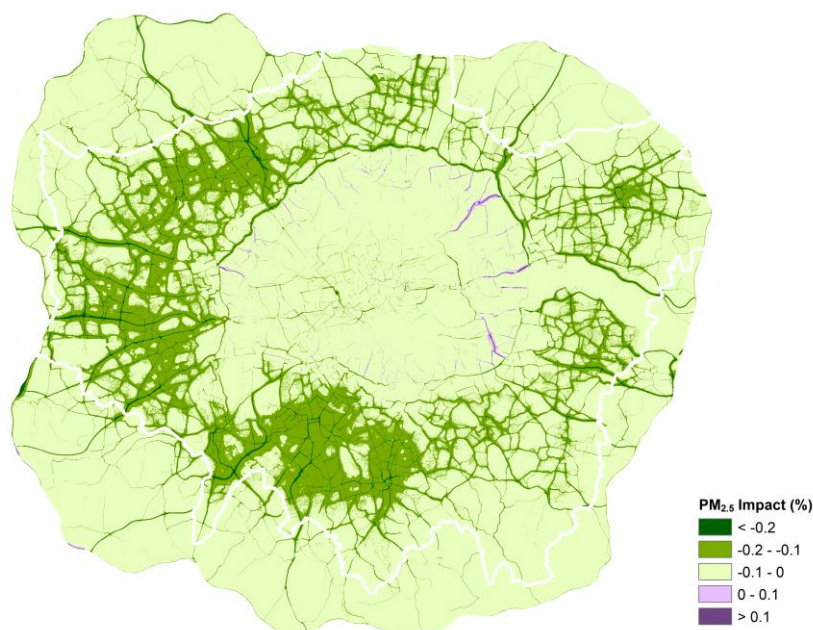


Figure 26 Impact of London-wide ULEZ on PM<sub>2.5</sub> concentrations



### *People living in areas of exceedance*

Improvements in air quality overall means that with the expansion of the ULEZ in place it is estimated that less than 3,000 people in Greater London will be living in areas exceeding legal limits for NO<sub>2</sub><sup>61</sup>. The majority of these people are in inner London, with the remaining in central London. As London moves forward and is achieving existing legal limits for NO<sub>2</sub> across most areas (more specific roadside exceedances are discussed below) further ambitions to achieving WHO guidelines and new UK legal limits to be adopted in October 2022 are clearly in sight, representing significant health benefits to Londoners.

Analysis of population exposure shows that in 2023 over 255,000 people London-wide will exceed the WHO interim target of 30 µg/m<sup>3</sup>, representing 2.8 per cent of the population. The expanded ULEZ is forecast to move nearly 30,000 people into air quality meeting the WHO interim target of 30 µg/m<sup>3</sup>. Even more substantial, however, is the shift the expansion of ULEZ London-wide can deliver in achieving the even tighter WHO interim target of 20 µg/m<sup>3</sup>. An estimated 74 per cent of London's population lives in areas exceeding this target, and London-wide ULEZ is expected to reduce exposure for over 340,000 people to meet this target level. The vast majority of these people (99 per cent)

<sup>61</sup> Analysis based on average concentrations at Output Area level (spatial area as defined in the census)

are in outer London. Table 13 and Table 14 show the population exposure data for both WHO 30µg/m<sup>3</sup> and WHO 20 µg/m<sup>3</sup>.

Table 13 Population living in areas of NO<sub>2</sub> exceedance (30 µg/m<sup>3</sup>)

	Total		Exceeding		% Exceeding		No Longer Exceeding
	Base 2023	London-wide ULEZ 2023	Based 2023	London-wide ULEZ 2023	Based 2023	London-wide ULEZ 2023	
Central	218,300	218,300	136,100	124,800	62%	57%	11,300
Inner	3,854,200	3,854,200	115,700	100,000	3%	3%	15,700
Outer	5,115,800	5,115,800	3,200	1,600	0%	0%	1,500
Greater London	9,188,300	9,188,300	255,000	226,500	3%	2%	28,600
Non-GLA	980,500	980,500	20,600	20,300	2%	2%	200

Table 14 Population living in areas of NO<sub>2</sub> exceedance (20 µg/m<sup>3</sup>)

	Total		Exceeding		% Exceeding		No Longer Exceeding
	Based 2023	London-wide ULEZ 2023	Based 2023	London-wide ULEZ 2023	Based 2023	London-wide ULEZ 2023	
<b>Central</b>	218,300	218,300	218,300	218,300	100%	100%	0
<b>Inner</b>	3,854,200	3,854,200	3,854,200	3,853,600	100%	100%	600
<b>Outer</b>	5,115,800	5,115,800	2,702,300	2,360,200	53%	46%	342,100
<b>Greater London</b>	9,188,300	9,188,300	6,774,800	6,432,200	74%	70%	342,700
<b>Non-GLA</b>	980,500	980,500	62,500	57,000	6%	6%	5,500

The Mayor has stated his ambition to achieve the WHO interim target of 10 µg/m<sup>3</sup> in order to deliver widespread and lasting health benefits to all Londoners. Whilst the changes in average PM<sub>2.5</sub> concentrations are very small, it is estimated that the London-wide ULEZ will contribute to improving air quality across London. In particular, around 44,200 people are expected to live in areas achieving 10 µg/m<sup>3</sup>PM<sub>2.5</sub> for the first time as a result of the ULEZ applying London-wide. This includes over 13,000 people in inner London, and over 30,000 in outer London, as shown in

Table 15.

Table 15 Population living in areas of PM<sub>2.5</sub> exceedance (10 µg/m<sup>3</sup>)

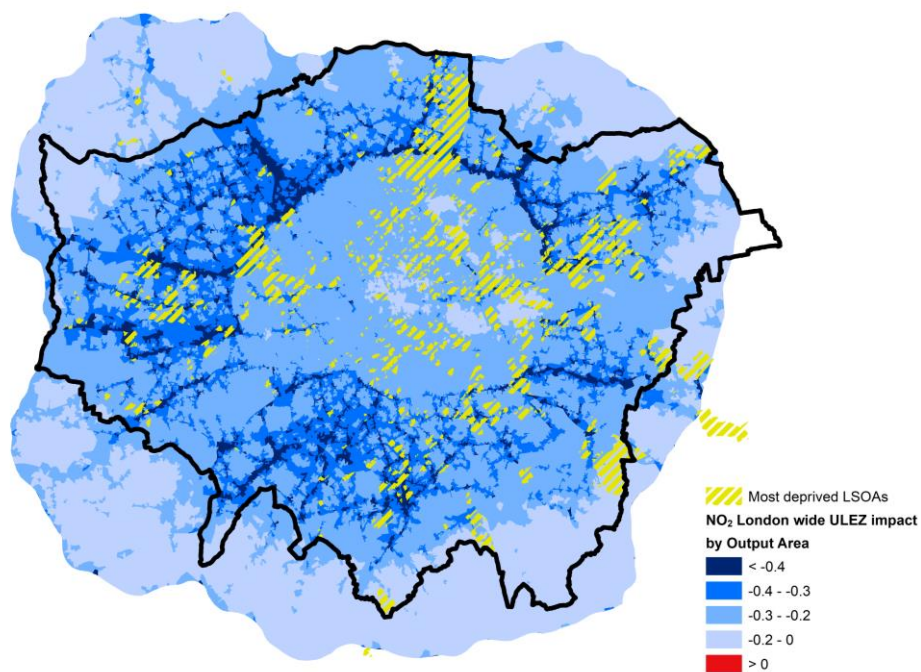
	Total		Exceeding		% Exceeding		No Longer Exceeding
	Based 2023	London-wide ULEZ 2023	Based 2023	London-wide ULEZ 2023	Based 2023	London-wide ULEZ 2023	
<b>Central</b>	218,300	218,300	218,300	218,300	100%	100%	0
<b>Inner</b>	3,854,200	3,854,200	3,326,500	3,313,000	86%	86%	13,500
<b>Outer</b>	5,115,800	5,115,800	770,200	739,500	15%	14%	30,700
<b>Greater London</b>	9,188,300	9,188,300	4,315,000	4,270,800	47%	46%	44,200
<b>Non-GLA</b>	980,500	980,500	24,900	24,500	3%	3%	400

*Pollution exposure in areas of deprivation*

As described in section four, the most deprived groups of people in London tend to suffer more from poor air quality. The impacts of the London-wide ULEZ expansion on NO<sub>2</sub> and PM<sub>2.5</sub> concentrations have been analysed and are mapped in Figure 27 and Figure 28 below in addition to the most deprived areas of London.

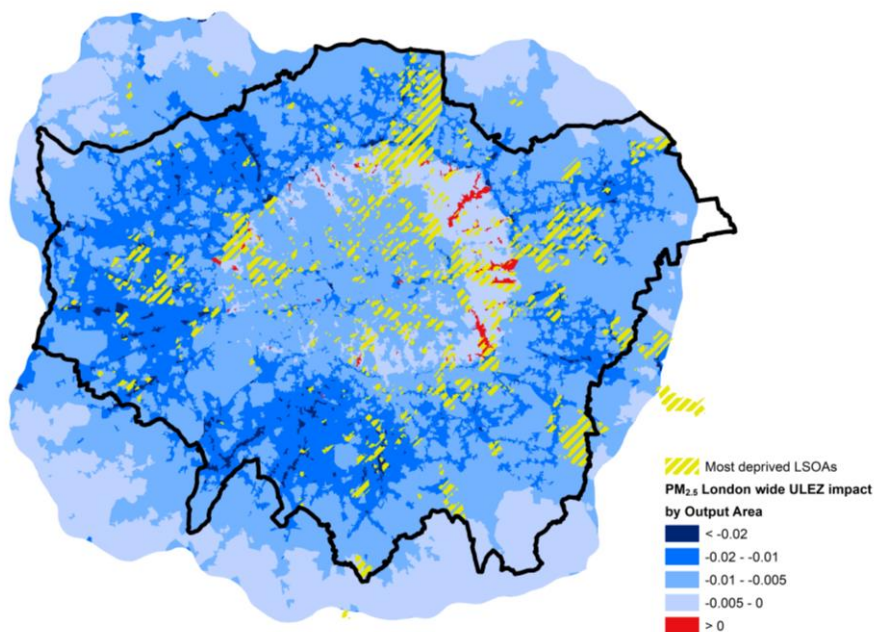


Figure 27 NO<sub>2</sub> impact with London-wide ULEZ in 2023 vs 2023 base and deprived areas



*Note: Most deprived areas defined as Lower Super Output Areas (LSOAs) in lowest two deciles of the IMD*

Figure 28 PM<sub>2.5</sub> impact with London-wide ULEZ in 2023 vs 2023 base and deprived areas



*Note: Most deprived areas defined as Lower Super Output Areas (LSOAs) in lowest two deciles of the IMD*

Almost all people living in the most deprived areas (around 1.5 million) benefit from improved air quality overall. Over 99.9 per cent live in areas with improved NO<sub>2</sub> concentrations and 97 per cent live in areas with improved PM<sub>2.5</sub> concentrations (albeit small). It is estimated that three per cent of people living in the most deprived areas may experience a slight increase in PM<sub>2.5</sub> of around 0.1 µg/m<sup>3</sup>. However, this is compared to the vast majority of these areas having improved air quality for both PM<sub>2.5</sub> and NO<sub>2</sub>.

Table 16 Population impacted by changes in NO<sub>2</sub> and PM<sub>2.5</sub> concentrations in the most deprived areas, by spatial area

		<b>Total population in deprived areas</b>	<b>Population with deterioration in air quality</b>	<b>% of deprived population</b>	<b>Population with improved air quality</b>	<b>% of deprived population</b>
NO <sub>2</sub>	Central	19,700	0	0%	19,700	100%
	Inner	896,720	294	0%	896,426	100%
	Outer	580,859	0	0%	580,859	100%
	Non-GLA	19,550	0	0%	19,550	100%
PM <sub>2.5</sub>	Central	19,700	0	0%	19,700	100%
	Inner	896,720	26,844	3%	869,876	97%
	Outer	580,859	0	0%	580,859	100%
	Non-GLA	19,550	0	0%	19,550	100%

*Note: Most deprived areas defined as Lower Super Output Areas (LSOAs) in lowest two deciles of the Index of Multiple Deprivation*

### *Schools, hospitals and care homes*

Pollutant concentrations around schools in both London and outside the GLA boundary have been assessed by averaging concentrations around 150 metres of the school location. Figure 29, Figure 30 and Figure 31 show the location of schools in London meeting legal limits for NO<sub>2</sub> (40 µg/m<sup>3</sup>) as well as WHO interim targets (30 µg/m<sup>3</sup> and 20 µg/m<sup>3</sup>)

Within London, all 3,256 schools assessed are forecast to be below the legal limit for NO<sub>2</sub> (40 µg/m<sup>3</sup>), both with and without the London-wide ULEZ. It is estimated that, without the London-wide ULEZ, 106 schools would not meet the WHO target of 30 µg/m<sup>3</sup> NO<sub>2</sub>. With London-wide ULEZ in place, this would reduce to 91 schools, improving 15 schools in central and inner London. Appendix D provides a summary of the schools' concentrations for NO<sub>2</sub> and PM<sub>2.5</sub>.

Improving pollution levels around schools and achieving WHO interim targets for children is important to continue to improve the health of young Londoners. Analysis of concentrations around schools shows that 2,369 are currently expected to exceed the

WHO interim target of 20  $\mu\text{g}/\text{m}^3$  for  $\text{NO}_2$  in 2023. With a London-wide ULEZ in place, 145 of these schools, most of them in outer London, would meet this level.

Average concentrations have been assessed at 298 hospitals inside the M25 and 584 care homes. None of these locations exceed the legal limit for  $\text{NO}_2$  of 40  $\mu\text{g}/\text{m}^3$ , but over 228 are currently expected to exceed the WHO interim target of 20  $\mu\text{g}/\text{m}^3$ . With the London-wide ULEZ in place this is estimated to fall to 215 hospitals, an improvement of 13 hospitals. Similarly, 335 care homes are currently estimated to be above WHO interim target of 20  $\mu\text{g}/\text{m}^3$  for  $\text{NO}_2$ , and this is expected to improve to 305 with the expansion of ULEZ London-wide, with improvements at 30 care homes.

$\text{PM}_{2.5}$  concentrations have also been assessed at schools and show that over 77 per cent of schools in London exceed the WHO interim target of 10  $\mu\text{g}/\text{m}^3$ , representing 1,421 schools. All hospitals and care homes assessed are expected to be in areas exceeding the WHO interim target of 10  $\mu\text{g}/\text{m}^3$  for  $\text{PM}_{2.5}$ . There is little improvement in  $\text{PM}_{2.5}$  concentrations at schools as a result of the London-wide ULEZ, showing that improving  $\text{PM}_{2.5}$  levels in London requires further action across all emissions sectors.

Figure 29 Schools exceeding  $\text{NO}_2$  40 $\mu\text{g}/\text{m}^3$  in 2023 with London-wide ULEZ

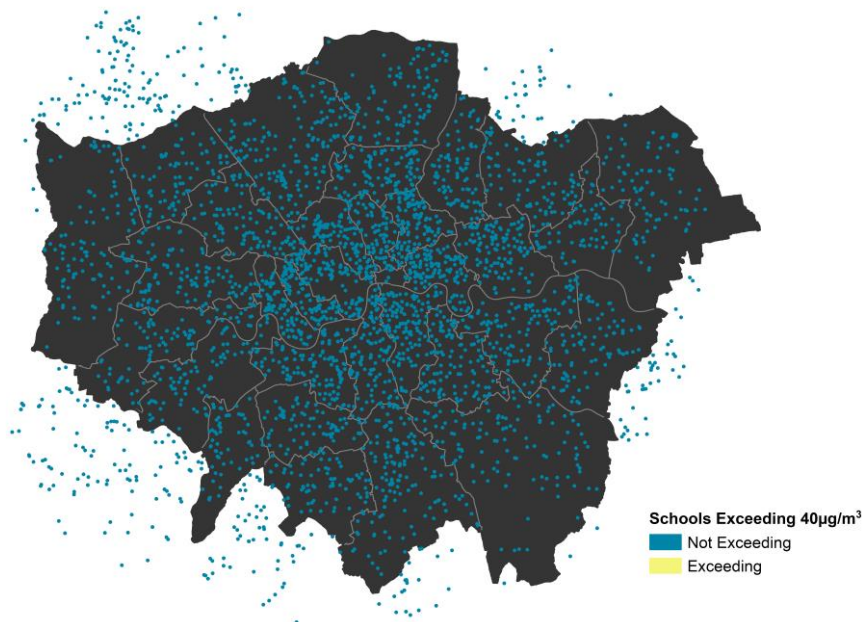


Figure 30 Schools exceeding NO<sub>2</sub> 30µg/m<sup>3</sup> in 2023 with London-wide ULEZ

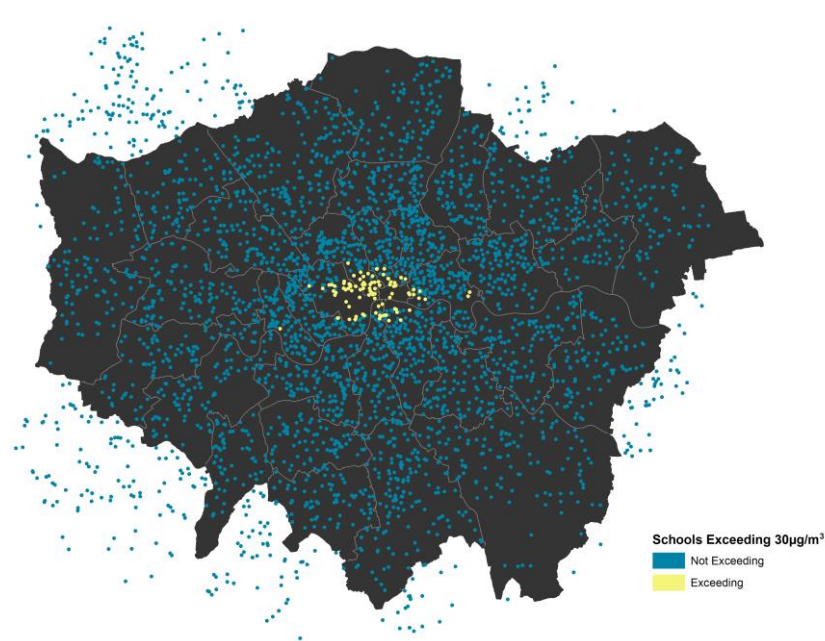
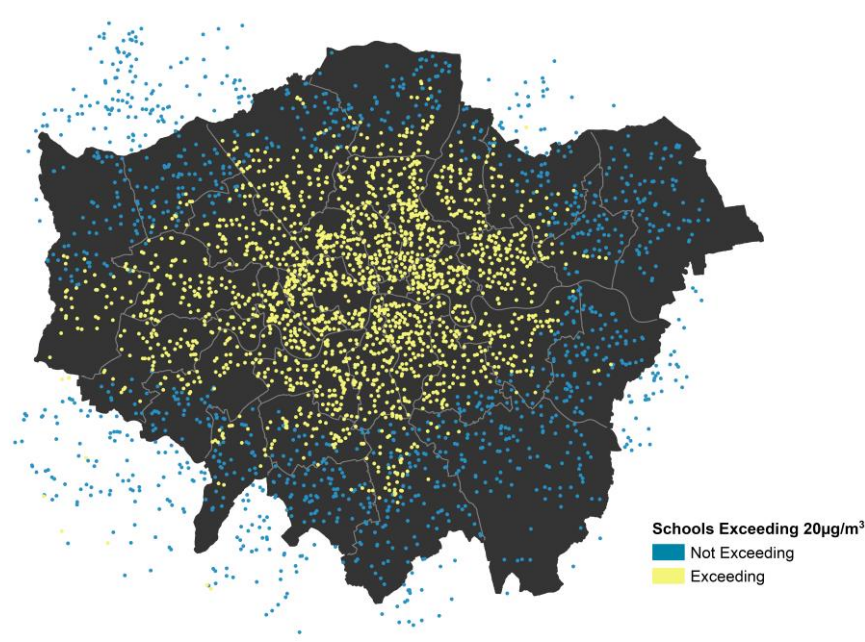


Figure 31 Schools exceeding NO<sub>2</sub> 20µg/m<sup>3</sup> in 2023 with London-wide ULEZ



## Road lengths

Air quality based on average concentrations over small areas (census Output Areas) are used to describe the changes in population exposure. However, concentrations are nearly always higher at the roadside due to the impact of traffic emissions close to roads. TfL assess concentrations at roadside at a distance of about four metres from the kerb in order to understand how policies impact locations where concentrations tend to be higher, especially where the focus is on reducing traffic emissions.

For many years large proportions of London's main road network have exceeded UK legal limits. Policies such as ULEZ and its expansion to inner London have accelerated the uptake of cleaner vehicles through the use of Euro 6/VI standards for diesel vehicles, and Euro 4 for petrol vehicles. This means that one per cent of London's roads are expected to exceed UK legal limits in 2023, compared to 54 per cent in 2016.

In 2019, 63 per cent of London's roads exceeded the WHO interim target of  $30 \mu\text{g}/\text{m}^3$  for  $\text{NO}_2$ , and 99 per cent exceeded the lowest interim target of  $20 \mu\text{g}/\text{m}^3$ . Table 17 provides the estimated proportion of major road lengths that are predicted to exceed UK legal limits and WHO interim targets for  $\text{NO}_2$ .

Table 17 Proportion of road lengths meeting UK legal limits for  $\text{NO}_2$  ( $40 \mu\text{g}/\text{m}^3$ ), and the WHO interim targets ( $30 \mu\text{g}/\text{m}^3$  and  $20 \mu\text{g}/\text{m}^3$ )

	Proportion of road lengths meeting UK legal limit of $40 \mu\text{g}/\text{m}^3$		Proportion of road lengths meeting UK legal limit of $30 \mu\text{g}/\text{m}^3$		Proportion of road lengths meeting UK legal limit of $20 \mu\text{g}/\text{m}^3$	
	2023 Base	London-wide ULEZ 2023	2023 Base	London-wide ULEZ 2023	2023 Base	London-wide ULEZ 2023
Central	84%	85%	9%	10%	0%	0%
ULEZ (excluding Central)	98%	98%	78%	80%	0%	0%
Outer	100%	100%	93%	95%	19%	23%
GLA	99%	99%	86%	87%	12%	15%
Non-GLA	99%	99%	24%	25%	14%	16%
TLRN	97%	97%	75%	78%	7%	8%

The expansion of ULEZ London-wide would reduce the proportion of the road network which exceeds these values, particularly in outer London. It is estimated that 87 per cent of roads in London would meet the  $30 \mu\text{g}/\text{m}^3$  interim target. However, the expansion could ensure that almost a quarter (23 per cent) of the road network in outer London meets the



lowest interim target of 20 µg/m<sup>3</sup> in 2023, compared to 19 per cent without the expansion. This means that 15 per cent of London's road network could meet the 20µg/m<sup>3</sup> target, up from 12 per cent without the expansion.

As a result of the expansion a number of outer London boroughs, including Bromley, Croydon, Harrow, Sutton and Merton, would have fewer than one per cent of the road network exceeding the interim target of 30 µg/m<sup>3</sup>. Outer London boroughs are also predicted to have the largest increase in the proportion of roads meeting 20 µg/m<sup>3</sup> as a result of the expansion.

The expansion is expected to improve air quality concentrations of roadside NO<sub>2</sub> across the TLRN in all boroughs with largest improvements in outer London boroughs particularly for the proportion of roads achieving the 20 µg/m<sup>3</sup> target. Appendix C provides the proportion of road lengths exceeding NO<sub>2</sub> across London's boroughs.

#### *Environmental impacts as assessed in the Integrated Impact Assessment (IIA)*

In addition to the assessment above, the environmental impacts of the proposals have been assessed as part of the IIA. Findings are summarised below.

Across Greater London, moderate (NO<sub>x</sub>) to minor (PM<sub>10</sub> and PM<sub>2.5</sub>) beneficial impacts are expected on road traffic emissions of air pollutants, with minor (NO<sub>2</sub>) to negligible (PM<sub>10</sub>) beneficial impacts on exposure to air pollution.

Minor (NO<sub>2</sub>) to negligible (PM<sub>2.5</sub>) beneficial impacts are expected on exposure to air pollution and achieving WHO Interim Targets across Greater London, with a minor beneficial impact on compliance with legal limits across Greater London.

Negligible beneficial impacts are also expected for carbon emissions in Greater London and on nature conservation sites due to decreases in NO<sub>x</sub> concentrations.

A minor positive impact is also expected on cultural heritage assets from reduced risk of acid rain in London as a result of NO<sub>x</sub> reduction, with a neutral impact expected on the soiling of historic buildings from reductions in PM emissions.

Neutral impacts are expected on anticipated additional tonnage of vehicles scrapped and on fly-tipping in those parts of outer London which not fall within the London-wide ULEZ boundary.

In addition, the impact on the built environment or streetscape within urban/suburban areas of outer London as a result of the installation of new street furniture is expected to be neutral, although it is expected there will be localised minor negative impacts of new street furniture in some rural areas.

### *Business and economic impacts*

The proposed London-wide expansion of ULEZ is forecast to reduce total trips<sup>62</sup> in London by around 44,000 each day, with 19,000 trips diverting to avoid London and 25,000 trips not happening at all. In percentage terms, this is under a 0.2 per cent reduction in total trips.

Shopping trips in London are expected to reduce by just under 7,000 trips or 0.2 per cent, with 3,000 of these now taking place outside of London and the remainder ceasing completely. Business trips in London could reduce by under 2,000, or 0.1 per cent. There could also be a small shift of commuting trips to outside of London, but there is not expected to be a reduction overall.

Overall, business and economic impacts are considered to be short term as adjustments are made to adapt to the scheme. Impacts on PHV provision and taxis licensed outside of London and on the night-time economy spend from people living outside of London are considered to be neutral.

Minor negative impacts are expected on reduced retail spend from people living outside of London; increased van operating costs for a significant proportion of tradespeople, street markets, delivery companies and similar; and on localised labour markets, in particular at Heathrow Airport.

### *People (including health and equalities) impacts*

The Mayor's aim is that by 2041, all Londoners do at least 20 minutes of active travel each day to stay healthy<sup>63</sup>. Currently only 37.6 per cent of Londoners who live in outer London achieve this<sup>64</sup>. This is much lower than the 49.3 per cent of inner Londoners – which shows the particular need to encourage outer Londoners to use active and sustainable travel options.

As highlighted earlier, the London-wide ULEZ expansion is expected to increase active travel, particularly for outer London residents. For example, there could be an additional 60,000 (1.9 per cent) walking trips and 3,000 (1.5 per cent) cycling trips made entirely within outer London every day. This will help to improve the health outcomes for individuals choosing to walk and cycle.

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<sup>62</sup> Trips by all modes and purposes

<sup>63</sup> <https://content.tfl.gov.uk/healthy-streets-for-london.pdf>

<sup>64</sup> Travel in London 14

It is expected that the London-wide ULEZ expansion will bring improvements to air quality, resulting in better health outcomes for all Londoners, with disproportionately greater health benefits for older people and children, and differential benefits for people with a range of long-term health conditions, children and older people living in outer London. Impacts on vulnerable populations as a result of reduced urban heat island effects are considered to be neutral.

Impacts on disabled people travelling by car in outer London who qualify for Motability scheme and disabled vehicle tax class exemption are considered to be neutral. However, a moderate disproportionate negative financial impact is expected on disabled people who make journeys using non-compliant vehicles and do not qualify for Motability scheme and disabled vehicle tax class grace period. These disabled people, alongside people on low incomes and older people, are expected to experience moderate differential impacts on health (stress and anxiety and isolation).

It is expected there will be disproportionate moderate negative impacts on care workers (particularly Black, Asian and minority ethnic people and women) using a non-compliant vehicle where employers do not reimburse staff. Differential moderate negative impacts are expected on people who receive domiciliary care, mobile healthcare services, and/or informal care in outer London, particularly disabled people, older people, pregnant or maternal women, and people with underlying health conditions.

Moderate negative impacts are expected on those reliant on non-compliant vehicles including people on low incomes accessing employment (particularly in night-time economy) or opportunities in outer London; people with restricted mobility including pregnant and maternal women; and tradespeople, likely to be disproportionately experienced by men and members of the Gypsy and Traveller community, working in outer London.

Some minor differential negative impacts are expected for people who travel by non-compliant vehicle, including:

- pregnant and maternal women, older people, disabled people, people with underlying health conditions, and people on low incomes accessing medical appointments at specialist facilities in outer London or healthcare outside London
- people of different faiths accessing places of worship in outer London
- young people attending SEN schools in outer London and/or their carers and families on low incomes
- BAME people and women who work for the NHS in lower paid positions in outer London
- charities and community organisations operating within outer London and the vulnerable groups who rely on their services

It is expected there will be disproportionate minor negative impacts for those reliant on non-compliant vehicles including women taking children to school in outer London and BAME PHV drivers working in outer London.

Community severance<sup>65</sup> impacts are expected for people living in communities adjacent to the London-wide ULEZ boundary, particularly those on low incomes, who are required to travel into outer London by car to access employment, services and facilities.

A minor differential negative impact on perceptions of safety is also expected for women, disabled people, young people, transgender people, LGBT+ people and BAME people, who travel by non-compliant private vehicle but cannot afford to upgrade to a compliant vehicle.

There are several discounts, exemptions and reimbursements for the existing inner London ULEZ scheme that will remain in place, as well as grace periods which will have end dates extended. These would mitigate some of the impacts associated with the implementation of the Proposed Scheme on certain people travelling within the ULEZ expansion area and on some businesses.

The proposals include extending the existing grace periods (during which a 100 per discount applies) that apply to disabled or disabled passenger vehicle tax class vehicles and wheelchair accessible private hire vehicles (WAV PHVs)<sup>66</sup> fulfilling a private hire booking for two years, from October 2025 to October 2027. The grace period for community minibuses would also be extended for two years, from October 2023 to October 2025.

In addition, for the London-wide ULEZ proposal the Mayor is considering a large-scale and targeted vehicle scrappage scheme to support Londoners, including, for example, those on low incomes, disabled people, charities and businesses.

### **Removing the annual £10 Auto Pay vehicle registration fee for ULEZ, Congestion Charge and LEZ and increasing the penalty charge from £160 to £180 for ULEZ and Congestion Charge**

Customers who are registered for Auto Pay are automatically charged for the number of charging days their registered vehicle is used during charging hours within the Congestion Charge Zone, and if it doesn't meet the standards, the LEZ and ULEZ. The proposed

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<sup>65</sup> The term 'community severance' describes the effects of transport infrastructure or motorised traffic as a physical or psychological barrier separating one built-up area from another built-up area or open space.

<sup>66</sup> WAV PHVs will only be exempt when carrying out a private hire booking for a TfL-licensed PHV operator. At all other times PHV owners will have to pay the charge if their designated wheelchair-accessible PHV does not meet the emissions standards and is not in the disabled or disabled passenger vehicle tax class.

removal of the Auto Pay registration fee is designed to help mitigate the impact of increasing the PCN level and remove a barrier to those signing up for this payment channel.

Drivers that have not paid the ULEZ or Congestion Charge within the time allowed (up to three days from date of travel), whose vehicles are not exempt or registered for a 100 per cent discount, may be issued with a PCN<sup>67</sup>. The proposed increase in the level of penalty charge is designed to increase the deterrent effect of receiving a PCN and ensure the continued effectiveness of both schemes in achieving their objectives. The proposals to remove the £10 Auto Pay annual registration fee per vehicle and increase the penalty charge level to £180 are not expected to have a significant impact on traffic or emissions.

Our independent consultants Jacobs have assessed the potential impacts of these proposals in relation to the ULEZ, and this can be found within the main IIA. For the impacts in respect of the Congestion Charge and LEZ<sup>68</sup>, we have undertaken an impacts assessment on the economic impacts and, in line with our public sector equality duty, a combined Equalities Impact Assessment (EqIA) on the proposals. Since no potential impacts on health or the environment were identified for these proposals, they were scoped out of the assessment. This assessment including the EqIA can be found [here](#).

### ***Assessment of impacts for proposal to remove £10 per vehicle Auto Pay annual registration fee for the Congestion Charge, ULEZ and LEZ***

The impacts of the increase to the level of the penalty charge may be offset by the accompanying proposal of removing the £10 per vehicle registration and annual renewal fee for Auto Pay, and Fleet Auto Pay (which is available to businesses with six or more vehicles). Drivers will benefit in financial terms by registering for Auto Pay or Fleet Auto Pay without having to pay an annual fee because it means that they cannot inadvertently incur a PCN because they forgot to pay the charge; it may also have a small saving in avoiding the administration costs associated with paying individual charges.

It is expected that the removal of the £10 Auto Pay administration fee will lower the barrier for disabled people who are not eligible for a discount or exemption and people on low incomes (particularly younger people, older people, women and BAME people) to sign up to Auto Pay. This is particularly relevant for infrequent drivers or those who do not often enter charging zones, where the £10 fee may put off registration for infrequent or 'just in

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<sup>67</sup> A PCN is a legal requirement to pay the amount stated, and this is reduced by 50 per cent if paid within 14 days. PCNs can be referred to independent adjudicators if disputed.

<sup>68</sup> Changes to Auto Pay for Congestion Charge and LEZ; changes to penalty charge levels for Congestion Charge.



case' use. Registering the vehicle(s) for Auto Pay removes the possibility of a customer receiving a PCN and the associated higher cost. However, the benefit of an Auto Pay account may not be accessible to those in the Gypsy and Traveller community who have no fixed address and do not have a bank account (and pay road user charges via another channel such as a pre-payment card). However, this group is small in size and the frequency at which it may be impacted is limited which mitigates these impacts to some extent.

### ***Assessment of impacts for proposal to increase the penalty charge for the Congestion Charge and ULEZ***

There is a potential positive economic impact on all users of London's streets from the proposal to increase the penalty charge level for the Congestion Charge and ULEZ as it is intended to help ensure the continued effectiveness of the scheme by making a PCN a proportionate deterrent against drivers actively avoiding paying the Congestion Charge and ULEZ charge. It is not envisaged that this change will lead to a reduction in vehicles entering the zones.

At the same time, the increase to the level of the penalty charge could have a disproportionate adverse financial impact on disabled people who are reliant on cars, younger and older people, women, people from BAME backgrounds, and people on low incomes (including those in the Gypsy and Traveller community) if they are issued a PCN for failing to pay the Congestion Charge or the ULEZ charge. It could cause financial difficulties and impact their ability to pay the PCN.

PCNs can be avoided if customers are registered for Auto Pay, for which, as part of this proposal, the £10 registration and annual renewal fee per vehicle are being removed. Auto Pay and Fleet Auto Pay help make the process of paying the Congestion Charge, ULEZ and LEZ charges easier and remove the risk of a PCN being issued for non-payment.

An overwhelming majority of drivers do not receive PCNs and so the scale of impact of changes to the PCN level is therefore likely to be small. At present, three quarters of those affected by the Congestion Charge, the LEZ charge and the ULEZ charge are already signed up to Auto Pay which mitigates the risk of receiving a PCN. The groups identified as being affected are small in size and generally have low levels of car ownership. As a result, the disproportionate impact on those groups would be limited, to some extent.

Representation and appeals processes are in place for drivers to challenge the Penalty Charge if they believe it was issued incorrectly or unfairly or there were mitigating circumstances.

## **Data Protection Impact Assessment (DPIA)**

The proposed expansion of the ULEZ London-wide will require the use of 2,750 additional ANPR cameras and bring additional vehicles/journeys within the scope of the scheme. This means there will be an increase in the number of VRMs collected by our cameras and, most likely, more payments being made, more customer accounts and more PCNs being issued.

As a result, the volume of personal data we process will increase. However, it is not intended that we will carry out the processing in ways which are different to how we do it now or which bring new risks. We have drafted a [DPIA](#) which considers the possible privacy implications of an expanded zone and this will be reviewed following the consultation.

## 7. Shaping the future of road user charging

### The case for further action

Delivering the proposals outlined above will help us to make London cleaner, greener and less congested. However, further action will be needed in the long-term to achieve the necessary levels of traffic and emissions reductions to continue to improve Londoners' health and to meet net zero carbon targets to tackle the climate emergency. This may require the introduction of London-wide road user charging by 2030 at the latest, as set out by an Element Energy analysis of a 2030 net zero target for London.<sup>69</sup> The analysis notes that all scenarios would benefit from London-wide road user charging being introduced as early as possible.

#### *What is road user charging?*

Road user charging involves charging drivers for the use of the roads they drive on.

The policy of road user charging in urban areas has existed worldwide for nearly half a century. Initially schemes were largely based on a cordon charge, where vehicles are charged for entering the charging zone (e.g. Singapore, Stockholm), or an area charge where vehicles are charged for circulating within the charging zone (e.g. London Congestion Charge Zone).

More recently, new technology has enabled users to be charged based on distance travelled.

In London, we currently have three road user charging schemes in operation: the Congestion Charge (central London), the Low Emission Zone (London-wide), and the Ultra Low Emission Zone (currently inner London).

In January 2022, the Mayor responded to the Element Energy report by announcing his preferred pathway to net zero carbon.<sup>70</sup> This would require a 27 per cent reduction in car kilometres travelled on London's roads by 2030. To help achieve this, London may need a new kind of road user charging system implemented by the end of the decade. This could

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<sup>69</sup> Element Energy, Analysis of a Net Zero 2030 Target for Greater London, 2022:

[https://www.london.gov.uk/sites/default/files/nz2030\\_element\\_energy.pdf](https://www.london.gov.uk/sites/default/files/nz2030_element_energy.pdf)

<sup>70</sup> London Net Zero 2030: An updated pathway, GLA, 2022:

[https://www.london.gov.uk/sites/default/files/london\\_net\\_zero\\_2030\\_-\\_an\\_updated\\_pathway\\_-\\_gla\\_response\\_1.pdf](https://www.london.gov.uk/sites/default/files/london_net_zero_2030_-_an_updated_pathway_-_gla_response_1.pdf)

include replacing existing charges with a road user charging scheme that uses more sophisticated technology to make it as simple and fair as possible for customers.

This would be alongside wider action across the transport sector, including traffic and parking control measures, road space reallocation, public transport improvements, freight consolidation, and co-location of services to reduce the need to travel. Additional action would also be required in other sectors, including retro-fitting buildings to be more energy efficient and the installation of heat pumps.

We are already delivering some of these wider actions:

#### *Active travel*

We supported boroughs to deliver around 100 Low Traffic Neighbourhoods and there are now more than 500 School Streets<sup>71</sup> in London. We have expanded our strategic cycle network by almost 250km since 2016, with one in five Londoners now living within 400m of a cycleway. We are also providing more cycle parking, including over 3,000 spaces delivered in 2020 and 2021 in a range of locations including town centres, rail stations and residential hangars. We continue to improve safety to make it easier for people to choose to walk or cycle. The Safer Junctions<sup>72</sup> programme has improved 43 dangerous junctions in London and nearly half of the Capital's roads now operate on a 20mph speed limit.

#### *Public transport*

All TfL's bus fleet are ULEZ compliant, and we now have one of the largest electric bus fleets in western Europe, with more than 800 zero-emission buses on the road. We have introduced new electric buses with new customer features on route 63, and working with boroughs have delivered more than 5km of new and improved bus priority in the past year. This year we will open the Elizabeth Line, and an extension of the London Overground network to Barking Riverside.

#### *Cleaner vehicles*

We continue to work with taxi and private hire operators to support their conversion to zero emission capable vehicles.<sup>73</sup> More than a third of the active taxi fleet in London is now zero emission capable or fully zero emission. Since 1 January 2018, taxis presented for licensing for the first time have needed to be zero emission capable, and from 1 January 2023 all PHVs licensed for the first time must be zero emission capable and meet the Euro

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<sup>71</sup> Restricting access to the street outside a school at drop off and pick up times

<sup>72</sup> Safer Junctions programme takes an evidence-based approach to target junctions on the TfL road network where high numbers of people have been killed or injured while walking, cycling or riding motorcycles

<sup>73</sup> <https://tfl.gov.uk/info-for/taxis-and-private-hire/emissions-standards-for-phvs>

6 emissions standard. We have worked with boroughs and the private sector to increase the number of EV charging points by 85 per cent between 2019 and 2021, with more than 9,000 publicly accessible charging points now available in London, accounting for a third of the UK total.

### *Greener and more efficient streets and freight*

In recent years, we introduced and expanded the ULEZ, raised the Congestion Charge, and extended the Congestion Charge operating hours to weekends. We review the timings of 20 per cent of London's 6,000 traffic signals every year to ensure safe and efficient movement of people and vehicles on our streets. We are working with businesses and the freight sector to develop sustainable freight solutions.

We also have plans to procure more renewable energy, accelerate the electrification of the bus fleet subject to Government support, switch our support vehicles to zero-emission, and ensure freight and servicing vehicles under 3.5 tonnes delivering to TfL buildings are zero-emission.

## **Potential wider benefits of traffic reduction**

Reducing traffic with a comprehensive strategy that includes London-wide road user charging would help us to address the triple challenges of toxic air pollution, the climate emergency, and traffic congestion. It could also be effective at improving:

### *Active travel*

- A person who is physically active every day reduces their risk of chronic conditions including coronary heart disease, obesity and type 2 diabetes, mental health problems and social isolation.<sup>74</sup> Walking, cycling and accessing public transport is the main source of physical activity for Londoners.
- If everyone in London walked or cycled for 20 minutes a day, this would deliver at least an additional 60,000 years of healthy life in prevented illness and early death each year<sup>75</sup> but around one in five Londoners said '*too much traffic*' deterred them from walking in 2020/21<sup>76</sup>.

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<sup>74</sup> UK Chief Medical Officers' Physical Activity Guidelines, 2019:

<https://www.gov.uk/government/publications/physical-activity-guidelines-uk-chief-medical-officers-report>

<sup>75</sup> Mayor's Transport Strategy, GLA, 2018: <https://www.london.gov.uk/what-we-do/transport/our-vision-transport/mayors-transport-strategy-2018?intcmp=46686>

<sup>76</sup> TfL Customer Pulse survey 2020/21



- Similarly, around one in three Londoners who currently cycle say ‘*too much traffic*’ is a barrier to cycling, with 40 per cent of those who do not cycle saying the same<sup>77</sup>.

### *Road danger*

- Conflict with faster moving or larger vehicles puts people using London’s streets at risk. Cities across the world who have demonstrated the most progress in reducing casualties share one significant commonality: reducing exposure to motorised traffic. This has proven instrumental in driving down casualties in cities like Oslo and Helsinki, with both recording zero pedestrian and cyclist fatalities in 2019.

### *Noise*

- Road traffic is the largest cause of noise pollution in London with almost 2.4 million people exposed to road traffic noise levels that are above WHO guidelines (55dB).<sup>78</sup> Persistent chronic noise exposure increases the risk of cardiometabolic diseases, including arterial hypertension, coronary artery disease, diabetes mellitus type 2, and stroke.<sup>79</sup> Reducing traffic volumes would help to reduce the health and wellbeing burden of London’s noise pollution.

### *Severance*

- Physical barriers or heavy traffic can also make streets difficult to cross. This can disrupt social networks and lead to social isolation. People with weak social and community ties have worse health outcomes<sup>80</sup>.

### *Local economies*

- Low traffic streets that feel safe and comfortable for people to walk and spend time in bring economic benefits. High street walking, cycling and urban realm improvements have been shown to increase retail sales by up to 30 per cent<sup>81</sup> and provide an uplift in office and retail rental values equivalent to an ‘additional’ four

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<sup>77</sup> TfL Cycling Behaviour and Attitudes Survey P7 2021/22

<sup>78</sup> Mayor’s Transport Strategy, GLA, 2018: <https://www.london.gov.uk/what-we-do/transport/our-vision-transport/mayors-transport-strategy-2018?intcmp=46686>

<sup>79</sup> The adverse effects of environmental noise exposure on oxidative stress and cardiovascular risk, Münzel, T., Sørensen, M., Schmidt, F., Schmidt, E., Steven, S., Kröller-Schön, S., & Daiber, A., 2018, *Antioxidants & redox signaling*, 28(9), 873-908

<sup>80</sup> The urban built environment and mobility in older adults: a comprehensive review, Rosso, A. L., Auchincloss, A. H., & Michael, Y. L., 2011, *Journal of aging research*, 2011.

<sup>81</sup> The Pedestrian pound: The business case for better streets and places, Lawlor, E, 2013: <https://www.livingstreets.org.uk/media/3890/pedestrian-pound-2018.pdf>

per cent and 7.5 per cent per annum respectively and decline in retail vacancy rates of up to 17 per cent<sup>82</sup>.

### *Wider economy*

- In addition to the economic benefits of reduced congestion, traffic reduction can support London's wider economic competitiveness through its positive impacts on environment and quality of life, which are crucial factors in attracting people, capital, and enterprises from around the world.

### **Creating a virtuous cycle of benefits**

Road user charging cannot deliver the change London needs on its own. We would need to improve alternatives to car travel, including walking, cycling, public transport and car clubs, so that more Londoners choose to use them. In parallel, we must also reduce the impact of TfL's own operations on air quality, climate and traffic congestion. If we do all of these things together, a new road user charging scheme could be part of an approach that creates a virtuous cycle of benefits for all Londoners:

- Reducing motorised traffic would make our streets safer
  - Cars were involved in 63 per cent of collisions that killed or seriously injured someone outside the vehicle in 2021, and HGVs and motorcycles are disproportionately involved in collisions which kill or seriously injure others.
- A safer, less traffic dominated experience would create streets where people want to walk and cycle
  - We know that safety concerns and too much traffic put people off walking and cycling. By addressing these concerns, we can help people switch from car, especially for shorter trips.
- At the same time, lower traffic volumes would improve the quality of public transport
  - We saw the dramatic impact that reduced traffic volumes can have on bus journey times during the first lockdown in 2020, when average bus speeds improved in all parts of the Capital, including by up to 50 per cent in central London.<sup>83</sup> Improving bus journey times would enable us to get more out of our bus network as we would need fewer buses to run a reliable schedule. We could then redeploy surplus buses to enhance frequencies or provide

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<sup>82</sup> Street appeal: The value of street improvements , Carmona, MP; Gabrieli, T; Hickman, R; Laopoulou, T; Livingstone, N, 2018: <https://content.tfl.gov.uk/street-appeal.pdf>

<sup>83</sup> Delivering the Mayor's Transport Strategy 2020/21: <https://content.tfl.gov.uk/the-mayors-transport-strategy-update-2020-21-acc.pdf>

new routes. Quicker journeys would also make bus travel an attractive option for more people.

- Surplus revenue from a road user charging scheme would be invested in the wider network to support the delivery of the Mayor's Transport Strategy
  - This investment could make walking, cycling and public transport more attractive for more of people's trips, and could support user benefits across all networks. We have done this before. For example, we enhanced the bus network following the implementation of the Central London Congestion Charge.
- In the long-run this can support the delivery of new homes and jobs, by improving public transport provision to enable more dense, less car dependent development in well-connected locations
  - This in turn could deliver further traffic reduction. The long-term overall impact of this 'Good Growth' on mode shift could be up to twice that of London-wide road user charging on its own.

### **What elements could be considered as part of future road user charging**

As we start to consider how future road user charging could work, we want to hear what Londoners think about the elements of road use which could be included in setting a charge. Future road user charging could bring existing schemes such as the Congestion Charge, LEZ and ULEZ together into an integrated charge. The charge itself could be 'smarter' and vary according to a combination of elements, as set out in Table 18.

Table 18 Potential components of a new road user charging scheme

<b>Component</b>	<b>How we consider this in existing schemes</b>	<b>Rationale for inclusion</b>
How far you drive	We do not currently include distance driven in our road user charging schemes, but technology advances mean this could now be considered, meaning some people could pay less	<ul style="list-style-type: none"> <li>▪ NO<sub>x</sub>, PM and CO<sub>2</sub> emissions are directly related to distance driven</li> <li>▪ A reduction in overall vehicle kilometres on the network would typically result in reduced traffic congestion</li> </ul>

Component	How we consider this in existing schemes	Rationale for inclusion
What time of day you drive	Currently the Congestion Charge is in operation 07:00 – 18:00 Monday – Friday, and 12:00 – 18:00 on Saturdays, Sundays and bank holidays. The LEZ operates 24 hours a day all year, and the ULEZ operates 24 hours a day except Christmas Day	<ul style="list-style-type: none"> <li>▪ NO<sub>x</sub> and PM concentrations are higher at peak times</li> <li>▪ Traffic congestion levels are typically highest in the morning and afternoon peaks</li> </ul>
What type of vehicle you drive	We currently provide discounts and exemptions in our road user charging schemes for certain vehicles, for example emergency service vehicles or disabled tax class vehicles	<ul style="list-style-type: none"> <li>▪ In some cases it would be appropriate to provide discounts or exemptions to a charge</li> </ul>
How polluting your vehicle is	All of our existing road user charging schemes consider vehicle emissions either in the charge level or discounts and exemptions from the charge	<ul style="list-style-type: none"> <li>▪ The majority of road transport NO<sub>x</sub>, PM<sub>2.5</sub> and CO<sub>2</sub> emissions in London come from cars and freight vehicles<sup>84</sup></li> </ul>
Where you drive	All of our existing road user charging schemes cover a specific geographical area	<ul style="list-style-type: none"> <li>▪ Road transport emissions in outer London are higher than those in inner London<sup>85</sup></li> <li>▪ Congestion levels are typically highest in central London, and higher in inner London than in outer London.<sup>86</sup></li> </ul>

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<sup>84</sup> LAEI 2019

<sup>85</sup> LAEI 2019

<sup>86</sup> Travel in London Report 14, TfL, 2021: <https://content.tfl.gov.uk/travel-in-london-report-14.pdf>

<b>Component</b>	<b>How we consider this in existing schemes</b>	<b>Rationale for inclusion</b>
The alternatives available for walking, cycling or public transport	We do not directly consider availability of alternatives in our road user charging schemes, however this forms part of the rationale for some discounts and exemptions	<ul style="list-style-type: none"> <li>It may be appropriate for charge levels to reflect the availability of alternatives to car use</li> </ul>
Household income	We do not directly consider individual households' income in setting variable charge levels in our road user charging schemes	<ul style="list-style-type: none"> <li>Ability to pay will be a consideration in developing a scheme that is fair for customers. It may also be appropriate to directly mitigate the impact of a charge for those who are less able to pay</li> </ul>
Ability to choose between daily charges and pay as you go	Our existing schemes charge on daily basis only	<ul style="list-style-type: none"> <li>Pay as you go could reflect usage in a more detailed way, and could mean some users pay less if they choose to opt in</li> </ul>
How many journeys you make	Our existing schemes do not take this into consideration	<ul style="list-style-type: none"> <li>It may be appropriate to consider frequency of travel when determining a charge</li> </ul>
Other costs of driving	We do not directly consider other costs of driving (e.g. fuel duty, vehicle excise duty) in our road user charging schemes	<ul style="list-style-type: none"> <li>It may be appropriate to consider the impact of these other costs when determining a charge</li> </ul>

The design and operation of any potential future road user charging scheme would also need to protect individuals' privacy rights. This means that from the outset, respect for privacy rights and the protection of personal data would be incorporated into the objectives for a scheme, as well as the design of its implementation, and ensure throughout that a scheme can meet its objectives with the minimum possible collection and use of personal



data. We could also consider the role that privacy enhancing technologies can play in this. Some potential elements, for instance those relating to distance and/or route travelled and the time a journey is made, will require particular consideration and privacy risks will be mitigated by developing a scheme in accordance with the 'privacy by design' and 'data minimisation' requirements of the UK GDPR.

## 8. Next steps

The consultation runs for ten weeks and will close at midnight on 29 July 2022. We encourage everyone to take part in the consultation and have your say on whether you support these proposals. The consultation questionnaire can be found [here](#) on our website.

In addition to this document, you can read more about the expected impacts, both positive and negative, of these proposals in the IIA, which can be found [here](#).

Following the consultation, we will analyse the responses received from the public and stakeholders. The results from the consultation and our analysis will be available online.

## Appendix A: Feedback from statutory bodies on the proposed MTS amendment (SEA requirement)

Consultee	Summary of Comments	Transport for London Response
Historic England	In addition to the National Planning Policy Framework (NPPF) and Planning Practice Guidance, we would advise that the IIA for the strategy should be reviewed in the context of Historic England's advice on <i>Strategic Environmental Assessment, Sustainability Appraisal and The Historic Environment</i> .	Noted. Taken into the consideration in development of this IIA.
	<p>The key issues in relation to the historic environment on page 18 differ from those on page 136 of the adopted IIA. Furthermore, the assessment guide questions on the historic environment page 28 also differ from those on page 168 of the adopted IIA.</p> <p>We recommend that the key issues and guide questions from the adopted IIA are reinstated, as these are clearly derived from appropriate baseline information and more closely aligned with the NPPF's requirements in relation to the historic environment</p>	Amended to ensure the guide questions accurately reflect the published 2018 MTS IIA.
	<p>We would however suggest one amendment to reflect NPPF terminology to the 2017 questions:</p> <p>Will the strategy .... Conserve and enhance <i>the heritage significance of sites</i>, features and areas of historical, archaeological and cultural value/potential?</p>	The IIA assessment framework including all existing objectives and guide questions that were set out in the 2018 MTS IIA <sup>87</sup> have been retained. This will ensure a consistent approach is taken to the assessment and the findings can be read

<sup>87</sup> <https://tfl.gov.uk/cdn/static/cms/documents/integrated-impact-assessment-report.pdf>

		alongside the previous IIA Environmental Report findings.
Environment Agency	A review of the current IIA Scoping Report shows that alternatives (to expanding the ULEZ) are proposed to be considered in the IIA. However, there is no clear reference to addressing trans-boundary / cumulative impacts. It would be logical to anticipate that a consequence of ULEZ expansion could be increased parking and road traffic on the periphery of the expanded ULEZ. This may be difficult to quantify, but appropriate to acknowledge and identify mitigation for to prevent poor air quality simply being an issue transferred from one area to another	The geographical scope of this assessment extends beyond the previous MTS 2018 which considered the area within the GLA to include potential impacts in areas adjacent to London.
	Also, we would like reassurance that the ULEZ expansion has considered the Environment Agency's regulation of sites (principally, waste sites), under the Environmental Permitting regime. The expanded ULEZ may have additional implications for London's waste industry, including for transport to and from regulated site. The proposals may conceivably result in the displacement of some waste operations to locations beyond the ULEZ, and increase fly-tipping. There are implications for the delivery of the Mayor's Environment Strategy, and London Plan aims for net zero waste and other waste targets, and potential for environmental impacts from increased waste crime.	<p>Impacts to waste operations were considered as part of the assessment that accompanied the introduction of the London – wide Low Emission Zone.</p> <p>All successful applicants for TfL's proposed scrappage scheme will be required to prove they have scrapped their vehicles at an Authorised Treatment Facility in order to qualify for a grant.</p> <p>For owners of non-compliant vehicles that do not qualify for scrappage, the risk of illegal fly tipping is considered to be low.</p>
	Other implications for the IIA to consider include those for rail travel, where in	The traffic modelling informing the proposals for

	increased passenger numbers potentially displace rail freight capacity, producing unintended environmental, economic and social impacts. We suggest that trans-shipment hubs should be preserved and enhanced within the ULEZ proposals for rail and water borne freight, thus supporting the move to more sustainable modes of transport.	a London-wide ULEZ indicates a 1.2 per cent increase in daily passenger trips by rail in 2023 compared with the reference case forecast. This relatively small change is not considered to have any implications for rail freight capacity.
Natural England	No comments on the Scoping Report	Noted

## Appendix B: Modelling methodology and data sources

### Methodology and assumptions

The assessment of how people might respond to the proposed changes is based on estimates of the number of vehicles in the zone, the compliance of those vehicles and how those who own non-compliant vehicles may switch to a compliant vehicle, sustainable mode or not travel to the zone at all. This assessment is then used to understand the impacts on compliance, vehicle kilometres, mode shift, air quality and carbon.



To understand the impacts of the scheme on vehicles travelling in London, we have provided estimates for London-wide daily unique vehicles and compliance rates.

### **London-wide unique vehicle estimates**

Unique vehicle estimates were calculated based on a number of datasets including:

- The London Travel Demand Survey (2019/20). An annual survey on the travel patterns of 8,000 London households.
- EDMOND. Aggregated and anonymised mobile phone data collected by Telefonica in 2016 which provides information on travel, mode and journey purpose inferred through trip patterns.
- Average annual daily flow (AADF) data. Daily vehicle volumes based on DfT count data, by vehicle type.
- Aggregated ANPR camera data from our current network to identify totals of unique vehicles by type and spatial area.

The volumes data used in this analysis is based on the following assumptions:

- Capture rates and number of unique vehicles compared to the number of car driver trips are similar to those in the current ULEZ area.
- Most of the data used is from autumn 2021 onwards, so accounts for pandemic changes to travel demand.

### **Compliance rates**

Forecast compliance rates for 2023 with the proposed changes are based on work undertaken as part of on-going preparation of the LAEI (London Atmospheric Emissions Inventory) which focuses on 2019, 2025 and 2030. Compliance rates are based on the fleet compositions which are prepared as part of the LAEI which include information on age and Euro standards, alongside fuel type and vehicle type across London. This information is initially derived from cross referencing anonymised ANPR camera observations in London with the DVLA record of vehicle information, alongside vehicle kilometre estimates in London. In this way the different types and ages of vehicles along with correlated Euro standards can be determined. This method has been used in the LAEI 2016, and again for the LAEI 2019 which includes recent information across 2019, 2020 and 2021. This allows TfL to represent changes in the fleet overtime, for example observed reductions in pre-Euro 6 diesel vehicles can be seen, alongside increasing proportions of electric vehicles. To forecast the fleet compositions TfL use information on existing pathways of Euro standards which increase most rapidly when a new Euro standard is introduced, and rate of update reduces over time towards 100 per cent. In addition, work undertaken by Element Energy for the LAEI 2019 forecasts (still in

progress) alongside GLA carbon projections has been used to estimate the increasing proportion of electric and plug-in vehicles in 2023. Together the overall compliance rate by vehicle type in 2023 can be determined, and then this data is adjusted based on the uplift that is forecast from the TfL ULEZ vehicle response tool as described below.

Compliance rates are then used to understand the volumes of non-compliant vehicles that would be affected by London-wide ULEZ. This assumes that proportions of compliant and non-compliant vehicles based on the existing camera network are suitable to estimate unique vehicles, although changes to the camera network will increase the density of observations over time.

### **Vehicle switching and travel behaviour change**

There are two main tools to understand the potential behavioural changes in response to the proposed changes. Firstly, to understand how the proposed changes may encourage owners of non-compliant vehicles to switch to compliant vehicles, a ULEZ vehicle response tool is used. This tool estimates the percentage of non-compliant vehicles that might switch to compliant vehicles using a breakeven analysis based on cost of upgrade versus cost of paying a charge. Secondly, TfL's demand and assignment models, MoTiON and LoHAM, together estimate how the remaining non-compliant vehicles might respond to a charge by changing travel behaviour. For example, deciding not to travel, changing mode or where possible changing the destination to avoid the charge. Together these behavioural responses drive the changes in compliance, vehicle kilometres, mode shift and ultimately air quality and carbon impacts.

The ULEZ vehicle response tool provides an estimate for how operators of non-compliant vehicles, including cars, LGVs, HGVs and coaches, might respond by upgrading their vehicle to a compliant vehicle. Updates were made to the ULEZ vehicle response tool since the previous ULEZ expansion to reflect current vehicle market trends and to include hybrid and zero-emission vehicles. The ULEZ vehicle response tool takes the percentage of compliant and non-compliant vehicles from the London Atmospheric Emissions Inventory (LAEI) 2019 fleet compositions. The non-compliant portion that would upgrade is calculated based on the estimated remaining market value left in a vehicle and divided by the number of days of useful life remaining. This is then compared with the cost of the ULEZ daily charge, based on frequency of visiting the zone (derived from ANPR camera data). A frequency distribution for outer London is challenging to estimate without a full camera network in place so a range has been considered that forms the one aspect of the sensitivities assessed, which are discussed later.

The main output from the tool is the change in percentage of non-compliant vehicles as a result of vehicle switching. This is then applied to MoTiON and LoHAM to understand how introducing a daily charge would impact travel behaviour for the remaining non-compliant

cars that would incur the charge. There have been sensitivities run that represent a range of possible compliance rates.

MoTiON is TfL's strategic transport model and consists of a demand model and three assignment models, one of which is LoHAM. MoTiON can forecast personal journeys for highway, public transport and active travel to, from and within London. The model can be used to assess forecasts of behavioural choices such as trip frequency, mode and destination choices as well as route choice by highway, public transport and cycle modes in response to a charge. Impacts presented on traffic, mode shift and vehicle kilometres are based on MoTiON and LoHAM outputs.

Travel behaviour choices for those owning vans is limited to rerouting and the overall number of trips is assumed to remain constant. This is primarily because it is expected that any businesses that leave the market as a result of the new emissions standards will be replaced by other businesses that have compliant vehicles or are willing to pay the charge. However, there may be a small change in demand for those that use their van for discretionary (and/or infrequent) purposes or those that could feasibly switch to using a cargo bike instead of a van.

### **Compliance rates in 2023 with proposed changes**

Estimates of forecast compliance rates with the proposed changes is based on a combination of the vehicle switching and the travel behaviour change. The time it could take for this compliance rate to be achieved is assumed based on monitoring of the ULEZ expansion to inner London, which suggested that the majority of the behavioural response takes place before the scheme is launched (called pre-compliance) and within six to 12 months of the scheme launch. However, lower levels of pre-compliance could be attributed to a shorter notice period. The wider economic context could impact upon compliance, such as the increase in fuel costs, inflation, as well as the scale of a scrappage scheme.

Sensitivities were undertaken to represent this uncertainty. The sensitivities consider variations in the frequency distribution into the proposed area, the rate of pre-compliance and how quickly compliance is reached after scheme launch. At the lower end of the range, a London-wide compliance rate of around 95 per cent for cars and 87 per cent for vans was estimated around six months after scheme launch. A higher overall response and more rapid pre-compliance could see estimates of around 97 per cent for cars and 92 per cent for vans around three months after scheme launch, which would bring forward benefits at an earlier stage. On balance an estimate of 95 per cent for cars and 91 per cent for vans after three months was used for the emissions, air quality and carbon modelling and impacts.

## Hybrid Forecast

In recent years, TfL has increasingly been thinking about how we deal with uncertainty when planning for London's future.

As we emerge from the pandemic, new evidence is regularly being published that provides insight into the direction of London's recovery. We need to reflect this changing landscape in our strategic planning. We are doing this through the periodic derivation of a Hybrid travel demand forecast, based on a regular review of this emerging evidence.

In summary, the Hybrid Forecast used in this analysis is informed by the following evidence on London's recovery from the pandemic:

- Population. Estimates based on the 'low' and 'low central' GLA population forecasts, resulting in a 2030 population of 9.5 million.
- Employment. A short to medium term impact on employment as a result of the pandemic, focused in industries impacted the greatest by pandemic restrictions.
- Inequality and disposable income: In the short term some groups, particularly those in 'blue collar' jobs are likely to be disproportionately impacted by job losses as a result of the pandemic and the cost of living crisis. In the long term high costs of housing will remain and have a subsequent impact on discretionary and leisure activities.
- Home working: Only available to some office-based sectors, predominantly those on higher incomes and working in central London. Overall, this leaves commuting trip rates at 75 to 85 per cent of 2018 levels over the longer term.
- Localism: With greater flexibility during the working day, trips from home for discretionary purposes are likely to hold up despite some activities being possible online, but there is a reduction in travel from non-home locations like offices. An accelerated shift towards online shopping during the pandemic means that overall shopping trip rates decline over the medium term.
- Propensity to cycle: We have assumed that some who enjoyed cycling during lockdown make a permanent change in the early 2020s but by the 2030s this is indistinguishable from a general increase in the propensity to cycle.
- Car ownership and use: Assumptions about London's population and housing stock, of which slower growth could result in higher overall car ownership. Therefore, the Hybrid Forecast accounts for higher car ownership than the reference case (largely due to lower house building) and that some of those who have been put off public transport will switch to car.

Further information on the Hybrid Forecast is available in Travel in London 14  
<https://content.tfl.gov.uk/travel-in-london-report-14.pdf>

Despite lower traffic volumes in the 2023 Hybrid Forecast compared to the 2023 reference case, the reduction in the number of car driver trips with ULEZ expansion is forecast to be only slightly lower than the reference case. Consequentially, the percentage change in trips is slightly higher than the assessment of the proposed changes in the reference case. This is because the discretionary journey purposes, which are most sensitive to the charge, are affected least by changes in travel behaviour in the Hybrid Forecast. Overall, whether assessed in the reference case or the Hybrid Forecast, the outcomes are unlikely to vary significantly.

## **Appendix C: Air quality modelling**

### **Introduction**

Modelled air pollutant concentrations of NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> have been based on the same dispersion model used as part of the LAEI. The LAEI (London Atmospheric Emissions Inventory) is a comprehensive inventory of all emissions across London and up to and including the M25, including:

- Transport sources (road, rail, aviation and shipping);



- Industrial and Commercial sources (combustion of gas and other fuels, large industrial sites, waste, construction, non-road mobile machinery);
- Domestic sources (combustion of gas and other fuels, biomass wood burning); and
- Other miscellaneous sources such as agriculture or accidental fire.

The dispersion model requires, as input, detailed emissions for all the above sources at a high spatial resolution, represented as a mix of line sources (for roads, rail, shipping), point sources (stacks from large industrial sites) or area/volume sources.

The LAEI covers the Greater London area, within the GLA boundary, as well as up to and including the M25 (shown in Figure 32). The area from the GLA boundary up to and including the M25 is defined as 'non- GLA' in the air quality impact analysis.

Figure 32 Map of the GLA boundary and the M25



### *Road Transport Emissions*

Road transport emissions were estimated on the LAEI Major Roads network (which consists of around 90,000 road links) using traffic data from TfL's transport model LoHAM, combined with zonal fleet composition by engine type (petrol, diesel, hybrid and electric) and Euro standard, for all vehicle types (distinct for central, inner and outer London, the M25 and outside London). Additional emissions on minor roads were derived LAEI vehicle-kilometre data from the LAEI 2019 baseline scaled to 2023.

The LoHAM transport model provides average peak hour flows and speeds for AM, PM and interpeak hours, for all vehicle types and all major road links across London.

ATC (automatic traffic counts) hourly data from TfL and Highways England (for the M25 and other London motorways) are used to derive expansion factors by zone (Central/Inner/Outer London and Non-GLA) and road types (M25, other motorways, A-Roads, B-Roads and Unclassified/C-Roads), so that AADT (Annual Average Daily Traffic) flows and daily average speeds can be estimated from the LoHAM peak hour flows and speeds.

For London buses, LoHAM flows and speeds were revised using TfL's iBus database, which provides more detailed bus flows and speeds for each bus route and between each bus stops across London.

The total HGV AADT flows estimated from the LoHAM transport model for each road link is further split between Rigid and Articulated HGVs using the average percentage of each HGV class by zone and road type, derived from detailed DfT AADT counts by vehicle type across London.

Motorcycle flows were also derived from the average Motorcycles/Cars ratio from DfT ATC data, as LoHAM does not include motorcycles

### *Other Emissions*

Whilst most of the small sources of emissions were not revised and kept as in the LAEI 2019, emissions from a number of key sources were scaled from the LAEI 2019 and 2025 forecast emissions recently developed as part of the LAEI, wherever possible. Assumptions for these are described below.

### *Aviation*

Aviation emissions were derived from the forecast emissions 2025 for the LAEI, which assumes aircraft activity to be back to pre-Covid level. In line with the most recent forecast, 2023 emissions were estimated to be 70 per cent and 60 per cent of 2025 forecast emissions for Heathrow and City airport, respectively.

### *Rail*

Rail emissions were interpolated from the 2019 baseline and forecast 2025 emissions prepared for the LAEI.

*Waste*

Emissions from waste (sewage treatment works, landfill, waste transfer stations and small-scale waste burning) were interpolated from the 2019 baseline and the forecast 2025 emissions produced as part of the LAEI.

*Domestic and Industrial/Commercial Gas*

Emissions from the combustion of gas from the industrial, commercial and domestic sectors were derived from gas consumption projections provided by the GLA for 2025 as part of the London Environment Strategy (LES), revised using the latest baseline consumption from BEIS. 2023 gas consumption was then interpolated from the 2019 and the revised 2025 forecast.

*NRMM Exhaust and Construction Dust*

Emissions from NRMM exhaust (both from industrial sites and on construction sites) and construction dust emissions were interpolated between the LAEI 2019 baseline and recent projections to 2025. Construction NRMM exhaust and dust are based on a combination of GLA's NRMM registry data and estimates of development locations from the Building Development Model (BDM) outputs, as well as NRMM compliance rates estimates. Forecast industrial NRMM emissions take into account of improvements in machinery used on industrial sites, resulting in a cleaner NRMM fleet across London.

*Background Concentrations*

Background concentrations include the contribution of air pollutants not explicitly included in the dispersion modelling. These typically include emissions from all sources outside the LAEI (i.e. beyond the M25), which contribute to background levels. These are added to modelled concentrations from emissions across London, to estimate total concentrations.

Background concentrations used for 2023 are shown in Table 19 below. These have been estimated using the CMAQ model used as part of the Clean Air Fund (CAF) study based on UK air pollution modelling forecasts to 2030 <sup>88</sup>.

Table 19 Background air pollutant concentrations, 2023

Year	Background NO <sub>x</sub> (µg/m <sup>3</sup> )	Background PM <sub>10</sub> (µg/m <sup>3</sup> )	Background PM <sub>2.5</sub> (µg/m <sup>3</sup> )
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<sup>88</sup> [Pathway to WHO: achieving clean air in the UK](#)

2023	8.53	10.11	7.59
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## Appendix D: Air quality impacts

### Air pollutant emissions

#### *Nitrogen Oxides (NO<sub>x</sub>)*

Road transport NO<sub>x</sub> emissions (based on major road network in LAEI), 2023 with expanded ULEZ and without.

Table 20 Annual Road Transport NO<sub>x</sub> emissions

	Base 2023			London-wide ULEZ 2023		
	Cars	Vans	All Vehicles	Cars	Vans	All Vehicles
Central	28	41	235	26	40	233
Inner	676	484	1,836	652	472	1,799
Outer	2,488	1,280	4,655	2,249	1,195	4,332
Non-GLA	2,150	1,163	3,852	1,975	1,124	3,638
GLA	3,191	1,804	6,726	2,927	1,707	6,364
LAEI	5,342	2,967	10,578	4,903	2,832	10,002

Table 21 Change in road transport NO<sub>x</sub> emissions, 2023 with scheme vs without

	Total			%		
	Cars	Vans	All Vehicles	Cars	Vans	All Vehicles
Central	-1	-1	-2	-5.1%	-1.6%	-0.9%
Inner	-24	-12	-37	-3.6%	-2.5%	-2.0%
Outer	-239	-84	-323	-9.6%	-6.6%	-6.9%
Non-GLA	-175	-38	-214	-8.1%	-3.3%	-5.5%

GLA	-264	-97	-362	-8.3%	-5.4%	-5.4%
LAEI	-439	-135	-576	-8.2%	-4.6%	-5.4%

Table 22 Change in road transport NO<sub>x</sub> emissions 2023 with scheme vs without

<b>Borough</b>	<b>Cars</b>	<b>Vans</b>	<b>All vehicles</b>
Barking and Dagenham	-10.4%	-7.3%	-7.2%
Barnet	-9.5%	-6.4%	-6.9%
Bexley	-10.7%	-7.0%	-7.7%
Brent	-8.2%	-6.2%	-5.9%
Bromley	-10.8%	-7.1%	-8.1%
Camden	-4.5%	-2.2%	-1.7%
City of London	-5.6%	-1.8%	-0.9%
Croydon	-10.8%	-7.3%	-7.8%
Ealing	-8.6%	-5.9%	-5.7%
Enfield	-7.2%	-5.1%	-5.3%
Greenwich	-6.8%	-5.2%	-4.7%
Hackney	-4.3%	-2.4%	-2.2%
Hammersmith and Fulham	-3.9%	-2.6%	-2.2%
Haringey	-3.2%	-2.5%	-2.1%
Harrow	-11.4%	-7.0%	-8.4%
Havering	-7.4%	-4.7%	-5.3%
Hillingdon	-9.4%	-6.4%	-6.9%
Hounslow	-9.5%	-6.7%	-6.4%
Islington	-4.5%	-2.3%	-1.8%
Kensington and Chelsea	-4.7%	-2.3%	-2.0%
Kingston	-10.6%	-6.9%	-8.0%
Lambeth	-6.2%	-4.4%	-3.3%
Lewisham	-6.7%	-5.1%	-4.3%
Merton	-11.2%	-7.4%	-7.7%
Newham	-4.4%	-3.8%	-2.9%
Redbridge	-9.0%	-6.7%	-6.7%
Richmond	-9.8%	-6.8%	-7.1%
Southwark	-4.4%	-2.6%	-2.1%
Sutton	-11.5%	-7.5%	-8.5%
Tower Hamlets	-4.4%	-2.6%	-2.4%
Waltham Forest	-6.1%	-4.6%	-4.3%



Wandsworth	-8.2%	-6.2%	-5.5%
Westminster	-5.0%	-2.2%	-1.5%

*Particulate Matter (PM<sub>2.5</sub> and PM<sub>10</sub>)*

Road transport PM<sub>2.5</sub> and PM<sub>10</sub> emissions (based on major road network in LAEI) 2023 with expanded ULEZ and without.

Table 23 PM<sub>2.5</sub> total road transport emissions (including exhaust and non-exhaust)

	Base 2023			London-wide ULEZ 2023		
	Cars	Vans	All Vehicles	Cars	Vans	All Vehicles
Central	2	2	12	2	2	12
Inner	68	26	143	68	26	143
Outer	225	61	379	219	59	372
Non-GLA	141	40	254	138	39	250
GLA	295	89	534	289	87	526
LAEI	434	127	776	425	124	765

Table 24 Change in road transport PM<sub>2.5</sub> emissions, 2023 with scheme vs without

	Total			%		
	Cars	Vans	All Vehicles	Cars	Vans	All Vehicles
Central	0.0	0.0	-0.1	-1.7%	-0.2%	-0.4%
Inner	0.0	-0.2	-0.2	0.0%	-0.8%	-0.2%
Outer	-6.1	-1.5	-7.5	-2.7%	-2.4%	-2.0%
Non-GLA	-2.7	-0.7	-3.5	-1.9%	-1.8%	-1.4%
GLA	-6.1	-1.7	-7.8	-2.1%	-1.9%	-1.5%
LAEI	-8.8	-2.4	-11.2	-2.0%	-1.9%	-1.4%

Table 25 Change in road transport PM<sub>2.5</sub> emissions with scheme, vs 2023 without

Borough	Cars	Vans	All vehicles
Barking and Dagenham	-2.7%	-2.5%	-1.9%
Barnet	-2.2%	-2.8%	-1.8%
Bexley	-3.1%	-2.3%	-2.2%
Brent	-1.6%	-1.9%	-1.2%

Bromley	-3.2%	-2.3%	-2.4%
Camden	-1.0%	-0.5%	-0.5%
City of London	-2.2%	-0.5%	-0.5%
Croydon	-3.2%	-2.2%	-2.3%
Ealing	-1.6%	-1.8%	-1.3%
Enfield	-2.2%	-2.2%	-1.6%
Greenwich	-0.7%	-1.8%	-0.8%
Hackney	-0.6%	-0.6%	-0.4%
Hammersmith and Fulham	-0.5%	-0.9%	-0.5%
Haringey	0.3%	-0.8%	0.0%
Harrow	-3.8%	-2.7%	-2.8%
Havering	-2.7%	-2.4%	-1.8%
Hillingdon	-2.8%	-2.4%	-2.0%
Hounslow	-2.3%	-2.4%	-1.7%
Islington	-1.0%	-0.6%	-0.5%
Kensington and Chelsea	-1.1%	-0.5%	-0.6%
Kingston	-2.9%	-2.0%	-2.2%
Lambeth	-0.6%	-1.5%	-0.6%
Lewisham	-0.9%	-1.8%	-0.8%
Merton	-3.5%	-2.5%	-2.5%
Newham	0.2%	-1.1%	-0.2%
Redbridge	-1.7%	-2.3%	-1.4%
Richmond	-2.6%	-2.0%	-1.9%
Southwark	-0.4%	-0.7%	-0.3%
Sutton	-4.0%	-2.4%	-3.0%
Tower Hamlets	-0.8%	-0.8%	-0.6%
Waltham Forest	-0.6%	-1.4%	-0.6%
Wandsworth	-1.5%	-2.2%	-1.3%
Westminster	-1.5%	-0.5%	-0.6%

Table 26 PM<sub>2.5</sub> total road transport emissions (exhaust only)

	Base 2023			London-wide ULEZ 2023		
	Cars	Vans	All Vehicles	Cars	Vans	All Vehicles
Central	0.3	0.1	1.6	0.2	0.1	1.6
Inner	6.3	1.6	13.8	5.7	1.5	13.0
Outer	25.7	6.1	41.0	21.6	4.6	35.5

Non-GLA	18.8	5.4	31.0	16.4	4.6	28.0
GLA	32.3	7.9	56.4	27.6	6.2	50.0
LAEI	50.8	13.1	85.9	43.8	10.7	76.5

Table 27 Change in road transport PM<sub>2.5</sub> emissions (exhaust only), 2023 with scheme vs without

	Total			%		
	Cars	Vans	All Vehicles	Cars	Vans	All Vehicles
Central	0.0	0.0	0.0	-8.2%	-3.8%	-1.8%
Inner	0.6	-0.1	-0.8	-9.7%	-8.8%	-5.5%
Outer	-4.1	-1.5	-5.6	-15.8%	-24.5%	-13.6%
Non-GLA	-2.3	-0.7	-3.1	-12.5%	-13.4%	-9.9%
GLA	-4.7	-1.6	-6.4	-14.6%	-20.9%	-11.3%
LAEI	-7.0	-2.4	-9.4	-13.8%	-18.0%	-10.9%

Table 28 PM<sub>10</sub> total road transport emissions (including exhaust and non-exhaust)

	Base 2023			London-wide ULEZ 2023		
	Cars	Vans	All Vehicles	Cars	Vans	All Vehicles
Central	4	4	21	4	4	21
Inner	123	47	261	124	47	261
Outer	400	109	680	392	107	670
Non-GLA	240	67	433	237	66	429
GLA	527	160	962	519	158	952
LAEI	763	223	1,373	752	221	1,360

Table 29 Change in road transport PM<sub>10</sub> emissions, 2023 with scheme vs without

	Total			%		
	Cars	Vans	All Vehicles	Cars	Vans	All Vehicles
Central	0.1	0.0	-0.1	-1.4%	-0.1%	-0.3%
Inner	0.5	-0.2	0.2	0.4%	-0.5%	0.1%
Outer	-8.0	-1.5	-9.5	-2.0%	-1.4%	-1.4%
Non-GLA	-3.2	-0.8	-4.0	-1.3%	-1.2%	-0.9%

GLA	-7.6	-1.8	-9.4	-1.4%	-1.1%	-1.0%
LAEI	-10.7	-2.6	-13.3	-1.4%	-1.2%	-1.0%

Table 30 PM<sub>10</sub> Total Road Transport emissions (exhaust only)

	Base 2023			London-wide ULEZ 2023		
	Cars	Vans	All Vehicles	Cars	Vans	All Vehicles
Central	0.3	0.2	1.7	0.3	0.1	1.6
Inner	6.7	1.7	14.5	6.0	1.5	13.7
Outer	27.0	6.4	43.2	22.8	4.9	37.3
Non-GLA	19.8	5.6	32.7	17.3	4.9	29.4
GLA	34.0	8.3	59.4	29.1	6.5	52.7
LAEI	53.5	13.8	90.4	46.1	11.3	80.5

Table 31 Change in road transport PM<sub>10</sub> emissions (exhaust only), 2023 with scheme vs without

	Total			%		
	Cars	Vans	All Vehicles	Cars	Vans	All Vehicles
Central	0.0	0.0	0.0	-8.2%	-3.8%	-1.8%
Inner	-0.6	-0.1	-0.8	-9.7%	-8.8%	-5.5%
Outer	-4.3	-1.6	-5.9	-15.8%	-24.5%	-13.6%
Non-GLA	-2.5	-0.8	-3.2	-12.5%	-13.4%	-9.9%
GLA	-5.0	-1.7	-6.7	-14.6%	-20.9%	-11.3%
LAEI	-7.4	-2.5	-9.9	-13.8%	-18.0%	-10.9%

### Carbon Dioxide (CO<sub>2</sub>)

Table 32 Total CO<sub>2</sub> road transport emissions

	Base 2023			London-wide ULEZ 2023		
	Cars	Vans	All Vehicles	Cars	Vans	All Vehicles
Central	27,400	20,800	163,000	27,200	20,800	162,800
Inner	628,900	212,000	1,455,300	634,000	211,700	1,459,600
Outer	1,861,200	455,500	3,491,800	1,834,700	455,500	3,465,100
Non-GLA	1,257,700	378,300	2,764,600	1,214,500	378,400	2,721,700

GLA	2,517,500	688,300	5,110,100	2,495,800	687,900	5,087,400
LAEI	3,775,200	1,066,500	7,874,700	3,710,400	1,066,300	7,809,200

Table 33 Change in road transport CO<sub>2</sub> emissions, 2023 with scheme vs without

	Total			%		
	Cars	Vans	All Vehicles	Cars	Vans	All Vehicles
Central	-200	0	-300	-0.8%	0.1%	-0.2%
Inner	5,100	-400	4,300	0.8%	-0.2%	0.3%
Outer	-26,500	0	-26,700	-1.4%	0.0%	-0.8%
Non-GLA	-43,200	100	-42,900	-3.4%	0.0%	-1.6%
GLA	-21,600	-300	-22,700	-0.9%	0.0%	-0.4%
LAEI	-64,800	200	65,500	-1.7%	0.0%	-0.8%

Table 34 Change in road transport CO<sub>2</sub> emissions with scheme vs without

Borough	Cars	Vans	All vehicles
Barking and Dagenham	-1.5%	-0.2%	-0.8%
Barnet	-0.9%	0.0%	-0.5%
Bexley	-1.9%	0.1%	-1.0%
Brent	-0.4%	-0.4%	-0.3%
Bromley	-1.9%	0.2%	-1.1%
Camden	-0.1%	0.1%	0.0%
City of London	-1.5%	-0.3%	-0.3%
Croydon	-1.9%	0.1%	-1.1%
Ealing	-0.2%	0.3%	0.0%
Enfield	-1.0%	-0.1%	-0.5%
Greenwich	0.3%	-0.3%	0.0%
Hackney	0.1%	-0.1%	0.0%
Hammersmith and Fulham	0.6%	-0.1%	0.2%
Haringey	1.3%	0.0%	0.7%
Harrow	-2.5%	0.1%	-1.5%
Havering	-1.4%	0.1%	-0.6%
Hillingdon	-1.7%	0.0%	-0.9%
Hounslow	-1.0%	0.0%	-0.5%
Islington	-0.1%	0.0%	0.0%



Kensington and Chelsea	-0.3%	0.0%	-0.1%
Kingston	-1.9%	0.2%	-1.1%
Lambeth	0.6%	-0.1%	0.2%
Lewisham	0.4%	-0.2%	0.1%
Merton	-2.3%	-0.2%	-1.3%
Newham	1.1%	-0.1%	0.5%
Redbridge	-0.5%	-0.1%	-0.3%
Richmond	-1.3%	0.1%	-0.7%
Southwark	0.6%	0.0%	0.3%
Sutton	-2.7%	-0.1%	-1.7%
Tower Hamlets	-0.1%	-0.3%	-0.2%
Waltham Forest	0.6%	-0.1%	0.3%
Wandsworth	-0.1%	-0.2%	-0.2%
Westminster	-0.8%	-0.1%	-0.3%
Non-GLA	-3.4%	0.0%	-1.5%

#### *Road network (TLRN and Borough roads)*

Table 35 Change in road network emissions by borough and road type, 2023 with scheme vs without

	NO <sub>x</sub>		PM <sub>2.5</sub> (All Sources)		PM <sub>2.5</sub> (Exhaust)	
	TLRN	North and South Circular	TLRN	North and South Circular	TLRN	North and South Circular
Barking and Dagenham	-6.8%	-5.3%	-1.3%	-0.4%	-14.3%	-11.7%
Barnet	-6.4%	-4.4%	-1.3%	-0.5%	-13.9%	-10.3%
Bexley	-7.2%	-	-1.5%	-	-15.9%	-
Brent	-7.0%	-4.2%	-1.3%	-0.5%	-14.2%	-9.0%
Bromley	-7.7%	-	-2.1%	-	-15.8%	-
Camden	-1.6%	-1.7%	-0.4%	-0.5%	-4.5%	-4.6%
City of London	-0.9%	-0.9%	-0.5%	-0.5%	-1.9%	-1.8%
Croydon	-7.5%	-	-2.0%	-	-14.4%	-
Ealing	-5.3%	-2.8%	-0.9%	-0.1%	-12.1%	-7.3%
Enfield	-7.1%	-6.2%	-1.6%	-1.3%	-14.0%	-12.5%
Greenwich	-4.2%	-2.3%	-0.4%	0.1%	-9.8%	-6.5%
Hackney	-2.1%	-2.2%	-0.5%	-0.4%	-5.5%	-5.6%

Hammersmith and Fulham	-2.3%	-2.2%	-0.5%	-0.5%	-6.1%	-5.7%
Haringey	-2.0%	-2.1%	-0.2%	0.0%	-5.7%	-5.9%
Havering	-7.5%	-	-2.0%	-	-16.7%	-
Hillingdon	-7.6%	-	-1.9%	-	-15.2%	-
Hounslow	-5.9%	-2.6%	-1.6%	-0.5%	-12.5%	-7.4%
Islington	-1.7%	-1.8%	-0.4%	-0.5%	-4.4%	-4.6%
Kensington and Chelsea	-2.1%	-2.0%	-0.6%	-0.6%	-5.6%	-5.2%
Kingston	-7.9%	-	-1.9%	-	-15.7%	-
Lambeth	-2.9%	-2.1%	-0.5%	-0.2%	-7.2%	-5.4%
Lewisham	-4.2%	-2.6%	-0.8%	-0.2%	-9.2%	-6.7%
Merton	-8.0%	-	-2.4%	-	-15.3%	-
Newham	-3.9%	-2.5%	-0.4%	0.0%	-9.4%	-6.8%
Non-GLA	-8.6%	-	-1.8%	-	-17.3%	-
Redbridge	-6.4%	-4.4%	-1.1%	-0.4%	-13.5%	-10.4%
Richmond	-6.6%	-4.1%	-1.2%	-0.7%	-13.4%	-9.3%
Southwark	-1.9%	-2.0%	-0.4%	-0.3%	-4.8%	-5.1%
Sutton	-9.1%	-	-3.5%	-	-16.0%	-
Tower Hamlets	-2.5%	-2.4%	-0.6%	-0.6%	-5.9%	-5.8%
Waltham Forest	-5.1%	-2.9%	-0.7%	-0.1%	-11.5%	-7.6%
Wandsworth	-5.5%	-3.1%	-1.1%	-0.4%	-11.6%	-7.5%
Westminster	-1.8%	-1.5%	-0.7%	-0.6%	-4.1%	-3.5%

## Air pollutant concentrations

### *NO<sub>2</sub> concentrations*

Table 36 Schools meeting WHO interim targets for NO<sub>2</sub> (30µg/m<sup>3</sup> and 20µg/m<sup>3</sup>) 2023 with ULEZ expansion and without

	Schools meeting NO <sub>2</sub> 30 µg/m <sup>3</sup>			Schools meeting NO <sub>2</sub> 20 µg/m <sup>3</sup>		
	2023 base	London-wide ULEZ 2023	Additional schools meeting target	2023 base	London-wide ULEZ 2023	Additional schools meeting target
Central	32	35	3	0	0	0
Inner	1,317	1,329	12	0	3	3

Outer	1,785	1,785	0	886	1,028	142
Greater London	3,134	3,149	15	886	1,031	145

Table 37 Population living in areas of NO<sub>2</sub> exceedance, WHO interim targets (30µg/m<sup>3</sup> and 20µg/m<sup>3</sup>) by borough, 2023 with ULEZ expansion and without

	% Exceeding 30 µg/m <sup>3</sup>			% Exceeding 20 µg/m <sup>3</sup>		
	Base 2023	GLULEZ 2023	Reduction in exposure over 30 µg/m <sup>3</sup>	Base 2023	GLULEZ 2023	Reduction in exposure over 20 µg/m <sup>3</sup>
City of London	91%	89%	-200	100%	100%	0
Barking & Dagenham	0%	0%	0	44%	36%	-17,600
Barnet	0%	0%	0	72%	64%	-31,400
Bexley	0%	0%	0	15%	10%	-11,400
Brent	0%	0%	-300	97%	93%	-12,500
Bromley	0%	0%	0	13%	8%	-18,500
Camden	20%	18%	-5,000	100%	100%	0
Croydon	0%	0%	0	46%	36%	-35,900
Ealing	0%	0%	-400	99%	97%	-7,300
Enfield	0%	0%	0	55%	50%	-17,000
Greenwich	0%	0%	-300	78%	74%	-14,400
Hackney	3%	2%	-1,400	100%	100%	0
Hammersmith & Fulham	2%	2%	-500	100%	100%	0
Haringey	0%	0%	0	100%	100%	0
Harrow	0%	0%	0	27%	18%	-23,000
Havering	0%	0%	0	4%	2%	-3,000
Hillingdon	0%	0%	0	53%	48%	-15,900
Hounslow	1%	0%	-1,900	89%	86%	-7,800
Islington	10%	9%	-3,800	100%	100%	0
Kensington & Chelsea	8%	7%	-2,000	100%	100%	0
Kingston upon Thames	0%	0%	0	39%	30%	-17,500
Lambeth	5%	3%	-4,100	100%	100%	-800

Lewisham	0%	0%	0	85%	80%	-14,000
Merton	0%	0%	0	83%	69%	-29,800
Newham	1%	1%	0	100%	100%	0
Redbridge	0%	0%	0	59%	48%	-31,400
Richmond upon Thames	0%	0%	0	64%	59%	-10,700
Southwark	5%	5%	-1,000	100%	100%	0
Sutton	0%	0%	0	13%	6%	-13,300
Tower Hamlets	8%	7%	-2,700	100%	100%	0
Waltham Forest	0%	0%	0	90%	86%	-9,400
Wandsworth	0%	0%	0	100%	100%	0
Westminster	26%	24%	-5,100	100%	100%	0
Thurrock (B) *	6%	6%	0	6%	6%	0
Slough (B) *	100%	100%	0	100%	100%	0
Windsor and Maidenhead (B) *	51%	51%	0	100%	51%	-400
Chiltern District *	0%	0%	0	100%	100%	0
South Bucks District *	15%	15%	0	33%	33%	0
Brentwood District (B) *	20%	20%	0	20%	20%	0
Epping Forest District *	3%	3%	0	5%	5%	0
Dacorum District (B) *	0%	0%	0	100%	100%	0
Hertsmere District (B) *	1%	1%	0	3%	3%	-500
St. Albans District (B) *	26%	26%	0	39%	39%	0
Three Rivers District *	1%	1%	0	4%	4%	0
Watford District (B) *	0%	0%	0	1%	1%	0
Dartford District (B) *	0%	0%	0	11%	11%	-400
Sevenoaks District *	6%	6%	0	9%	9%	0
Elmbridge District (B) *	0%	0%	0	0%	0%	-300
Epsom and Ewell District (B) *	0%	0%	0	1%	1%	-400
Guildford District (B) *	0%	0%	0	71%	71%	0
Mole Valley District *	11%	9%	-200	20%	18%	-400

Reigate and Banstead District (B) *	2%	2%	0	3%	3%	0
Runnymede District (B) *	10%	10%	0	19%	19%	-300
Spelthorne District (B) *	0%	0%	0	12%	9%	-2,700
Tandridge District *	2%	2%	0	2%	2%	0
Woking District (B) *	0%	0%	0	15%	15%	0

\* partial area within LAEI

### *PM<sub>2.5</sub> concentrations*

Table 38 Schools meeting WHO interim targets for PM<sub>2.5</sub> (10µg/m<sup>3</sup>) 2023 with ULEZ expansion and without

	Schools meeting PM <sub>2.5</sub> 10 µg/m <sup>3</sup>		
	2023 base	London-wide ULEZ 2023	Additional schools meeting
Central	0	0	0
Inner	232	232	0
Outer	1602	1602	0
Greater London	1834	1834	0

Table 39 Population living in areas of PM<sub>2.5</sub> exceedance, WHO interim targets 10µg/m<sup>3</sup>) by borough, 2023 with ULEZ expansion and without

	% Exceeding 10µg/m <sup>3</sup>		
	Base 2023	GLULEZ 2023	Reduction in exposure over 10µg/m <sup>3</sup>
City of London	100%	100%	0
Barking & Dagenham	18%	17%	-1,500
Barnet	28%	27%	-800
Bexley	4%	4%	- 200
Brent	62%	61%	-3,800
Bromley	3%	2%	-2,000
Camden	99%	99%	0



Croydon	16%	15%	-4,100
Ealing	40%	39%	-2,500
Enfield	15%	15%	-700
Greenwich	37%	37%	-900
Hackney	96%	96%	-1,100
Hammersmith & Fulham	100%	99%	-300
Haringey	56%	55%	-1,500
Harrow	3%	3%	-1,000
Havering	2%	2%	-200
Hillingdon	3%	3%	0
Hounslow	23%	22%	-2,700
Islington	100%	100%	0
Kensington & Chelsea	100%	100%	0
Kingston upon Thames	9%	8%	-1,600
Lambeth	77%	76%	-2,300
Lewisham	39%	38%	-3,500
Merton	25%	23%	-3,500
Newham	87%	86%	-1,000
Redbridge	23%	22%	-1,500
Richmond upon Thames	16%	15%	- 1,600
Southwark	91%	90%	-300
Sutton	2%	2%	- 600
Tower Hamlets	100%	100%	0
Waltham Forest	47%	47%	-1,800
Wandsworth	70%	69%	-3,500
Westminster	100%	100%	0
Thurrock (B) *	6%	6%	0
Slough (B) *	100%	100%	0
Windsor and Maidenhead (B) *	51%	51%	0
Chiltern District *	0%	0%	0
South Bucks District *	15%	15%	0
Brentwood District (B) *	20%	20%	0
Epping Forest District *	3%	3%	0
Dacorum District (B) *	100%	100%	0
Hertsmere District (B) *	1%	1%	0
St. Albans District (B) *	26%	26%	0
Three Rivers District *	1%	1%	0
Watford District (B) *	0%	0%	0

Dartford District (B) *	6%	6%	0
Sevenoaks District *	5%	5%	0
Elmbridge District (B) *	0%	0%	0
Epsom and Ewell District (B) *	0%	0%	0
Guildford District (B) *	0%	0%	0
Mole Valley District *	11%	11%	0
Reigate and Banstead District (B) *	2%	1%	-400
Runnymede District (B) *	10%	10%	0
Spelthorne District (B) *	0%	0%	0
Tandridge District *	2%	2%	0
Woking District (B) *	0%	0%	0

\* partial area within LAEI