Oxford Street West

Air Quality and Noise Modelling Assessment

Transport for London

Project number: 60704426

November 2025

Delivering a better world

Quality information

Prepared by	Checked by	Verified by	Approved by
Daniel Whitten Air Quality Graduate Consultant	Izzy Reeves Air Quality Consultant	Anna Savage Technical Director - Air Quality	David Deakin Technical Director -Air Quality
James Morphett Senior Acoustics Consultant	Matt Muirhead Associate Director - Acoustics	Matt Muirhead Associate Director - Acoustics	

Revision History

Revision	Revision date	Details	Authorized	Name	Position
1	7/11/25	Draft	AS	Anna Savage	Project Manager
2	14/11/25	Final	AS	Anna Savage	Project Manager

Prepared for:

Transport for London

Prepared by:

AECOM Ltd

© 2025 AECOM Limited. All Rights Reserved.

Table of Contents

1. Non-Technical Summary 6
2. Introduction 8
3. Air Quality Planning Policy and Legislation 9
4. Noise Planning Policy and Legislation 15
5. Air Quality Baseline Conditions 18
6. Noise Baseline 21
7. Air Quality Methodology 25
8. Noise Methodology 33
9. Predicted Impacts on Air Quality and Carbon 35
10. Predicted Impacts on Noise 44
11. Summary and Next Steps 57
12. References 59
Appendix A Figures 61
Appendix B Noise Terminology 67
Appendix C Committed Schemes 68
Appendix D Air Quality Model Verification 69
Appendix E Data and Assumptions 73

Figures

Figure 1. Extent of Proposed Scheme 6
Figure 2. Wind Rose for London City Airport Meteorological Site in 2024 30
Figure 3. Study Area 61
Figure 4. Annual Mean NO_2 Concentrations in 2026 with the Scheme 61
Figure 5. Change in Annual Mean NO_2 Concentrations in 2026 with and without the Scheme 61
Figure 6. Change in daytime $L_{A10,18h}$ noise levels in 2026 between with and without scheme. 61
Figure 7. Change in night-time $L_{Aeq,1h}$ noise levels in 2026 between with and without scheme. 61
Figure 8. Modelled vs Monitored Total NO_2 (After Adjustment), Zone A 71
Figure 9. Modelled vs Monitored Total NO_2 (After Adjustment), Zone B 72

Tables

Table 1. Relevant AQS Objectives (for the Protection of Human Health) 10
Table 2. World Health Organisation Air Quality Guideline Values 11
Table 3. Local Authority NO_2 Monitoring Data, 2019-2024 within 1km of the Proposed Scheme 18
Table 4. Local Authority PM_{10} Monitoring Data, 2019 – 2024, within 1km of the Proposed Scheme 19
Table 5. Local Authority $PM_{2.5}$ Monitoring Data, 2019-2024, within 1km of the Proposed Scheme 19
Table 6. Scheme Specific NO_2 Monitoring Results 20
Table 7. 2024 and 2026 Background Concentrations in Study Area 20
Table 8. Sound Monitoring Locations 21
Table 9. Details of monitoring equipment 21
Table 10. Times of daytime monitoring 22
Table 11. Times of night-time monitoring 22
Table 12. Daytime Monitoring Results 23
Table 13. Night-time Monitoring Results 23
Table 14. Daytime Traffic Levels 24

Table 15. Night-time Traffic Levels 24
Table 16. Summary of Selected Receptors 26
Table 17. General ADMS-Roads Model Conditions 29
Table 18. Effects Descriptors at Individual Receptors – Annual Mean NO_2 and PM_{10} 31
Table 19. Effects Descriptors at Individual Receptors – Annual Mean $PM_{2.5}$ 32
Table 20. Road Traffic Noise Magnitude of Impact Criteria 34
Table 21. Annual Mean Air Quality Results - Base (2024) 35
Table 22. Annual Mean Air Quality Results With and Without Scheme (2026) 37
Table 23. Air Quality Significance Effects Individual Location Descriptions, Impacts with Scheme, Annual Mean (2026) 40
Table 24. Predicted CO_2 Emissions 43
Table 25. Daytime LA10,18h Traffic Noise Results 45
Table 26. Night-time LAeq,1h Traffic Noise Results 48
Table 27. Monitoring sites excluded from model verification 69
Table 28. Monitoring sites used in model verification 69
Table 29. Verification Details Zone A 70
Table 30. Monitoring Data used in Model Verification 70

1. Non-Technical Summary

1.1 This report provides the results of an assessment of road traffic related air pollution, carbon dioxide and noise impacts at selected sensitive locations due to Transport for London (TfL)'s proposals to pedestrianise Oxford Street West (Orchard Street – Great Portland Street) as part of the Oxford Street Transformation Scheme, herinafter referred to the Proposed Scheme. The extent is indicated in Figure 1.

Figure 1. Extent of Proposed Scheme



1.2 The east – west pedestrianised space will have no access to any vehicles or cyclists other than during serving hours however there are five north -south roads that are proposed to remain open to traffic. All bus routes would be diverted and servicing to Oxford Street would be permitted on specific loops from midnight to 7am.

1.3 The assessment is based on predicted traffic flows and speeds for a situation with and without the Proposed Scheme for the opening year of 2026. Based on the predicted changes to traffic and road layout with the Proposed Scheme in place, changes in noise and air pollutant concentrations are provided for selected representative residential properties and schools (known as receptors) within a defined study area. These buildings are located close to the road as these are the locations most likely to be affected by changes in noise and air quality. Carbon dioxide emissions have been calculated across the entire study area.

1.4 85 receptor locations have been modelled across the study area, shown in Figure 3 in Appendix A. Both with and without the Proposed Scheme, there are predicted to be exceedances of the nitrogen dioxide annual mean objective of 40 µg/m^3 at three selected receptors located on Piccadilly, but concentrations at all other selected representative receptors are below the objective value. There are no predicted exceedances of the particulate (PM_{10}) objectives in the study area, but concentrations of $PM_{2.5}$ are above the Mayoral target of 10 µg/m^3 to be met by 2030 at all but one of the selected receptors, both with and without the Proposed Scheme.

1.5 There are some large improvements in nitrogen dioxide concentrations along Oxford Street, with reductions of up to 3.5 µg/m^3 with two sensitive receptors experiencing moderate beneficial

effects due to the proposal to pedestrianise the road. However, there are two predicted negative impacts on annual mean nitrogen dioxide at selected locations, with two receptors predicted to experience moderate adverse effects due to increases in emissions as a result of traffic diversions and increases in flows with the Proposed Scheme. With the highest increases of 2.1 µg/m^3 seen on Upper Brook Street. All other selected receptors had small or negligible changes in nitrogen dioxide due to the Proposed Scheme. There were also negligible changes in particulate concentrations predicted at all selected receptors.

1.6 There is predicted to be a small reduction in carbon dioxide emissions due to the Proposed Scheme in 2026, with a reduction of 2% due to lower vehicle kilometres driven in the study area.

1.7 Seven receptors are predicted to experience major (>5 dB) decreases in road traffic noise and are potentially beneficially impacted by the Proposed Scheme. Four receptors are predicted to experience moderate (>3 dB) decreases in road traffic noise in the daytime and night-time with an additional three receptors in the night-time only.

1.8 One receptor is predicted to experience a major increase in road traffic noise and is potentially adversely impacted by the Proposed Scheme. Four receptors are predicted to experience moderate increases in road traffic noise levels. Three of these receptors are potentially adversely impacted by the Proposed Scheme whilst one is unlikely to be adversely impacted after taking into consideration the relatively low absolute noise levels at this receptor, even with the Proposed Scheme in place.

1.9 There are 38 receptors within the study area that are predicted to have a negligible (<1 dB) change in road traffic noise levels. Minor (>1 dB) changes are predicted at 22 receptors of which ten experience increases and 12 decreases. More noise sensitive receptors are predicted to experience decreases in road traffic noise than increases.

2. Introduction

Overview

2.1 AECOM Limited (AECOM) has been appointed by Transport for London (TfL) to assess the potential impact on air quality and noise due to the plans to pedestrianise Oxford Street in the City of Westminster.

2.2 This report presents the results of these assessments, based on the scope below:

- Identify a selection of the closest potentially sensitive representative receptors to the Proposed Scheme and affected roads in the wider area;
- Predict concentrations of the main road traffic pollutants nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$) at the identified receptors with and without the Proposed Scheme based on traffic data for the year 2026;
- Predict annual carbon dioxide (CO_2) emissions in 2021 and in 2026 with and without the Proposed Scheme across the study area, and
- Predict road traffic noise levels at the selected receptors with and without the Proposed Scheme for the year 2026.

Proposed Scheme

2.3 The Oxford Street Transformation Scheme has been developed by the Mayor of London to rejuvenate Oxford Street and increase spending in the area back to pre-pandemic levels. The proposals also aim to deliver a safe and accessible street for everyone visiting and living in the area.

2.4 Oxford Street lies within the City of Westminster, running from Marble Arch to Tottenham Court Road. The Proposed Scheme involves pedestrianising a section of Oxford Street (Oxford Street west) between Orchard Street to Great Portland Place, rerouting buses, taxis, and cyclists from this section of Oxford Street. Deliveries will still be allowed at pre-designated times at night and early mornings along parts of Oxford Street to facilitate essential services. The concept of pedestrianisation was initially consulted on during February to March 2025 via the GLA[1]. Further consultation on the scheme designs is planned for Autumn 2025. Depending on the outcome of the consultation, the Proposed Scheme could be implemented from summer 2026. Figure 1 shows the extent of the proposed scheme.

Purpose of this Report

2.5 The purpose of this report is to provide supplementary information for the public consultation for the Proposed Scheme. This report highlights predicted road traffic noise and air quality changes at 85 representative receptors across the study area but does not define the significance of these changes.

2.6 Further work is required to assess whether any of the changes presented in this report constitute significant environmental effects. This work will involve sensitivity testing and will consider a variety of factors in determining likely significant environmental effects. Further information on this next step is provided in Section 11.

[1] Oxford Street Transformation | London City Hall

3. Air Quality Planning Policy and Legislation

Overview

3.1 This section identifies and describes the relevant legislation, policy and guidance to be considered when assessing the air quality effects of the Proposed Scheme. Relevant local, national and international planning policy and assessment criteria are also presented in this section.

National Legislation and Policy

Air Quality Standards Regulations (as amended) (2016)

3.2 The principal air quality legislation within the United Kingdom is the Air Quality Standards Regulations (as amended 2016) (The Statutory Office Limited, 2016) including amendments 'The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 (UK Statutory Instruments, 2020).

3.3 The UK is no longer a member of the European Union, however, EU legislation as it applied to the UK on 31st December 2020 is now a part of UK domestic legislation, under the control of the UK's Parliaments and Assemblies. The Clean Air for Europe (CAFE) programme consolidated and replaced (with the exception of the 4th Daughter Directive) preceding EU directives with a single legal act, the Ambient Air Quality and Cleaner Air for Europe Directive 2008/50/EC ('EU Air Quality Framework Directive') (Council for European Communities, 2008). This directive is transcribed into UK legislation by the Air Quality Standards Regulations 2010 which came into force on 11th June 2010. The 2010 Regulations were amended by the Air Quality Standards Regulations 2016, which came into force on 31st December 2016. The limit values defined therein are legally-binding and are considered to apply everywhere (with the exception of the carriageway and central reservation of roads and any locations where the public do not have access).

Environment Act (2021)

3.4 The Environment Act 2021 (HM Government, 2021) amends the Environment Act 1995 (HM Government, 1995). On 9th November 2021, the Act was approved after being first introduced to Parliament in January 2020 to address environmental protection and the delivery of the Government's 25-year environment plan following Brexit. It includes provisions to establish a post-Brexit set of statutory environmental principles and ensure environmental governance through an environmental watchdog, the Office for Environmental Protection (OEP).

3.5 Part IV of the Environment Act (2021) requires the Government to produce a new national Air Quality Strategy (AQS) which contains standards, objectives and measures for improving ambient air quality. The AQS proposes for the Secretary of State to publish a report reviewing the AQS every five years (as a minimum and with yearly updates to Parliament). The Act also includes a proposal that the government set two targets by October 2022: the first on the amount of $PM_{2.5}$ pollutant in the ambient air and a second long-term target set at least 15 years ahead to encourage stakeholder investment. The targets are: an annual mean concentration target of 10 µg/m^3 to be achieved by 2040; and a 35% reduction in population exposure to $PM_{2.5}$ by 2040 (compared to a base year of 2018).

Environmental Improvement Plan

3.6 The Environmental Improvement Plan was published in February 2023 (HM Government, 2023a) to outline several actions that are being taken to improve air quality, most notably by supporting local authorities, facilitating the rollout of Clean Air Zones, supporting the transition away from petrol and diesel cars, regulating domestic burners, and regulating agricultural emissions.

3.7 Interim targets (deadline 2028) for $PM_{2.5}$ were also announced to demonstrate the trajectory against the long-term legal targets (deadline 2040) set out in The Environmental Targets (Fine Particulate Matter) Regulations 2023 (HM Government, 2023b).

National Air Quality Strategy

3.8 The UK National AQS was initially published in 2000 (Defra, 2000) under the requirements of the Environment Act. An addendum was published in 2003 (Defra, 2003) which tightened several of the existing objectives and introduced a new objective. A revised AQS was published in 2007 (Defra, 2007) which set objectives for key pollutants as a tool to help Local Authorities manage local air quality.

3.9 In 2019, the UK Government released its much-anticipated Clean Air Strategy 2019, part of its 25 Year Environment Plan (Defra, 2019). The Strategy places greater emphasis on improving air quality in the UK than has been seen before and outlines how it aims to achieve this (including through the development of new enabling legislation).

3.10 Air quality management focus in recent years has primarily related to one pollutant, NO_2, and its principal source in the UK, road traffic. However, the 2019 Strategy broadens the focus to other sources, including domestic emissions from wood burning stoves and from agriculture.

3.11 In April 2023, a new AQS was published which sets out the actions the government expects local authorities to take in support of achieving the new national $PM_{2.5}$ targets set out in the Environmental Improvement Plan, by reducing emissions from sources within their control (Defra, 2023).

3.12 The current assessment criteria applicable to the protection of human health and Local Air Quality Management (LAQM) are outlined in the UK's AQS 2007. The objective values set out in the AQS for the pollutants of relevance to this assessment are summarised in Table 1.

Table 1. Relevant AQS Objectives (for the Protection of Human Health)

Pollutant	AQS Objective Concentration (µg/m^3)	Measured as
Nitrogen dioxide (NO_2)	40[a]	Annual mean
	200[a]	1-hour mean, not to be exceeded more than 18 times a year (i.e. 99.79th percentile)
Particulate Matter (PM_{10})	40[a]	Annual mean
	50[a]	24-hour mean, not to be exceeded more than 35 times a year (i.e. 90.4th percentile)
Particulate Matter ($PM_{2.5}$)	20[b]	Annual mean
Particulate Matter ($PM_{2.5}$) (Air Quality Strategy for England)	12[c]	Annual mean; interim target to be achieved by January 2028
	10[d]	Annual mean; target to be achieved by 2040
Particulate Matter ($PM_{2.5}$) London Mayoral Objective	10[e]	Annual mean; target to be achieved by 2030

a These values are both Limit Values as defined in the Air Quality Standards Regulations and Air Quality Objectives that apply locally under the LAQM framework

b These values are Limit Values as defined in the Air Quality Standards Regulations

c These values are interim targets are set out in the Environmental Improvement Plan 2023
d These values are a legally binding target as set out in the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023
e This objective is a target set out by the Mayor of London in 2022 to be achieved by 2030

World Health Organisation Air Quality Guideline Values (2021)

3.13 The World Health Organisation (WHO) has provided recommendations for Air Quality guideline levels for key pollutants (WHO, 2021), based on the most recent evidence on health effects. The guidelines shown in Table 2 are not currently set down in any UK legislation.

Table 2. World Health Organisation Air Quality Guideline Values

Pollutant	Guideline Level
NO_2	Annual Mean should not exceed 10 µg/m^3 24-hr running mean should not exceed 25 µg/m^3
PM_{10}	Annual mean should not exceed 15 µg/m^3 24-hr running mean should not exceed 45 µg/m^3
$PM_{2.5}$	Annual mean should not exceed 5 µg/m^3 24-hr running mean should not exceed 15 µg/m^3

National Planning Policy Framework (2024)

3.14 The National Planning Policy Framework (NPPF) (MHCLG, 2024) sets out the Government's environmental, economic and social policies and principles for land use planning in England and how these are expected to be applied, providing a framework within which locally-prepared plans for development can be produced. The National Planning Policy Framework was first published in March 2012 and was last updated in December 2024. It should be noted that the NPPF was amended to correct some minor typographical errors in 2025, however, this is still identified as the 2024 version.

3.15 The NPPF provide advice on when air quality should be a material consideration in development management decisions.

3.16 Paragraph 187 states that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by… e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality…"

3.17 Paragraph 199 states that:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

Planning Practice Guidance (PPG) for Air Quality (2024)

3.18 The PPG (MHCLG, 2024) is a web-based resource for planning authorities and developers, designed to support the NPPF and make it more accessible. It was launched in March 2014

and updated most recently in December 2024. The most recent update with specific reference to air quality was in November 2019.

3.19 The Air Quality PPG states that:

"Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity."

3.20 The Air Quality PPG states that if air quality is determined to be a relevant consideration, the local planning authority may need to establish:

- *"the 'baseline' local air quality, including what would happen to air quality in the absence of the development;*
- *whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and*
- *whether occupiers or users of the development could experience poor living conditions or health due to poor air quality."*

3.21 On how detailed an air quality assessment needs to be, the Air Quality PPG states:

"Assessments should be proportionate to the nature and scale of the development proposed and the potential impacts (taking into account existing air quality conditions)"

3.22 On mitigation options, the Air Quality PPG states:

"Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with applicants to consider appropriate mitigation so as to ensure new development is appropriate for its location and unacceptable risks are prevented."

London Policy

The London Plan – Spatial Development Strategy for Greater London

3.23 The London Plan represents the overall strategic plan for London, and it sets out a fully integrated economic, environmental, transport and social framework for the development of the capital to 2031. It forms part of the development plan for Greater London as published by the Greater London Authority (GLA). London boroughs' local plans need to be in general conformity with the London Plan. The latest version of the London Plan was published in March 2021 (GLA, 2021). The London Plan considers air quality in Policies SI1 (Improving air quality), SI2 (Minimising greenhouse gas emissions) and SI3 (Energy infrastructure). In relation to air quality, it is stated in Chapter 9: Sustainable Infrastructure that:

"The Mayor is committed to making air quality in London the best of any major world city, which means not only achieving compliance with legal limits for Nitrogen Dioxide as soon as possible and maintaining compliance where it is already achieved, but also achieving World Health Organisation targets for other pollutants such as Particulate Matter."

3.24 The London Environment Strategy was published by the Mayor of London in May 2018 and sets out the Mayor's vision of London's environment to 2050 (GLA, 2018). The London Environment Strategy includes a number of policies and aspirations, with an accompanying implementation plan, setting out actions the Mayor is prioritising for the next five years to help implement the aims of this strategy.

3.25 Chapter 4 of the Strategy relates to air quality. This chapter of the Strategy supersedes the 2010 Mayor's Air Quality Strategy and sets the ambitious target for London to have the best air quality of any major world city by 2050 and goes one step further than the previous strategy by requiring developments to be 'air quality positive' (GLA, 2010). To date, however, the underpinning guidance outlining the method of assessment and the effective approaches to be taken to ensure that larger developments are 'air quality positive', has not been published. Therefore, the minimum requirement remains for proposed developments to be air quality neutral.

Mayor's Transport Strategy and Transport Action Plan

3.26 In 2017, TfL produced 'Healthy Streets for London' (TfL, 2017). The Action Plan recognises that poor air quality is an issue, particularly in inner London, and that road transport is a key source. A range of measures are outlined to improve air quality including bringing forward and expanding the Ultra Low Emission Zone (ULEZ), tightening of ULEZ standards for lorries, buses and coaches, use of hybrid buses and retiring the oldest and most polluting taxis.

3.27 The Mayor of London updated their Transport Strategy for London (GLA, 2018) in 2018 to be based on a Healthy Streets Approach that prioritises human health by changing the mix of transport in London to encourage walking, cycling and public transport. The Mayor aims for 80% of Londoners' trips to be made by public transport, cycling or walking by 2041. The Strategy was revised in 2022 and stated that significant progress had been made since 2018 in reducing NO_2 and PM and improving air quality for Londoners, owing mostly to the expansion of the ULEZ (GLA, 2022). The ULEZ was expanded London-wide in August 2023, delivering further air quality improvements and the Mayor is committed to expanding active travel infrastructure, fare freezes, and achieving net-zero by 2030, reinforcing the Healthy Streets vision as central to London's future transport policy.

The Mayor's Air Quality Focus Areas (AQFA)

3.28 There are 160 AQFA in London which have been identified by the Mayor of London as areas that exceed the EU annual mean limit value for NO_2 and have high human exposure (London Atmospheric Emissions Inventory (LAEI), 2019). These are priority areas for action by the GLA and boroughs.

3.29 There are 4 AQFA's within the study area, which are indicated in Figure 3 in Appendix A:

- AQFA 153 - Oxford Street from Marble Arch to Bloomsbury
- AQFA 154 - A5 Edgeware Road from Avenue Hall/Marylebone/Seymour St
- AQFA 155 - Marble Arch to Hyde Park Corner
- AQFA 157 - Charing Cross/Haymarket/Piccadilly/Regent Street to Oxford Circus

TfL Corporate Environmental Strategy

3.30 The TfL Corporate Environmental Strategy (TfL, 2024a) sets a clear goal to reduce polluting emissions and public exposure to air pollution in London by 2031. Key initiatives include achieving zero pollutant emissions from fleet vehicles and embedding air quality considerations into policies and projects. By 2020, TfL aimed to reduce NOx emissions by 50% and PM emissions by 25% from its bus fleet, compared to 2013 levels. Measures such as retrofitting Euro III buses with Selective Catalytic Reduction (SCR) equipment, introducing hybrid and electric buses, and collaborating with stakeholders like the Office of Low Emission Vehicles (OLEV) have been pivotal, as well as broader initiatives such as the ULEZ.

Green Infrastructure and Biodiversity Plan

3.31 TfL's green infrastructure plan (TfL, 2024b) plays a vital role in improving air quality across London, with an estimated economic benefit of £65 million in gross net present value, as highlighted in the TfL Natural Capital Report (TfL, 2022). Street trees, vegetation, and wildflower verges filter pollutants, sequester carbon, and reduce emissions from maintenance activities. Sustainable Drainage Systems further mitigate road runoff pollution and flooding risks. TfL's operational actions have included increasing street tree numbers by 1% annually

until 2025, expanding wildflower verges to 260,000 m² by 2024, and eliminating pesticide use where feasible.

Local Policy

Local Plans

3.32 Westminster City Council (WCC) adopted their local plan 'Westminster's City Plan 2019-2040' (WCC, 2021) in April 2021, which contains missions and associated actions that relate to improving air quality within the borough.

3.33 The plan focuses on:

- *"The council is committed to improving air quality in the city and expects development to reduce exposure to poor air quality and maximise opportunities to improve it locally without detriment of air quality in other areas."*
- *"The council will make sure that quality of life and health and wellbeing of existing and future occupiers, and the natural environment are not adversely affected by harmful pollutants and other negative impacts on the local environment."*
- *"The council will protect and enhance the city's green infrastructure to maximise its environmental, social and economic value."*

3.34 In 1999, the whole of WCC was declared as an Air Quality Management Area (AQMA) for exceedances of the NO_2 and PM_{10} objectives. Pollutant concentrations have since declined from 2015 to 2024, particularly in 2020 and 2021, which are likely to be influenced by a reduction in traffic flow during Covid lockdowns. Annual mean NO_2 concentrations now meet the relevant objectives at most sites, and the PM_{10} objectives have not been exceeded for more than a decade.

3.35 WCC's updated Air Quality Action Plan (AQAP) was published in 2025 and covers the period 2025 to 2030 (WCC, 2025). Their latest Annual Status Report for 2024 (WCC, 2025a) was produced before the publication of the new AQAP and provides an update on the progress made towards the implementation of 88 actions to improve air quality within the borough listed in the previous AQAP. WCC is actively pursuing actions within the plan including air quality policies to reduce non-road emissions, implement Westminster's Sustainable Transport Strategy, measures to improve emissions of fleet, and transition to clean energy infrastructure.

4. Noise Planning Policy and Legislation

Overview

4.1 This section identifies and describes relevant legislation, policy and guidance relating to road traffic noise. Relevant local, national and international planning policy and assessment criteria are also presented in this section.

National Planning Policy Framework (NPPF)

4.2 Paragraph 198 of the NPPF states that planning policies and decisions should:

"mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason".

Planning Practice Guidance (PPG) for Noise (2019)

4.3 In March 2014, the Department for Levelling Up, Housing and Communities (DLUHC) predecessor department DCLG released its Planning Practice Guidance (PPG) (DLUHC,2019) web-based resource to support the NPPF. The guidance advises that local planning authorities should consider:

a. Whether or not a significant adverse effect is occurring or likely to occur.

b. Whether or not an adverse effect is occurring or likely to occur.

c. Whether or not a good standard of amenity can be achieved.

4.4 Factors to be considered in determining if noise is a concern are identified, including the absolute noise level of the source, the existing ambient noise climate, time of day, frequency of occurrence, duration, character of the noise and cumulative impacts.

Noise Policy Statement for England

4.5 The Noise Policy Statement for England (NPSE) (Defra, 2010) sets out the long-term vision of the government's noise policy, which is to *"promote good health and a good quality of life through the effective management of noise within the context of policy on sustainable development".* This long-term vision is supported by the three aims, and is designed to enable decisions to be made regarding what is an acceptable noise burden to place on society.

4.6 The Explanatory Note within the NPSE introduces the following concepts to aid in the establishment of likely significant environmental effects:

a. No Observed Effect Level (NOEL): the level below which no effect can be detected. Below this level no detectable effect on health and quality of life due to noise can be established.

b. Lowest Observable Adverse Effect Level (LOAEL): the level above which adverse effects on health and quality of life can be detected.

c. Significant Observed Adverse Effect Level (SOAEL): the level above which significant adverse effects on health and quality of life occur.

4.7 The NPSE recognises that *"it is not possible to have a single objective noise-based measure that is mandatory and applicable to all sources of noise in all situations".* The levels are likely to be different for different noise sources, for different receptors and at different times of the day.

Noise Important Areas (NIA)

4.8 The UK Government Environmental Noise (England) Regulations 2006 (as amended 2008, 2009, 2010) (SIN.2238,2006) were introduced in England to implement European Union Assessment and Management of Noise Directive (END) 2002/49/EC (EU Parliament, 2002).

4.9 As part of the END strategic noise mapping of major roads, railways, airports and agglomerations has been completed across the UK, including London. In Defra's subsequent Draft Noise Action Plan 2013 (Defra, 2013), it was decided that Noise Important Area (NIA) I, with respect to noise from major roads, would be defined as the location of the 1% of the population affected by the highest noise levels from major roads according to the strategic mapping. The document states that *"…it is anticipated that the relevant highway authority will examine each Important Area having regard to any ongoing noise mitigation initiatives, schemes and plans*". The results of Round 4 of the noise mapping process were released by Defra in 2023. The locations of NIAs , which are still Round 3 until these get published by Defra, near to the Proposed Scheme are shown in Figure 3 in Appendix A.

London Policy

The London Plan – Spatial Development Strategy for Greater London

4.10 Policy D14 in Chapter 3 Design, Noise (GLA, 2021), states that "*In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:*

a. *avoiding significant adverse noise impacts on health and quality of life.*

b. *Reflecting the Agent of Change principle as set out in Policy D13 Agent of Change.*

c. *Improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity).*

d. *Separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation.*

e. *Where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles.*

f. *Promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver."*

Mayor's Transport Strategy and Transport Action Plan

4.11 Key proposals impacting traffic noise can be found in Proposal 48 of the Mayor's Transport Strategy and Action Plan (GLA, 2018). These include reducing traffic volumes and speeds, low-noise road surfacing where appropriate, monitoring noise levels close to major road corridors, facilitating quiet deliveries and working with DfT to reduce noise from the loudest vehicles.

Transport For London Corporate Environment Plan

4.12 TfL's Corporate Environment Plan (TFL, 2021) was published in 2021 and highlights noise as an area TfL is committed to manage.

4.13 In the Plan TfL states:

- *"We consider our neighbours by continuing to work to reduce the number of Londoners exposed to excessive noise and vibration levels from road and rail sources."*

4.13.1 One target within the plan relates to road traffic noise:

- *"Aim to meet 'no net increase in noise' in Defra 'noise important areas' for our schemes."*

Local Policy

4.14 WCC's Westminster's City Plan 2019-2040 contains missions and associated actions that relate to improving reducing noise impacts within the borough.

4.15 The plan states that:

- *"The council will make sure that quality of life and health and wellbeing of existing and future occupiers, and the natural environment are not adversely affected by harmful pollutants and other negative impacts on the local environment."*
- *"Development should prevent adverse effects of noise and vibration and improve the noise environment in compliance with the council's Noise Thresholds, with particular attention to:*
  - *minimising noise impacts and preventing noise intrusion to residential developments and sensitive uses.*
  - *protecting the relative tranquillity in and around open spaces."*
- *"Defra's Noise Action Plan and our noise data show that ambient noise levels in Westminster are higher than national and regional averages. We therefore not only seek to avoid adverse noise impacts, but also reduce noise in the city."*
- *"Careful consideration must be given to the design and location of schemes that could impact or be impacted by noise from development that includes: …, transport (including servicing and deliveries) and other noise generating activities."*

4.16 WCC published their 'Westminster Noise Strategy 2010 -2015' (WCC, 2010) in 2010, which aims to contribute to improving the health and wellbeing of Westminster's residents, workers and visitors by reducing noise pollution and enhancing the city's sound environment.

4.17 The Noise Strategy states:

- *"Road traffic is the main source of noise in Westminster, and it is the biggest cause for concern amongst residents. Thirty-seven percent (37%) of residents questioned said that road traffic noise had bothered them in the last 12 months."*

4.18 There are four policies within the document, Policy 2, reducing transport and servicing noise and impacts, relates to this Proposed Scheme.

4.19 Policy 2 states:

- *"The council will work with TfL to ensure noise from the maintenance and operation of bus systems does not lead to increased noise impacts."*
- *"The council will identify areas of road where:*
  - *road transport noise levels are highest.*
  - *road transport noise impacts on the greatest number of occupants of noise sensitive properties."*
- *"Where the areas of road identified are located on the council's section of the highway network, the council will develop and implement noise reduction schemes wherever possible. Where these areas are located on TfL's part of Westminster highway network, the council will work with them to adopt the same approach."*
- *"Noise minimisation considerations will be integrated in the council's transport planning, highways management and improvement activities across the city, including:*
  - *identifying changes to the highways network to assess and minimise potential noise impacts on noise sensitive developments.*
  - *giving priority to highway measures that reduce noise in areas where there are high levels of road traffic and significant noise sensitive properties."*

5. Air Quality Baseline Conditions

Local Authority Air Quality Monitoring

5.1 A review of existing baseline air quality around the Proposed Scheme has been undertaken with NO_2 monitoring data between 2019-2024 from WCC sites within 1km of the Proposed Scheme provided in Table 3. This table shows that NO_2 concentrations within the vicinity of the Proposed Scheme have decreased since 2019, with no exceedances of the annual mean objective at any of these monitoring sites in 2024.

Table 3. Local Authority NO_2 Monitoring Data, 2019-2024 within 1km of the Proposed Scheme

Site	X, Y	Type	Approx. distance to Scheme (m)	Annual Mean Concentration (µg/m³)					
				2019	2020	2021	2022	2023	2024
WCC-CM1	528125, 182016	Kerbside	890	**<u>63</u>**	**44**	**43**	**45**	**42**	32.5
WCC-CM3	528276, 181065	Kerbside	0	**55**	34	34	37.3	32.4	29.5
WCC-CM4	528763, 181397	Roadside	160	**50**	32	32	32.7	-	-
WCC-CM5	529493, 181331	Roadside	290	**51**	35	34	**41.6**	-	-
WCC-CM9	528409, 180965	Roadside	90	**41**	28	30	31.7	27.4	-
WCC-DT7	529980, 180770	Kerbside	900	-	-	39	**50.1**	**47.6**	32.4
WCC-DT8	529715, 181231	Kerbside	490	-	-	25	31.5	25.8	24.6
WCC-DT9	528104, 180574	Kerbside	410	-	-	31	35.7	32.3	31.2
WCC-DT10	527990, 181743	Kerbside	650	-	-	33	35.7	34.3	31.6
WCC-DT26 Triplicate	529493, 181331	Roadside	290	-	-	31.7	37.3	33.9	30.9

Notes

Exceedances of the NO_2 annual mean objective of 40 µg/m³ are shown in bold. NO_2 annual means in excess of 60 µg/m³, indicating a potential exceedance of the NO_2 hourly mean objective are shown in <u>bold and underlined.</u>

5.2 Table 4 shows that annual mean PM_{10} concentrations have decreased since 2019, however PM_{10} was not monitored in 2024, so it is unclear whether this trend of reducing concentrations is continuing.

Table 4. Local Authority PM_{10} Monitoring Data, 2019 – 2024, within 1km of the Proposed Scheme

Site	X, Y	Type	Approx Distance to Scheme (m)	Annual Mean Concentration (µg/m³)				
				2019	2020	2021	2022	2023
WCC-CM1	528125, 182016	Kerbside	890	22	16	16	21	18
WCC-CM3	528276, 181065	Kerbside	0	27	22	34	22	22
WCC-CM4	528763, 181397	Roadside	160	25	17	22	24	-
WCC-CM5	529493, 181331	Roadside	290	24	22	22	23	-

5.3 Table 5 shows that trends in annual mean $PM_{2.5}$ concentrations are difficult to identify since monitoring began in 2022 meaning there is no more than 2 years of data at any site. The annual mean concentration at WCC-CM3 exceeded the interim target of 12 µg/m³ to be achieved by 2028 in 2024 and the Mayoral target of 10 ug/m³ to be achieved by 2030.

Table 5. Local Authority $PM_{2.5}$ Monitoring Data, 2019-2024, within 1km of the Proposed Scheme

Site	X, Y	Type	Approx. Distance to Scheme (m)	Annual Mean Concentration (µg/m³)		
				2022	2023	2024
WCC-CM1	528125, 182016	Kerbside	890	**11**	**12**	-
WCC-CM3	528276, 181065	Kerbside	0	-	-	**13.4**

Note: Concentrations in bold are above the Mayoral Target of 10 µg/m³

Scheme Specific Monitoring

5.4 Due to the lack of recent WCC monitoring data in the study area, a four-month diffusion tube survey from June to October 2025 was carried out to measure concentrations of NO_2 at ten locations in the vicinity of the Proposed Scheme. The data was analysed and adjusted to represent an NO_2 annual mean to assist in air quality model verification. The monitoring locations are shown in Table 6 and Figure 3 in Appendix A.

5.5 The diffusion tube results in Table 6 have been bias adjusted and annualised to represent a 2024 annual mean. The national bias adjustment factor (0.82) for 2024 for the laboratory (Staffordshire Highways Laboratory) from the most recent version of the National Diffusion Tube Bias Adjustment Factor Spreadsheet (Defra, 2025) has been applied, as a full year's worth of data for 2025 was not available at the time of writing.

5.6 The results from the ten diffusion tubes were annualised by multiplying the period mean with an average annualisation factor of 1.217 for the sites with 4 months data and 1.139 for the sites with 3 months data. The urban background Automatic Urban and Rural Network (AURN) monitoring sites used as reference points during the calculation of the annualisation factor were London North Kensington, London Westminster, and London Bloomsbury.

5.7 The results show that NO_2 concentrations at the monitoring locations are below the 40 µg/m³ annual objective after annualisation and bias adjustment at all sites except at DT3, which is located on Piccadilly. Data capture was sufficient at all locations, despite DT1 and DT9 missing data for one month.

Table 6. Scheme Specific NO_2 Monitoring Results

Site	X, Y	Monthly Mean Concentration (µg/m³)				Valid Months	Raw Mean (µg/m³)	AM/ PM Factor	Bias Factor	Annualised and Bias Adjusted Mean (µg/m³)
		July 2025	Aug 2025	Sept 2025	Oct 2025					
DT1	528840, 181668	-	27.3	26.2	34.6	3	29.4	1.139	0.82	27.4
DT2	528990, 180831	33.1	36.9	34.3	**42.4**	4	36.7	1.217	0.82	36.6
DT3	529094, 180361	**53.8**	**59.8**	**54.4**	**66.1**	4	**58.5**	1.217	0.82	**58.4**
DT4	528702, 180963	24.4	25.7	24.2	30.6	4	26.2	1.217	0.82	26.2
DT5	528586, 181339	25.9	29.2	33.8	34.8	4	30.9	1.217	0.82	30.9
DT6	529076, 181381	23.5	24.9	26	32.1	4	26.6	1.217	0.82	26.6
DT7	529129, 180761	22.9	26.2	21.4	31.7	4	25.6	1.217	0.82	25.5
DT8	528177, 180790	31.2	29.7	33.2	34.1	4	32.1	1.217	0.82	32.0
DT9	528798, 181186	-	31.1	21.5	33.6	3	28.7	1.139	0.82	26.8
DT10	529064, 181042	29.4	32.3	29.6	37.0	4	32.1	1.217	0.82	32.0

Notes: Exceedances of the NO_2 annual mean objective of 40 µg/m³ are shown in **bold**.

Background Concentrations

5.8 Data from Defra's 2021 based background maps and local urban background monitoring sites show that concentrations of NO_2 and particulates are below the relevant objectives and targets.

5.9 The 2024 and 2026 background concentrations for the base year and the opening year within the study area are summarised in Table 7. The concentrations from Defra's background maps was compared to monitored background concentrations in the City of Westminster and it was determined that no background adjustment was required.

Table 7. 2024 and 2026 Background Concentrations in Study Area

	2024			2026		
	NO_2	PM_{10}	$PM_{2.5}$	NO_2`	PM_{10}	$PM_{2.5}$
Minimum Concentration	22.8	17.0	9.1	21.2	16.9	9.0
Mean Concentration	27.0	17.6	9.5	25.4	17.5	9.4
Maximum Concentration	30.4	18.1	9.9	28.7	18.0	9.7

6. Noise Baseline

6.1 The existing sound environment in the study area is heavily dominated by road traffic noise. Roads with the highest noise levels are Oxford Street, Regent Street, Park Lane, roads surrounding Marble Arch, Piccadilly, Edgeware Road, Gloucester Place, Baker Street and Wigmore Street. Receptors along these roads are generally experiencing road traffic noise levels in excess of 68 dB $L_{A10,18h}$. Five NIA are located within the study area: NIA 14779 includes Oxford Street, Regent Street and Piccadilly, NIA 1199 includes Piccadilly, NIA 13795 includes Park Lane and Edgeware Road, NIA 14778 includes Bayswater Road and NIA 14775 includes Gloucester Place. These NIA can be found in Figure 3 in Appendix A. The study area is also a very heavily touristed area. Included in the sound environment is general noise from pedestrians on the busy footpaths and noise from a large number of commercial premises. This is especially the case along Oxford Street and Regent Street. The large number of commercial premises would also see deliveries therefore loading and unloading activities from HGV vehicles are also likely a source of noise in the study area.

6.2 To supplement the sound baseline study a baseline sound monitoring survey was undertaken in 2025 to capture the baseline sound environment in the vicinity of the Proposed Scheme. Measurements were conducted during the daytime between 24th and 26th June 2025, with additional night-time monitoring conducted between 3rd and 4th July 2025. Sound Monitoring was undertaken in accordance with 'The Calculation of Road Traffic Noise' (CRTN) (DoT & the Welsh Office, 1988) Shortened measurement procedure. This involved taking sound measurements in the daytime between the hours of 10:00 and 17:00. The sound monitoring locations are presented below in Table 8 and shown on Figure 3. Table 9 provides details of the monitoring equipment. Table 10 provides the start and end times of daytime monitoring at each location. Table 11 provides the start and end times of night-time monitoring at each location. Due to constraints on available space on footpaths some sound monitoring locations where within 3 metres of a vertical reflective surface, and therefore the measurements include contributions from local façade reflections. The sound level meter used in the survey was calibrated at a UKAS accredited laboratory within the last two years, and the acoustic calibrator within the past year.

Table 8. Sound Monitoring Locations

Site	Road Name	British National Grid coordinates
NM1	Wigmore Street	528472, 181328
NM2	Mount Street	528532, 180625
NM3	Margaret Street	529190, 181420
NM4	Savile Row	529098, 180811
NM5	Piccadilly	528918, 180212

Table 9. Details of monitoring equipment

Equipment	Make	Model	Serial Number
Sound Level Meter	ACOEM	DUO	12062
Calibrator	B&K	4231	50541127

Table 10. Times of daytime monitoring

Site	Road	Start Time	End Time
NM1*	Wigmore Street	24/06/2025 11:46	24/06/2025 14:16
		24/06/2025 14:46	24/06/2025 15:16
NM2	Mount Street	25/06/2025 09:30	25/06/2025 12:30
NM3	Margaret Street	25/06/2025 13:15	25/06/2025 16:15
NM4	Savile Row	26/06/2025 09:15	26/06/2025 12:15
NM5	Piccadilly	26/06/2025 12:45	26/06/2025 15:45

*The final 30 minutes of the 3-hour measurement at Wigmore Street have been excluded and an additional 30-minute measurement has been undertaken at a different representative monitoring location on the same street to account for disruptions to sound monitoring.

Table 11. Times of night-time monitoring

Site	Road	Start Time	End Time
NM1	Wigmore Street	03/07/2025 01:06	03/07/2025 02:06
NM2	Mount Street	03/07/2025 02:40	03/07/2025 03:40
NM3	Margaret Street	03/07/2025 04:04	03/07/2025 05:04
NM4	Savile Row	04/07/2025 00:53	04/07/2025 01:53
NM5	Piccadilly	04/07/2025 02:16	04/07/2025 03:16

6.3 For the daytime measurements, the shortened measurement method from CRTN was used to estimate the $L_{A10,18h}$ sound level based on a measured 3-hour period. This method is designed to provide a reliable approximation of road traffic noise exposure without requiring full 18-hour monitoring. Measurements are carried out over a single, representative 3-hour period during the daytime, typically between 10:00 and 17:00, when traffic flows are steady and representative of average daily conditions. The conversion to an 18-hour period from a 3-hour measurement requires taking away 1 dB from the $L_{A10,3h}$ measurement as specified in CRTN. This correction is applied based on diurnal patterns based on the UK average. This correction may not be completely suitable for conversions on roads in London due to the atypical nature of roads in city centres in that road traffic volumes don't lower as much at night. However, for the purposes of determining a baseline level and with comparison to post opening surveys the correction can be considered suitable for assessment.

6.4 In some cases, daytime measurements commenced slightly before 10:00 to accommodate logistical constraints on the day of survey. Where this occurred, care was taken to ensure that the traffic conditions during the early part of the measurement period were consistent with the rest of the monitoring period, in line with the intent of the CRTN shortened method. This was done by taking traffic counts which are provided in Table 14 and Table 15. All measured data were subject to post-processing review to identify and exclude transient, non-traffic related noise events that were not representative of the typical sound environment. Such exclusions included clearly identifiable sources such as raised human voices occurring near the microphone, emergency service sirens, and other anomalous events. Only data reflecting steady state road traffic conditions were retained for use in calculating $L_{A10,3h}$ values.

6.5 At all monitoring locations during the daytime measurements, continuous road traffic noise was identified as the predominant sound source influencing the acoustic environment. Additional intermittent contributions were observed from ancillary sources including human speech, delivery activities, and operations associated with nearby commercial premises. These secondary noise sources were generally transient and did not significantly affect the overall noise profile.

6.6 In addition to daytime monitoring, night-time sound measurements were conducted at the same locations to help quantify the acoustic environment during the night period. These measurements were undertaken over a continuous 1-hour duration at each site, capturing typical night-time sound levels and confirming the prevailing sound sources outside of daytime traffic hours.

6.7 Manual weather observations were conducted concurrently with the sound measurements at each location to ensure that environmental conditions were suitable for accurate sound monitoring. Throughout the survey period, weather conditions were generally favourable, with hourly wind speeds consistently well below 5 metres per second (m/s) and minimal to no rainfall recorded on most days. The only exception occurred during the final measurement session at NM5, when a brief period of light drizzle lasting approximately 10 minutes was observed. These conditions are considered acceptable within the guidelines for environmental noise measurements provided in BS 7445 'Description and Measurement of Environmental Noise. Part 1 – Guide to Quantities and Procedures' (BSI, 2003) and are not expected to have significantly influenced the measurement result.

6.8 The distances between the monitoring locations and the centreline of the nearest carriageway were noted in accordance with CRTN guidance. The following parameters were recorded at each measurement location:

- NM1, Wigmore Street – 7 m
- NM2, Mount Street – 8 m
- NM3, Margaret Street – 8 m
- NM4, Saville Row – 5 m
- NM5, Piccadilly – 10 m

6.9 Table 12 summarises the daytime weather conditions, measured $L_{A10,3h}$ sound levels and derived $L_{A10,18h}$ levels at all monitoring positions. Table 13 summarises the night-time weather conditions, and measured $L_{Aeq,1h}$ sound levels.

Table 12. Daytime Monitoring Results

Site	Date	Day	Typical wind direction	Average wind speed m/s	Average temperature °C	Precipitation	Measured $L_{A10,3h}$ dB	Derived $L_{A10,18h}$ dB
NM1*	24/06/2025	Tue	E	0.6	22	Dry	72	71
NM2	25/06/2025	Wed	SW	0.6	20	Dry	63	62
NM3*	25/06/2025	Wed	NW	0.5	24	Dry	63	62
NM4*	26/06/2025	Thu	E	0.6	20	Dry	67	66
NM5	26/06/2025	Thu	W	0.5	23	Drizzle	71	70

* Monitor within 3 m of façade

Table 13. Night-time Monitoring Results

Site	Date	Day	Typical wind direction	Average wind speed m/s	Average temperature °C	Precipitation	Measured $L_{Aeq,1h}$ dB
NM1*	03/07/2025	Thu	SW	0.5	15	Dry	65
NM2	03/07/2025	Thu	W	0.6	14	Dry	56
NM3*	03/07/2025	Thu	W	0.9	13	Dry	56
NM4*	04/07/2025	Fri	S	0.3	17	Dry	61

Site	Date	Day	Typical wind direction	Average wind speed m/s	Average temperature °C	Precipitation	Measured $L_{Aeq,1h}$ dB
NM5	04/07/2025	Fri	W	0.4	16	Dry	68

* Monitor within 3 m of façade

6.10 Table 14 and Table 15 present the traffic counts recorded at each measurement location. The data include the number of Light Duty Vehicle (LDV) and Heavy Duty Vehicle (HDV) passing the monitoring location during a 10-minute interval for every hour of the measurement period.

Table 14. Daytime Traffic Levels

Ref	Location	Date/time	1st hour	2nd hour	3rd hour
NM1	Wigmore Street	24/06/2025 11:46	LDV - 102 HDV - 24	LDV - 93 HDV - 12	LDV - 98 HDV - 19
NM2	Mount Street	25/06/2025 09:30	LDV - 72 HDV - 9	LDV - 90 HDV - 12	LDV - 76 HDV - 12
NM3	Margaret Street	25/06/2025 13:15	LDV - 60 HDV - 7	LDV - 75 HDV - 5	LDV - 52 HDV - 4
NM4	Savile Row	26/06/2025 09:15	LDV - 52 HDV - 7	LDV - 73 HDV - 8	LDV - 67 HDV - 4
NM5*	Piccadilly	26/06/2025 12:45	LDV - 106 HDV - 16	LDV - 128 HDV - 10	LDV - 106 HDV - 12

* The traffic count at this location was undertaken in the eastbound direction only.

Table 15. Night-time Traffic Levels

Ref	Location	Date/time	1st hour
NM1	Wigmore Street	03/07/2025 01:06	LDV - 61 HDV - 2
NM2	Mount Street	03/07/2025 02:40	LDV - 30 HDV - 0
NM3	Margaret Street	03/07/2025 04:04	LDV - 8 HDV - 1
NM4	Savile Row	04/07/2025 12:55	LDV - 51 HDV - 0
NM5*	Piccadilly	04/07/2025 02:17	LDV - 120 HDV - 4

* The traffic count at this location was undertaken in the eastbound direction only.

6.11 The baseline sound surveys supports the initial observations regarding the sound environment of the study area. Wigmore Street and Piccadilly were both measured above 68 db $L_{A10,18h}$ supporting the fact that these roads are some of the dominant noise road traffic noise sources in the area. Observations taken during the surveys indicated that continuous road traffic noise was predominant sound source influencing the acoustic environment at all monitoring locations.

7. Air Quality Methodology

Traffic Data

7.1 Forecast traffic flows and speeds within the study area were provided from TfL from their ONE model for the following scenarios:

- **2024/2025 Baseline** - Current situation;
- **2026 Do Minimum (DM) –** Contains all committed schemes (see Appendix C), except for the Proposed Scheme; and
- **2026 Do Something (DS) –** Contains all committed schemes, including the Proposed Scheme.

7.2 AECOM's Traffic Team have factored up the peak hour ONE model data using long term count data from available TfL automatic traffic count (ATC) sites to provide data in the formats required for the air quality and noise modelling. This process is summarised below:

7.3 Identification of morning (AM) and afternoon (PM) peak hourly flows for a neutral weekday at 8 ATC sites. Peak hour flows are based on survey day which represents a neutral weekday outside bank holidays.

- Data were cleaned to remove outliers and the days with zero volumes;
- AM and PM peak hour flows/ speeds were calculated for an average neutral weekday (Tuesday to Thursday) for all the sites.

7.4 Calculation of Annual Average Weekday Traffic (AAWT) flows (18h / 6h) on weekdays calculated from ATC data:

- The data was cleaned to remove outliers and the days with zero volumes. Note that the days during bank holidays weeks were included in this analysis to represent the full year;
- The 18h and 6h flows/ speeds were calculated for AAWT (Monday to Friday) for all sites.

7.5 Calculation of Annual Average Daily Traffic (AADT) flows (24h) on weekdays from ATC data:

- The data was cleaned to remove outliers and the days with zero volumes. Note that the days during bank holidays weeks were included in this analysis to represent the full year;
- The 24h flows/ speeds were calculated for AADT (Monday to Sunday) for all sites.

7.6 Calculation of factors:

- The flow/ speed factors were calculated for AM + PM peaks to calculate AAWT/ AADT data for the individual 8 sites;
- A combined factor including the data for all 8 sites was calculated.

7.7 ONE Model Link Matching:

- The respective links associated with the ATC sites were matched in GIS – 5 ATC sites matched the links in the study area. 3 ATC sites were on the fringe outside the study area.

7.8 ONE Model Flows/ Speeds Calculations:

- Site specific factors were applied on the matched links to calculate the AADT/ AAWT flows and speeds for all scenarios in the ONE model;
- For all the other links, the combined factor was used;
- The flow and speed outputs are divided in Light Duty Vehicles (LDV) and Heavy Duty Vehicles (HDV);

7.9 Calculation of bus flows:

- AM and PM bus data were provided separately in the ONE model. These were factored to AAWT and AADT flows based on bus timetables.

Receptors

7.10 The concentration of road traffic emitted pollutants at the roadside or at sensitive receptors is influenced by a number of factors. These include background pollution levels and the amount of traffic emissions, which is dictated by traffic flow rates, composition and speed.

7.11 The air quality objective values for pollutants associated with road traffic were set by the Expert Panel of Air Quality Standards (and subsequently adopted as UK Air Quality Objectives) at a level below the lowest concentration at which the more sensitive members of society have been observed to be adversely affected by exposure to each pollutant. Therefore, all receptors that represent exposure of the public are of equal sensitivity as any member of the public could be present at those locations.

7.12 The air quality predictions have been completed for a selection of representative receptors close to the roadside on sensitive buildings within the Proposed Scheme extent and within the wider study area. The receptors have been selected from the current Address Base Ordnance Survey data in conjunction with a review of aerial photography and publicly available mapping. Each of the receptors chosen represents the maximum level of exposure that could be experienced at other receptors in their vicinity.

7.13 Details of the selected receptors are shown in Table 16 and locations presented in Figure 3 in Appendix A.

7.14 For air quality, receptors have been modelled at the lowest possible height of relevant exposure, e.g. 1.5m for ground floor level receptors.

Table 16. Summary of Selected Receptors

ID	X	Y	Receptor Name	Receptor Type	Modelled Height for AQ (m)
R1	528702	181483	Harley Street	Residential	4.5
R2	528211	181251	Wigmore Street	Residential	4.5
R3	528461	181094	Oxford Street	Residential	4.5
R4	529149	180725	Savile Row	Residential	4.5
R5	528821	181535	Chandos Street	Residential	1.5
R6	528141	181300	Portman Square	Residential	4.5
R7	528803	180677	Bruton Street	Residential	4.5
R8	528536	180921	Brook Street	Residential	1.5
R9	529192	180452	Piccadilly	Residential	4.5
R10	528751	181327	Cavendish Square Gardens	Residential	4.5
R11	527981	180775	Park Lane	Residential	10.5
R12	527843	181139	Seymour Street	Residential	1.5
R13	528478	180744	Grosvenor Square	Residential	1.5
R14	528204	181474	George Street / Gloucester Place	Residential	1.5
R15	528437	181299	Wigmore Street	Residential	4.5
R16	528375	181062	Duke Street	Residential	4.5
R17	528784	181422	Cavendish Square Gardens	Residential	1.5

ID	X	Y	Receptor Name	Receptor Type	Modelled Height for AQ (m)
R18	529437	180626	Regent Street	Residential	7.5
R19	528607	181476	Wimpole Street	Residential	1.5
R20	528131	180656	Upper Grosvenor Street	Residential	1.5
R21	527937	181105	Bryanston Street	Residential	1.5
R22	527688	180980	Connaught Place	Residential	1.5
R23	528050	181316	Portman Square	Residential	1.5
R24	528633	181392	Wimpole Street	Residential	1.5
R25	528317	181395	Manchester Square	Residential	1.5
R26	529034	181318	Great Castle Street	Residential	4.5
R27	529214	181117	Great Marlborough Street	Residential	4.5
R28	528649	180665	Mount Street	Residential	4.5
R29	528416	181191	James Street	Residential	4.5
R30	529042	181194	Regent Street	Residential	4.5
R31	528679	181168	Vere Street	Residential	4.5
R32	528828	181174	Oxford Street	Residential	4.5
R33	528227	181371	Manchester Square	Residential	1.5
R34	528529	181230	Stratford Place	Residential	1.5
R35	528364	180875	Grosvenor Square	Residential	1.5
R36	528297	181340	Duke Street	Residential	4.5
R37	529060	180912	Conduit Street	Residential	4.5
R38	528809	180950	New Bond Street	Residential	4.5
R39	528597	180812	Grosvenor Street	Residential	4.5
R40	528378	180593	Mount Street	Residential	4.5
R41	528865	180197	Piccadilly	Residential	7.5
R42	527983	181410	George Street	Residential	4.5
R43	529063	181057	Maddox Street	Residential	4.5
R44	528184	180478	Park Lane	Residential	1.5
R45	528492	181334	Wigmore Street	Residential	4.5
R46	529016	181490	Great Portland Street	Residential	4.5
R47	528947	181438	Regent Street	Residential	4.5
R48	528195	180809	Upper Brook Street	Residential	1.5
R49	528968	180818	Conduit Street	Residential	4.5
R50	528166	181066	Portman Mews South	Residential	1.5
R51	528217	181046	North Audley Street	Residential	4.5
R52	528934	181335	Margaret Street	Residential	4.5
R53	528644	181361	Wigmore Street	Residential	4.5
R54	527785	181218	Great Cumberland Place	Residential	1.5

ID	X	Y	Receptor Name	Receptor Type	Modelled Height for AQ (m)
R55	528368	181465	Thayer Street	Residential	1.5
R56	528235	180986	North Audley Street	Residential	4.5
R57	528274	181481	Spanish Place	Residential	1.5
R58	528399	181046	Duke Street	Residential	4.5
R59	528547	181086	South Molton Street	Residential Residential Residential	4.5
R60	528650	180382	Charles Street	Residential	1.5
R61	529031	180543	Brown's Hotel, Albemarle Street	Hotel	4.5
R62	529264	180657	Sackville Street	Residential	6.0
R63	528601	180268	Chesterfield Street	Residential	1.5
R64	529153	180867	New Burlington Street	Residential	1.5
R65	528528	181419	Welbeck Street	Residential	1.5
R66	529122	181266	Oxford Street	Residential	4.5
R67	528094	180938	Park Street	Residential	1.5
R68	528424	180331	South Audley Street	Residential	1.5
R69	528350	180625	South Audley Street	Residential	4.5
R70	528745	181072	New Bond Street	Residential	4.5
R71	528827	180888	Grosvenor Street	Residential	4.5
R72	528623	180853	Davies Street	Residential	4.5
R73	528496	181313	Marylebone Lane	Residential	4.5
R74	528477	180495	St Georges C of E Primary School, Hanover Square	Education	1.5
R75	528366	181368	School Of Economic Science, Mandeville Place	Education	1.5
R76	527973	180910	Albemarle Independent College, Dunraven Street	Education	1.5
R77	528731	180082	London Park School Mayfair	Education	1.5
R78	528830	181500	Anglia Ruskin University, Charterhouse Street	Education	1.5
R79	528258	181055	West London College, Oxford Street	Education	1.5
R80	528715	181401	Harley Street Private Hospital	Hospital	1.5
R81	528485	181331	Cavita, Wigmore Street	Commercial	1.5
R82	528381	181301	Joe & The Juice, Wigmore Street	Commercial	1.5
R83	528298	181277	Zizzi restaurant, Wigmore Street	Commercial	1.5
R84	527698	181098	The Italian Greyhound, Seymour Street	Commercial	1.5
R85	528622	181123	Angus Steakhouse Restaurant, Oxford Street	Commercial	1.5

Modelling Methodology

Air Quality Dispersion Input Data and Model Conditions

7.15 This assessment has used the dispersion model software 'ADMS-Roads' (5.0.1.3) to quantify pollution levels at selected receptors due to road traffic emissions. ADMS-Roads is a modern dispersion model that has an extensive published track record of use in the UK for the assessment of local air quality impacts, including model validation and verification studies (Cambridge Environmental Research Consultants, 2013).

7.16 Details of general model conditions set up in ADMS-Roads are provided in Table 17. Some of these conditions are summarised in detail below.

Table 17. General ADMS-Roads Model Conditions

Variables	ADMS-Roads Model Input: Road Traffic Model
Surface roughness at source	1.5 m
Surface roughness at meteorological site	1.5 m
Minimum Monin-Obukhov length for stable conditions	100 m
Receptor location	x, y coordinates determined by GIS, z = various.
Emissions	NO_x, PM_{10}, $PM_{2.5}$,
Emission factors	Emissions Factors Toolkit (EFT) Version 13.1, Central London
Meteorological data	1 year (2024) hourly sequential data from London City Airport meteorological station.
Receptors	Facades of selected receptors only
Street Canyons	Applied to a number of locations
Model output	Long-term (annual) mean NO_x concentrations
	Long-term (annual) mean PM_{10} concentrations
	Long-term (annual) mean $PM_{2.5}$ concentrations

Vehicle Emissions

7.17 The "Detailed Option 1" was selected in the Emissions Factors Toolkit (EFT) allowing for a detailed split of the vehicle classes which comprise the fleet. The fleet breakdown for LDV was determined based on the fleet composition provided within the EFT for Central London for 2024, split into Car, Taxi and Light Goods Vehicles (LGV) and applied to the traffic data supplied by the Traffic Team for each road links. The percentage Heavy Goods Vehicles (HGV) and bus and coaches were taken from the traffic data supplied by the Traffic Team.

7.18 Based on information provided by TfL on the Euro standards of the bus and taxi fleet, no adjustments were made to the Euro standards. Those defined within the EFT for Central London have been used for all vehicle classes.

7.19 The EFT was used to calculate annualised CO_2 emissions, and NOx and particulate emissions for each road link in the model, for 2021 and 2026.

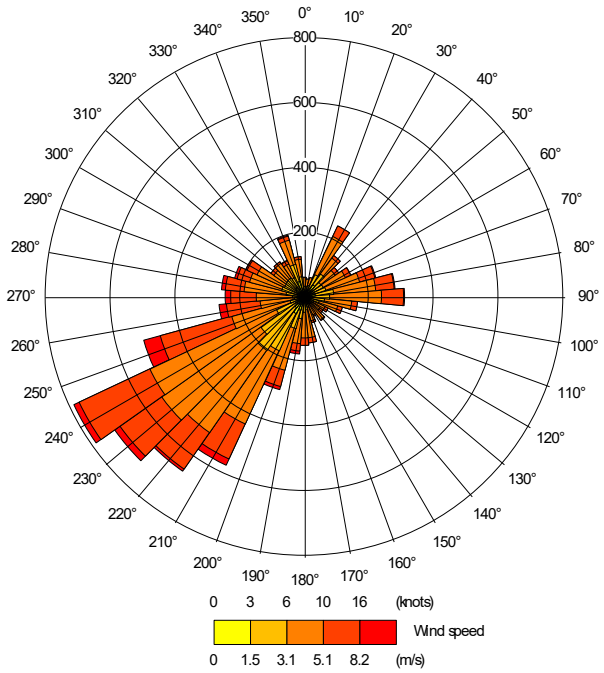
Meteorological Data

7.20 One year (2024) of hourly sequential observation data from London City Airport meteorological station has been used in this assessment to correspond with the baseline year. The station is located approximately 12 km east of the Proposed Scheme and experiences meteorological

conditions that are representative of those experienced in inner London and within the air quality study area.

7.21 A wind rose for this site is presented in Figure 2.

Figure 2. Wind Rose for London City Airport Meteorological Site in 2024



Street Canyons

7.22 In streets where there are tall buildings on each side, these can create a canyon-like environment influencing the way pollutants are dispersed within the street. Depending on the weather conditions, this can lead to higher concentrations as pollutants become trapped for longer. Within the study area, a number of streets were identified as being street canyons and these are represented within the ADMS-Roads model. These streets include sections of Oxford Street, Bruton Street, George Street, Wigmore Street, Wimpole Street, Portman Mews, Great Portland Street and Harley Street.

Background Data

7.23 Background data for NO_2, NO_X, PM_{10} and $PM_{2.5}$ concentrations for 2024 and 2026 have been sourced from Defra's 2021-based background maps for receptors within the nearest 1 km x 1 km grid square. For grid squares containing Primary A roads, Trunk roads and Motorways, these have been removed from the background to avoid double counting of these emissions.

NO_2 Hourly Mean Objective

7.24 Research projects completed on behalf of Defra and the Devolved Administrations by Laxen and Marner (Marner, 2003) and AEA Technology in 2008 (AEAT, 2008) concluded that the hourly average NO_2 AQS Objective is unlikely to be exceeded if annual average concentrations are predicted to be less than 60 µg/m^3. Therefore, this assessment has evaluated the likelihood of exceeding the hourly average NO_2 objective by comparing predicted annual average NO_2 concentrations at all receptors to an annual average equivalent threshold of 60 µg/m^3. Where predicted concentrations are below this value, it can be concluded that the hourly average NO_2 Objective is likely to be achieved.

PM_{10} 24-hour Mean Objective

7.25 Local Air Quality Management Technical Guidance (LAQM.TG(22)) (Defra, 2022b) provides a calculation method to estimate the number of exceedances of the 24-hour mean PM_{10} objective given the annual mean concentration. This method has been used to assess the predicted effect of the Proposed Scheme with respect to the 24-hour mean PM_{10} objective.

Model Verification

7.26 Predicted results from an air quality dispersion model may differ from measured concentrations for several reasons, including uncertainties associated with traffic flows and emissions factors, meteorology and limitations inherent to the modelling software. In light of this, and in accordance with advice in LAQM.TG(22), for roads-based air quality assessments it is best-practice to perform a comparison of modelled results with local monitoring data to minimise these modelling uncertainties. This provides a verification factor, by which the output of the ADMS-Roads model is adjusted, to gain greater confidence in the results. The verification of the modelling output was carried out as prescribed in LAQM.TG(22). Details of the model verification are provided in Appendix D.

Magnitude of Change Classification

7.27 With regard to road traffic emissions, the change in pollutant concentrations with respect to future baseline concentrations has been described at receptors that are representative of exposure to impacts on local air quality within the study area. The absolute magnitude of pollutant concentrations in the “with” and “without” Scheme scenario is also described and this is used to consider the risk of the air quality objective values being exceeded in each scenario.

7.28 For consideration of a change in annual mean concentration of a given magnitude, the Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) have published recommendations for describing the effects of such impacts at individual receptors as set out in Table 18 and Table 19 (EPUK & IAQM, 2017).

Table 18. Effects Descriptors at Individual Receptors – Annual Mean NO_2 and PM_{10}

Long Term Average Concentration at Receptor in Assessment Year ($\mu g/m^3$)	Change in Concentration Relative to Air Quality Assessment Level (AQAL) – NO_2 and PM_{10} ($\mu g/m^3$)				
	<0.2	0.2 - <0.6	0.6 - <2.2	2.2 -<=4.0	>4.0
	(Imperceptible)	(Very Small)	(Small)	(Medium)	(Large)
<30.2	Negligible	Negligible	Negligible	Slight	Moderate
30.2 - <37.8	Negligible	Negligible	Slight	Moderate	Moderate
37.8 - <41.0	Negligible	Slight	Moderate	Moderate	Substantial
41.0 - <43.8	Negligible	Moderate	Moderate	Substantial	Substantial
≥43.8	Negligible	Moderate	Substantial	Substantial	Substantial

Table 19. Effects Descriptors at Individual Receptors – Annual Mean $PM_{2.5}$

Long Term Average Concentration At Receptor In Assessment Year ($\mu g/m^3$)	Change in concentration relative to Air Quality Assessment Level (AQAL) – $PM_{2.5}$ ($\mu g/m^3$)				
	<0.1 (Imperceptible)	0.1 - <0.4 (Very Small)	0.4 - <1.4 (Small)	1.4 -<=2.5 (Medium)	>2.5 (Large)
<18.9	Negligible	Negligible	Negligible	Slight	Moderate
18.9 - <23.6	Negligible	Negligible	Slight	Moderate	Moderate
23.6 - <25.6	Negligible	Slight	Moderate	Moderate	Substantial
25.6 - <27.4	Negligible	Moderate	Moderate	Substantial	Substantial
≥27.4	Negligible	Moderate	Substantial	Substantial	Substantial

7.29 The IAQM/ EPUK guidance states that the descriptors are for individual receptors only and that overall significance is determined using professional judgement. It also states that it is unwise to ascribe too much accuracy to incremental changes or background concentrations, and this is especially important when total concentrations are close to the objective value. For a given year in the future, it is impossible to define the new total concentration without recognising the inherent uncertainty, which is why there is a category that has a range around the objective value, rather than being exactly equal to it.

8. Noise Methodology

Traffic Data

8.1 The opening year traffic data is described in the Air Quality Traffic Data section and was also used for the road traffic noise assessments. Daytime $L_{A10,18h}$ predictions used 18-hour (06:00 – 00:00) AAWT data. For night-time 6-hour (00:00 – 06:00) AAWT traffic data was used and divided by 6 to get 1-hour traffic data. This was then used to calculate $L_{Aeq,1h}$ predictions.

Receptors

8.2 The receptors outlined in Chapter 7 and listed in Table 16 have also been used in the road traffic noise assessment. Road traffic noise levels have been calculated at each noise sensitive floor of each receptor.

8.3 Receptors 74 to 80 are only noise sensitive in the daytime. Night-time road traffic noise levels have been provided for context.

8.4 Receptors 81 to 85 are not noise sensitive however results for daytime and night-time road traffic noise levels have been provided for context.

Traffic Noise Prediction Methodology

8.5 Noise from a flow of road traffic is generated by both vehicles' engines and the interaction of tyres with the road surface. The traffic noise level at a receptor, such as an observer at the roadside or occupants of a building, is influenced by a number of factors including traffic flow, speed, composition (percentage heavy duty vehicles), gradient, type of road surface, distance from the road and the presence of any obstructions between the road and the receptor.

8.6 The index adopted by the Government in CRTN to assess traffic noise is $L_{A10,18h}$. This value reflects the noise level exceeded 10% of the time between 06:00 and 00:00. A reasonably good correlation has been shown to exist between this index and residents' perception of traffic noise over a wide range of exposures. A brief explanation of different noise metrics is provided in Appendix B.

8.7 CRTN provides the standard methodology for predicting the $L_{A10,18h}$ road traffic noise level in the UK. Noise levels are predicted at a point 1 m measured horizontally externally from the façade of the building and therefore are 'façade' rather than 'free-field' levels. Façade levels include the reflection of noise from the building façade. CRTN applies a standard 'façade correction' of +2.5 dB to convert free-field levels (unaffected by façade reflections) to 'façade' levels (including façade reflections).

8.8 The CRTN methodology applies a ‘low flow’ correction between 18-hour vehicle flows of 1,000 and 4,000. The low flow correction procedure amplifies the impact of changes in traffic flows that are already low, in particular at receptors very close to the road. The 1,000 18-hour flow cut-off is the lower limit of the reliability of the CRTN prediction.

8.9 CRTN uses the percentage HDV of traffic in the calculation of $L_{A10,18h}$. Included in the percentage HDV are buses. CRTN assumes that all the buses used in the modelling have internal combustion engines and does not take into account that a large proportion of the TfL bus fleet are electric buses. Electric buses however at low speeds (<20 km/h) are not necessarily quieter than internal combustion engine buses due to acoustic vehicle alerting systems (AVAS) on the buses turning on at these low speeds. It is therefore likely that electric buses are only marginally quieter than internal combustion engine buses. The assumption in CRTN that all buses are internal combustion engines is likely to only marginally overpredict the road traffic noise contribution from buses.

8.10 To assess night-time noise typically the $L_{A10,18h}$ road traffic noise level is converted to a L_{night} noise level using Equation 3 or 6 from the Transport Research Laboratory ‘Method for

Converting the UK Road Traffic Noise Index $L_{A10,18h}$ to the EU Noise Indices for Road Noise Mapping' (TRL ,2006) report. This method however assumes typical diurnal road traffic levels based on an average across the UK to determine L_{night}. This typical reduction in road traffic levels doesn't occur in densely populated cities such as London therefore the use of this method for this Proposed Scheme would underpredict the night-time road traffic noise levels. Therefore, in order to establish more realistic night-time road traffic noise levels the 6h AAWT traffic data has been averaged into a 1h traffic level and this has been used to determine an $L_{A10,1h}$ traffic noise level following guidance from CRTN. In contrast to the daytime, night-time noise impacts are usually assessed in terms of L_{Aeq}, so the $L_{A10,1h}$ traffic level has been converted into a $L_{Aeq,1h}$ level using Method 1 from the TRL report.

8.11 Based on the provided information, noise models of the 'with' and 'without' Scheme situations have been developed using the SoundPLAN (v9.1) noise mapping software. SoundPLAN implements the standard UK CRTN road traffic noise prediction methodology. Further details of the traffic noise modelling assumptions are provided in Appendix E.

8.12 In accordance with DMRB LA 111 (Highways England, 2020), traffic noise levels have been calculated using CRTN with modifications according to DMRB LA 111, to determine the traffic noise change due to the Scheme for:

a. Do Minimum Opening Year (DMOY 2026) compared against the Do Something Opening Year (DSOY 2026).

Magnitude of Impact

8.13 The magnitude of impact criteria used in the assessment are provided in Table 20 which the short-term criteria (applicable to changes in the opening year) defined in DMRB LA111.

Table 20. Road Traffic Noise Magnitude of Impact Criteria

Change in Traffic Noise Level $L_{A10,18h}$ dB	Magnitude of Impact
0	No change
0.1-0.9	Negligible
1.0-2.9	Minor
3.0-4.9	Moderate
5.0+	Major

9. Predicted Impacts on Air Quality and Carbon

9.1 The following section presents the results of the air quality assessment at the selected representative receptors, providing the predicted pollutant concentrations with and without the Proposed Scheme in place and the differences due to the Scheme. The results of the network wide impacts on CO_2 are also presented.

9.2 Table 21 provides the modelled annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations for the 2024 baseline.

9.3 Table 22 provides the modelled annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations with and without the Proposed Scheme, and the difference between them for each of the selected receptor locations for the model year of 2026. Table 23 provides the results of the IAQM significance descriptors for all three pollutants at the selected receptor locations.

9.4 Figure 4 in Appendix A shows the annual mean NO_2 concentrations with the Proposed Scheme in place and Figure 5 shows the changes in annual mean NO_2 concentrations with and without the Proposed Scheme in 2026.

9.5 Table 24 shows the results of predicted CO_2 emissions in the study area.

Table 21. Annual Mean Air Quality Results - Base (2024)

Receptor	NO_2 (µg/m^3)	PM_{10} (µg/m^3)	$PM_{2.5}$ (µg/m^3)
R1	31.2	20.7	11.2
R2	30.9	20.4	11.0
R3	31.0	20.2	10.9
R4	33.7	19.8	10.7
R5	29.8	19.8	10.7
R6	32.4	21.0	11.3
R7	31.7	20.3	10.9
R8	34.0	22.7	12.1
R9	**45.1**	21.5	11.6
R10	30.1	19.8	10.7
R11	26.4	19.4	10.3
R12	28.4	20.7	10.9
R13	30.2	20.0	10.7
R14	31.1	20.6	11.1
R15	31.0	19.7	10.7
R16	30.5	20.0	10.8
R17	31.4	20.8	11.2
R18	34.7	19.2	10.4
R19	30.9	20.3	11.0
R20	30.7	20.3	10.9
R21	27.8	20.2	10.6
R22	29.5	21.7	11.5

Receptor	NO_2 (µg/m^3)	PM_{10} (µg/m^3)	$PM_{2.5}$ (µg/m^3)
R23	30.2	19.9	10.8
R24	29.9	19.8	10.7
R25	30.8	20.3	11.0
R26	33.5	19.9	10.7
R27	32.4	19.5	10.5
R28	30.6	19.6	10.5
R29	30.8	19.9	10.8
R30	38.4	20.7	11.1
R31	31.1	20.1	10.9
R32	34.0	21.5	11.6
R33	30.8	20.3	11.0
R34	29.9	19.7	10.7
R35	31.0	20.4	10.9
R36	30.4	20.0	10.8
R37	34.8	20.4	11.0
R38	28.5	18.8	10.1
R39	28.2	18.7	10.1
R40	29.6	19.6	10.5
R41	**40.7**	21.3	11.4
R42	26.4	19.4	10.2
R43	33.8	20.2	10.8
R44	38.2	25.3	13.5
R45	30.0	19.5	10.6
R46	35.4	21.8	11.6
R47	30.2	19.9	10.8
R48	30.6	20.3	10.9
R49	31.2	20.2	10.8
R50	35.5	22.3	12.0
R51	34.6	22.0	11.9
R52	30.0	19.7	10.7
R53	29.8	19.7	10.7
R54	28.5	20.7	10.9
R55	30.0	19.8	10.7
R56	29.8	19.7	10.6
R57	30.3	20.1	10.8
R58	30.5	20.0	10.8
R59	29.5	19.4	10.5
R60	30.1	19.7	10.6
R61	33.6	19.4	10.5

Receptor	NO_2 (µg/m^3)	PM_{10} (µg/m^3)	$PM_{2.5}$ (µg/m^3)
R62	32.8	18.9	10.2
R63	29.7	19.5	10.4
R64	33.8	19.8	10.7
R65	30.8	20.3	11.0
R66	33.7	19.9	10.7
R67	30.9	20.5	11.0
R68	30.4	20.0	10.7
R69	30.1	19.8	10.6
R70	30.4	19.7	10.7
R71	28.2	18.6	10.0
R72	29.0	19.2	10.3
R73	30.1	19.6	10.6
R74	28.9	19.1	10.3
R75	30.9	19.9	10.8
R76	27.8	20.4	10.8
R77	**49.1**	23.7	12.7
R78	30.3	20.1	10.9
R79	33.4	21.3	11.5
R80	30.0	19.9	10.8
R81	30.7	19.7	10.7
R82	32.0	20.4	11.0
R83	31.5	20.8	11.2
R84	28.2	20.6	10.8
R85	30.2	19.7	10.7

Exceedances of the NO_2 annual mean objective of 40 µg/m^3 are shown in **bold**

9.6 For NO_2 there were 3 exceedances of the annual mean objective value of 40 µg/m^3 at receptors R9 (Piccadilly), R41 (Piccadilly), and R77 (London Park School Mayfair) in the 2024 Baseline. PM_{10} and $PM_{2.5}$ concentrations were predicted to meet the relevant objective values of 40 µg/m^3 and 20 µg/m^3 in 2024, but levels were close to or above the 2028 interim target of 12 µg/m^3 for $PM_{2.5}$ and were exceeded the Mayor of London's $PM_{2.5}$ target of 10 µg/m^3 at all receptors.

Table 22. Annual Mean Air Quality Results With and Without Scheme (2026)

Receptor	NO_2 (µg/m^3)			PM_{10} (µg/m^3)			$PM_{2.5}$ (µg/m^3)		
	Without Scheme	With Scheme	Change	Without Scheme	With Scheme	Change	Without Scheme	With Scheme	Change
R1	28.3	28.7	0.4	20.0	20.4	0.3	10.7	10.9	0.2
R2	28.5	29.3	0.8	20.1	20.3	0.2	10.8	10.9	<0.1
R3	28.7	27.1	-1.6	20.0	18.9	-1.0	10.7	10.2	-0.5
R4	31.2	31.3	0.2	19.5	19.6	<0.1	10.4	10.5	<0.1
R5	27.7	27.8	<0.1	19.6	19.6	<0.1	10.5	10.5	<0.1

Receptor	NO_2 (µg/m^3)			PM_{10} (µg/m^3)			$PM_{2.5}$ (µg/m^3)		
	Without Scheme	With Scheme	Change	Without Scheme	With Scheme	Change	Without Scheme	With Scheme	Change
R6	29.1	29.5	0.4	20.3	20.4	<0.1	10.9	10.9	<0.1
R7	28.5	28.8	0.2	19.9	20.0	0.2	10.6	10.7	<0.1
R8	30.8	31.4	0.6	22.4	22.9	0.5	11.9	12.1	0.2
R9	**41.4**	**41.9**	0.4	21.4	21.6	<0.1	11.5	11.5	<0.1
R10	27.7	27.7	<0.1	19.4	19.3	<-0.1	10.4	10.4	<0.1
R11	24.2	24.4	0.2	19.2	19.3	<0.1	10.1	10.2	<0.1
R12	26.1	26.5	0.4	20.6	20.9	0.3	10.8	10.9	<0.1
R13	27.7	27.3	-0.3	19.7	19.5	-0.2	10.5	10.4	<-0.1
R14	28.7	29.0	0.3	20.3	20.5	0.2	10.9	11.0	<0.1
R15	28.3	28.3	<0.1	20.0	19.9	<0.1	10.7	10.7	<0.1
R16	28.3	27.8	-0.5	19.7	19.4	-0.3	10.6	10.4	-0.2
R17	29.1	28.4	-0.7	20.6	20.0	-0.6	11.0	10.7	-0.3
R18	32.4	32.5	<0.1	19.1	19.1	<0.1	10.2	10.2	<0.1
R19	27.8	27.7	<-0.1	19.6	19.5	<-0.1	10.5	10.5	<0.1
R20	28.3	28.5	<0.1	20.2	20.3	0.2	10.7	10.8	<0.1
R21	25.6	25.4	-0.2	20.0	19.8	-0.2	10.5	10.4	<-0.1
R22	26.9	27.2	0.3	21.5	21.8	0.2	11.3	11.5	<0.1
R23	27.6	27.7	<0.1	19.4	19.4	<0.1	10.4	10.4	<0.1
R24	28.3	27.9	-0.4	20.0	19.7	-0.3	10.7	10.6	-0.2
R25	28.4	28.5	<0.1	20.1	20.1	<0.1	10.8	10.8	<0.1
R26	30.9	31.1	0.2	19.7	19.6	<-0.1	10.5	10.4	<0.1
R27	30.3	30.5	<0.1	19.3	19.4	<0.1	10.3	10.4	<0.1
R28	27.6	27.5	<-0.1	19.3	19.3	<0.1	10.3	10.3	<0.1
R29	28.1	27.5	-0.6	19.7	19.2	-0.4	10.6	10.3	-0.2
R30	32.7	32.1	-0.6	20.3	20.2	<-0.1	10.8	10.8	<-0.1
R31	28.6	27.8	-0.8	19.9	19.5	-0.4	10.7	10.5	-0.2
R32	30.7	27.2	-3.5	20.9	19.0	-1.9	11.2	10.2	-1.0
R33	28.0	28.3	0.2	19.7	19.8	<0.1	10.6	10.6	<0.1
R34	27.7	27.8	<0.1	19.4	19.5	<0.1	10.4	10.4	<0.1
R35	28.3	27.8	-0.5	20.2	19.8	-0.4	10.7	10.5	-0.2
R36	27.9	28.1	0.2	19.7	19.7	<0.1	10.5	10.6	<0.1
R37	32.4	32.6	0.3	20.2	20.4	0.2	10.8	10.9	<0.1
R38	26.5	26.4	<-0.1	18.6	18.6	<0.1	9.9	9.9	<0.1
R39	26.3	26.4	<0.1	18.7	18.8	<0.1	9.9	10.0	<0.1
R40	27.2	27.2	<0.1	19.3	19.4	<0.1	10.3	10.3	<0.1
R41	36.2	36.4	0.2	21.1	21.3	<0.1	11.2	11.3	<0.1
R42	24.8	24.9	0.2	19.5	19.6	<0.1	10.2	10.2	<0.1
R43	31.4	31.4	<0.1	19.9	20.0	<0.1	10.6	10.6	<0.1

Receptor	NO_2 (µg/m^3)			PM_{10} (µg/m^3)			$PM_{2.5}$ (µg/m^3)		
	Without Scheme	With Scheme	Change	Without Scheme	With Scheme	Change	Without Scheme	With Scheme	Change
R44	34.2	34.6	0.4	24.6	25.0	0.4	13.0	13.2	0.2
R45	28.1	28.3	0.2	19.9	19.9	<0.1	10.7	10.7	<0.1
R46	34.6	35.0	0.4	23.1	23.4	0.3	12.2	12.4	0.2
R47	28.2	28.6	0.4	19.8	19.9	0.2	10.6	10.7	<0.1
R48	28.2	30.3	2.1	20.1	21.3	1.2	10.7	11.3	0.6
R49	28.3	28.6	0.3	19.9	20.1	0.2	10.6	10.7	<0.1
R50	32.3	31.3	-1.0	21.8	20.8	-1.0	11.7	11.2	-0.5
R51	31.0	29.0	-2.1	21.3	19.9	-1.3	11.4	10.7	-0.7
R52	27.4	28.0	0.6	19.2	19.4	0.3	10.3	10.4	<0.1
R53	31.4	29.7	-1.7	22.5	21.1	-1.4	12.0	11.3	-0.7
R54	25.7	26.0	0.2	20.2	20.4	0.2	10.6	10.6	<0.1
R55	27.9	28.0	0.2	19.7	19.8	<0.1	10.6	10.6	<0.1
R56	27.2	27.0	-0.2	19.3	19.1	-0.2	10.3	10.2	<-0.1
R57	28.5	28.6	<0.1	20.2	20.2	<0.1	10.8	10.8	<0.1
R58	28.4	28.1	-0.3	19.8	19.6	-0.2	10.6	10.5	<-0.1
R59	27.4	26.9	-0.5	19.1	18.9	-0.3	10.3	10.1	<-0.1
R60	27.4	27.4	<0.1	19.3	19.3	<0.1	10.3	10.3	<0.1
R61	31.2	31.3	<0.1	19.1	19.2	<0.1	10.2	10.3	<0.1
R62	30.7	30.7	<0.1	18.7	18.7	<0.1	10.0	10.1	<0.1
R63	28.0	28.1	0.2	19.7	19.8	<0.1	10.5	10.6	<0.1
R64	31.5	31.6	<0.1	19.6	19.7	<0.1	10.5	10.5	<0.1
R65	28.1	28.4	0.3	19.9	20.0	0.2	10.7	10.7	<0.1
R66	31.0	30.8	-0.3	19.6	19.5	<-0.1	10.5	10.4	<-0.1
R67	28.6	27.6	-1.1	20.3	19.6	-0.7	10.8	10.4	-0.4
R68	28.3	28.2	<-0.1	20.0	19.9	<0.1	10.6	10.6	<0.1
R69	27.7	27.3	-0.4	19.6	19.4	-0.2	10.4	10.3	<-0.1
R70	27.8	28.8	1.0	19.5	19.5	<0.1	10.5	10.5	<0.1
R71	26.5	26.6	<0.1	18.7	18.8	<0.1	10.0	10.0	<0.1
R72	26.9	27.4	0.4	19.1	19.4	0.3	10.2	10.3	0.2
R73	28.1	28.4	0.3	19.8	19.9	<0.1	10.6	10.7	<0.1
R74	26.8	26.8	<0.1	19.0	19.0	<0.1	10.1	10.1	<0.1
R75	27.9	27.9	<0.1	19.6	19.6	<0.1	10.5	10.5	<0.1
R76	25.3	25.7	0.4	20.1	20.3	0.3	10.6	10.7	<0.1
R77	**42.6**	**43.1**	0.5	23.2	23.4	0.3	12.3	12.4	<0.1
R78	28.2	28.3	0.2	19.8	19.9	<0.1	10.6	10.7	<0.1
R79	30.2	27.9	-2.4	20.7	19.3	-1.4	11.1	10.4	-0.7
R80	31.1	29.6	-1.5	22.3	20.9	-1.3	11.9	11.2	-0.7
R81	29.0	29.4	0.4	20.6	20.8	0.2	11.0	11.1	<0.1

Receptor	NO_2 (µg/m^3)			PM_{10} (µg/m^3)			$PM_{2.5}$ (µg/m^3)		
	Without Scheme	With Scheme	Change	Without Scheme	With Scheme	Change	Without Scheme	With Scheme	Change
R82	29.4	29.8	0.4	20.8	21.1	0.2	11.1	11.3	<0.1
R83	29.0	29.7	0.7	20.6	20.9	0.3	11.0	11.2	0.2
R84	26.2	26.3	0.2	20.6	20.7	<0.1	10.8	10.8	<0.1
R85	27.9	27.0	-0.9	19.4	18.9	-0.5	10.4	10.2	-0.2

Exceedances of the NO_2 annual mean objective of 40 µg/m^3 are shown in **bold**

Table 23. Air Quality Significance Effects Individual Location Descriptions, Impacts with Scheme, Annual Mean (2026)

Receptor	Effect Descriptors		
	NO_2	PM_{10}	$PM_{2.5}$
R1	Negligible	Negligible	Negligible
R2	Negligible	Negligible	Negligible
R3	Negligible	Negligible	Negligible
R4	Negligible	Negligible	Negligible
R5	Negligible	Negligible	Negligible
R6	Negligible	Negligible	Negligible
R7	Negligible	Negligible	Negligible
R8	Slight Adverse	Negligible	Negligible
R9	Moderate Adverse	Negligible	Negligible
R10	Negligible	Negligible	Negligible
R11	Negligible	Negligible	Negligible
R12	Negligible	Negligible	Negligible
R13	Negligible	Negligible	Negligible
R14	Negligible	Negligible	Negligible
R15	Negligible	Negligible	Negligible
R16	Negligible	Negligible	Negligible
R17	Negligible	Negligible	Negligible
R18	Negligible	Negligible	Negligible
R19	Negligible	Negligible	Negligible
R20	Negligible	Negligible	Negligible
R21	Negligible	Negligible	Negligible
R22	Negligible	Negligible	Negligible
R23	Negligible	Negligible	Negligible
R24	Negligible	Negligible	Negligible
R25	Negligible	Negligible	Negligible
R26	Negligible	Negligible	Negligible
R27	Negligible	Negligible	Negligible
R28	Negligible	Negligible	Negligible

Receptor	Effect Descriptors		
	NO_2	PM_{10}	$PM_{2.5}$
R29	Negligible	Negligible	Negligible
R30	Negligible	Negligible	Negligible
R31	Negligible	Negligible	Negligible
R32	Moderate Beneficial	Negligible	Negligible
R33	Negligible	Negligible	Negligible
R34	Negligible	Negligible	Negligible
R35	Negligible	Negligible	Negligible
R36	Negligible	Negligible	Negligible
R37	Negligible	Negligible	Negligible
R38	Negligible	Negligible	Negligible
R39	Negligible	Negligible	Negligible
R40	Negligible	Negligible	Negligible
R41	Negligible	Negligible	Negligible
R42	Negligible	Negligible	Negligible
R43	Negligible	Negligible	Negligible
R44	Negligible	Negligible	Negligible
R45	Negligible	Negligible	Negligible
R46	Negligible	Negligible	Negligible
R47	Negligible	Negligible	Negligible
R48	Slight Adverse	Negligible	Negligible
R49	Negligible	Negligible	Negligible
R50	Slight Beneficial	Negligible	Negligible
R51	Slight Beneficial	Negligible	Negligible
R52	Negligible	Negligible	Negligible
R53	Slight Beneficial	Negligible	Negligible
R54	Negligible	Negligible	Negligible
R55	Negligible	Negligible	Negligible
R56	Negligible	Negligible	Negligible
R57	Negligible	Negligible	Negligible
R58	Negligible	Negligible	Negligible
R59	Negligible	Negligible	Negligible
R60	Negligible	Negligible	Negligible
R61	Negligible	Negligible	Negligible
R62	Negligible	Negligible	Negligible
R63	Negligible	Negligible	Negligible
R64	Negligible	Negligible	Negligible
R65	Negligible	Negligible	Negligible
R66	Negligible	Negligible	Negligible

Receptor	Effect Descriptors		
	NO_2	PM_{10}	$PM_{2.5}$
R67	Negligible	Negligible	Negligible
R68	Negligible	Negligible	Negligible
R69	Negligible	Negligible	Negligible
R70	Negligible	Negligible	Negligible
R71	Negligible	Negligible	Negligible
R72	Negligible	Negligible	Negligible
R73	Negligible	Negligible	Negligible
R74	Negligible	Negligible	Negligible
R75	Negligible	Negligible	Negligible
R76	Negligible	Negligible	Negligible
R77	Moderate Adverse	Negligible	Negligible
R78	Negligible	Negligible	Negligible
R79	Moderate Beneficial	Negligible	Negligible
R80	Slight Beneficial	Negligible	Negligible
R81	Negligible	Negligible	Negligible
R82	Negligible	Negligible	Negligible
R83	Negligible	Negligible	Negligible
R84	Negligible	Negligible	Negligible
R85	Negligible	Negligible	Negligible

9.7 The annual mean NO_2 objective value of 40 µg/m^3 was exceeded at two of the selected sensitive receptor locations on Piccadilly with or without the Proposed Scheme in 2026. The highest annual mean concentration of 43.1 µg/m^3 was predicted at R77 (London Park School Mayfair) with the Proposed Scheme. Concentrations were predicted to experience a very small increase of 0.5 µg/m^3 at this location due to slight increases in flows on some sections of Piccadilly.

9.8 The greatest predicted increase in annual mean NO_2 concentration was 2.1 µg/m^3 at R48 (Upper Brook Street) where concentrations were predicted to increase from 28.2 µg/m^3 to 30.3 µg/m^3 due to a large predicted increase in traffic flow on this with the Proposed Scheme. This is due the diversion of traffic around this area, and ability of vehicles to travel northbound from Upper Brook Street onto North Audley Street with the Proposed Scheme. Concentrations remain below the annual mean objective with and without the Proposed Scheme.

9.9 The greatest predicted reduction in annual mean NO_2 concentration was 3.5 µg/m^3, found at R32 (Oxford Street) where concentrations were predicted to decline from 30.7 µg/m^3 to 27.2 µg/m^3. This large reduction is due to the pedestrianisation and removal of traffic along sections of Oxford Street adjacent to this receptor as part of the Proposed Scheme. All receptors on the sections of Oxford Street that are set to be pedestrianised under the Proposed Scheme experienced predicted reductions in annual mean NO_2 concentrations.

9.10 Across the study area, 44 receptors were predicted to experience small or very small increases in annual mean NO_2 concentrations, ranging between 0.1 and 2.1 µg/m^3 due to the increases in traffic flow in certain areas due to the rerouting of vehicles caused by Proposed Scheme. 25 receptors predicted to experience reductions and 16 receptors were predicted to experience very small changes (less than 0.1 µg/m^3) due to the Proposed Scheme.

9.11 Four receptors were predicted to experience adverse effects; with R8 (Brook Street) and R48 (Upper Brook Street), categorised as slight and R9 (Piccadilly) and R77 (London Park School Mayfair) categorised as moderate adverse. Six receptors experienced beneficial effects, with slight benefits at R50 (Portman Mews South), R51 (North Audley Street), R53 (Wigmore Street) and R80 (Harley Street Private Hospital) and moderate benefits at R32 (Oxford Street) and R79 (West London College, Oxford Street).

9.12 Receptors R81 (Cavita, Wigmore Street), R82 (Joe & The Juice, Wigmore Street), R83 (Zizzi restaurant, Wigmore Street), R84 (The Italian Greyhound, Seymour Street), and R85 (Angus Steakhouse Restaurant, Oxford Street) were all modelled in order to establish the impact of the Proposed Scheme on short term pollutant exposure. Research projects completed on behalf of Defra and the Devolved Administrations (Laxen and Marner, 2003, and AEAT, 2008) have concluded that the hourly mean NO_2 objective is unlikely to be exceeded if annual mean concentrations are predicted to be less the 60 µg/m^3. As there were no modelled concentrations exceeding 60 µg/m^3, the results do not indicate potential exceedances of the short-term objectives.

9.13 PM_{10} and $PM_{2.5}$ concentrations were predicted to meet the relevant objective values of 40 µg/m^3 and 20 µg/m^3 in 2026 for both scenarios but levels were close to or above the 2028 interim target of 12 µg/m^3 for $PM_{2.5}$ with or without the Proposed Scheme. The annual mean $PM_{2.5}$ concentrations at all modelled receptors except R38 (New Bond Street) were also predicted to exceed the Mayor of London's $PM_{2.5}$ target of 10 µg/m^3 with or without the Proposed Scheme. This is a goal that WCC mention in their most recent ASR. The highest annual mean PM_{10} and $PM_{2.5}$ concentrations (with the Proposed Scheme) of 25.0 µg/m^3 and 13.2 µg/m^3 respectively were predicted at receptor R44 (Park Lane). Changes in PM_{10} and $PM_{2.5}$ were found to be small/imperceptible at all receptors and therefore the changes due to the Proposed Scheme are considered to be negligible.

Table 24. Predicted CO_2 Emissions

Scenario	Annual CO_2 Emissions (t/y)
2024 Base	24.390
2024 DM	21,984
2025 DS	21,553

9.14 The results of the carbon assessment show that CO_2 emissions were predicted to reduce by 10% from 2024 to 2026 DM, due to improvements in vehicle fleet emissions. The Proposed Scheme is predicted to result in a small reduction of CO_2 emissions of 431 tonnes or 2% in 2026. This is due to a reduction in vehicle kilometres of 0.6% travelled across the study area due to the Proposed Scheme.

10. Predicted Impacts on Noise

10.1 The following section presents the results of the noise assessment at the 80 selected noise sensitive receptors, providing the predicted levels with and without the Proposed Scheme and the differences due to the Proposed Scheme in the year 2026.

10.2 Table 25 details the predicted daytime $L_{A10,18h}$ road traffic noise levels with and without the Proposed Scheme, including the difference in road traffic noise between the two scenarios for the representative receptor locations. The magnitude of impact is also presented.

10.3 Table 26 provides the same for the night-time $L_{Aeq,1h}$ levels. The majority of receptors are buildings consisting of a number of floors. The results presented are for the floor which undergoes the predicted worst case change due to the Proposed Scheme. Details of the location of each receptor are included in Figure 1. The predicted change in daytime and night-time road traffic noise levels at each representative receptor is illustrated in Figure 6 and Figure 7 respectively (see Appendix A).

Table 25. Daytime LA10,18h Traffic Noise Results

Receptor	Location	Façade Direction	Floor	Traffic Noise Level $L_{A10,18h}$ dB (façade)		Change dB	Magnitude of Impact
R1	Harley Street	E	F 2	63.9	65.4	1.5	Minor Increase
R2	Wigmore Street	W	F 1	60.7	63.5	2.8	Minor Increase
R3	Oxford Street	W	F 1	68.4	44.3	-24.1	Major Decrease
R4	Savile Row	NE	F 1	61.9	62.2	0.3	Negligible Increase
R5	Chandos Street	W	GF	59.6	58.6	-1.0	Minor Decrease
R6	Portman Square	N	F 1	70.7	71.5	0.8	Negligible Increase
R7	Bruton Street	SE	F 1	70.8	70.9	0.1	Negligible Increase
R8	Brook Street	S	F 1	69.9	70.3	0.4	Negligible Increase
R9	Piccadilly	SE	F 1	74.4	74.5	0.1	Negligible Increase
R10	Cavendish Square Gardens	E	F 1	61.3	63.7	2.4	Minor Increase
R11	Park Lane	N	F 2	70.2	70.0	-0.2	Negligible Decrease
R12	Seymour Street	S	F 1	68.5	69.3	0.8	Negligible Increase
R13	Grosvenor Square	E	F 3	67.4	65.4	-2.0	Minor Decrease
R14	George Street / Gloucester Place	N	F 1	68.7	69.3	0.6	Negligible Increase
R15	Wigmore Street	N	F 1	70.2	72.7	2.5	Minor Increase
R16	Duke Street	E	F 1	68.7	68.4	-0.3	Negligible Decrease
R17	Cavendish Square Gardens	S	GF	66.8	64.6	-2.2	Minor Decrease
R18	Regent Street	N	F 2	71.3	70.7	-0.6	Negligible Decrease
R19	Wimpole Street	W	GF	66.5	64.4	-2.1	Minor Decrease
R20	Upper Grosvenor Street	S	GF	60.9	62.2	1.3	Minor Increase
R21	Bryanston Street	S	F 1	65.0	52.0	-13.0	Major Decrease
R22	Connaught Place	S	F 3	72.3	72.4	0.1	Negligible Increase

Receptor	Location	Façade Direction	Floor	Traffic Noise Level $L_{A10,18h}$ dB (façade)		Change dB	Magnitude of Impact
R23	Portman Square	N	F 1	67.3	66.1	-1.2	Minor Decrease
R24	Wimpole Street	W	F 1	67.4	63.2	-4.2	Moderate Decrease
R25	Manchester Square	S	F 1	66.9	66.3	-0.6	Negligible Decrease
R26	Great Castle Street	S	F 1	67.0	63.6	-3.4	Moderate Decrease
R27	Great Marlborough Street	NW	F 1	67.7	67.9	0.2	Negligible Increase
R28	Mount Street	N	F 1	68.8	67.9	-0.9	Negligible Decrease
R29	James Street	E	F 1	69.2	58.1	-11.1	Major Decrease
R30	Regent Street	W	F 1	73.1	72.5	-0.6	Negligible Decrease
R31	Vere Street	S	F 4	69.3	59.9	-9.4	Major Decrease
R32	Oxford Street	N	F 2	70.4	56.0	-14.4	Major Decrease
R33	Manchester Square	S	GF	61.3	59.5	-1.8	Minor Decrease
R34	Stratford Place	NE	GF	64.2	68.1	3.9	Moderate Increase
R35	Grosvenor Square	S	F 3	68.6	67.3	-1.3	Minor Decrease
R36	Duke Street	W	F 2	65.3	65.9	0.6	Negligible Increase
R37	Conduit Street	NW	F 1	72.0	71.8	-0.2	Negligible Decrease
R38	New Bond Street	NE	F 1	65.3	64.2	-1.1	Minor Decrease
R39	Grosvenor Street	S	F 1	60.1	61.5	1.4	Minor Increase
R40	Mount Street	W	F 1	69.4	67.9	-1.5	Minor Decrease
R41	Piccadilly	SW	F 4	70.6	70.5	-0.1	Negligible Decrease
R42	George Street	N	F 1	66.6	66.8	0.2	Negligible Increase
R43	Maddox Street	NE	F 2	73.2	72.7	-0.5	Negligible Decrease
R44	Park Lane	SW	F 2	75.6	75.7	0.1	Negligible Increase
R45	Wigmore Street	S	F 1	69.6	71.7	2.1	Minor Increase

Receptor	Location	Façade Direction	Floor	Traffic Noise Level $L_{A10,18h}$ dB (façade)		Change dB	Magnitude of Impact
R46	Great Portland Street	E	F 3	69.5	68.9	-0.6	Negligible Decrease
R47	Regent Street	E	F 2	70.2	71.1	0.9	Negligible Increase
R48	Upper Brook Street	W	GF	59.9	63.6	3.7	Moderate Increase
R49	Conduit Street	SE	F 2	70.8	71.0	0.2	Negligible Increase
R50	Portman Mews South	S	GF	71.0	68.1	-2.9	Minor Decrease
R51	North Audley Street	N	F 1	72.3	68.0	-4.3	Moderate Decrease
R52	Margaret Street	N	F 1	61.0	68.8	7.8	Major Increase
R53	Wigmore Street	W	F 1	69.7	66.8	-2.9	Minor Decrease
R54	Great Cumberland Place	W	GF	67.1	66.3	-0.8	Negligible Decrease
R55	Thayer Street	W	F 2	65.2	65.4	0.2	Negligible Increase
R56	North Audley Street	W	F 1	69.2	67.5	-1.7	Minor Decrease
R57	Spanish Place	N	GF	61.5	62.2	0.7	Negligible Increase
R58	Duke Street	W	F 1	67.9	68.1	0.2	Negligible Increase
R59	South Molton Street	W	F 2	58.1	50.6	-7.5	Major Decrease
R60	Charles Street	SE	F 1	68.0	68.1	0.1	Negligible Increase
R61	Brown's Hotel, Albemarle Street	NE	F 1	65.8	65.9	0.1	Negligible Increase
R62	Sackville Street	SW	F 6	57.0	57.4	0.4	Negligible Increase
R63	Chesterfield Street	S	F 1	68.6	68.8	0.2	Negligible Increase
R64	New Burlington Street	SE	GF	68.6	68.2	-0.4	Negligible Decrease
R65	Welbeck Street	S	GF	62.9	64.0	1.1	Minor Increase
R66	Oxford Street	W	F 2	67.3	68.6	1.3	Minor Increase
R67	Park Street	W	F 2	69.1	66.5	-2.6	Minor Decrease
R68	South Audley Street	E	GF	69.9	68.7	-1.2	Minor Decrease

Receptor	Location	Façade Direction	Floor	Traffic Noise Level $L_{A10,18h}$ dB (façade)		Change dB	Magnitude of Impact
R69	South Audley Street	N	F 1	63.9	60.9	-3.0	Moderate Decrease
R70	New Bond Street	SW	F 1	66.8	67.2	0.4	Negligible Increase
R71	Grosvenor Street	SE	F 1	66.6	67.1	0.5	Negligible Increase
R72	Davies Street	W	F 1	67.6	69.0	1.4	Minor Increase
R73	Marylebone Lane	SW	F 1	63.2	67.1	3.9	Moderate Increase
R74	St Georges C of E Primary School, Hanover Square	S	F 1	60.0	60.2	0.2	Negligible Increase
R75	School Of Economic Science, Mandeville Place	E	GF	65.7	64.6	-1.1	Minor Decrease
R76	Albemarle Independent College, Dunraven Street	W	F 1	50.0	53.2	3.2	Moderate Increase
R77	London Park School Mayfair	SE	F 1	74.1	74.0	-0.1	Negligible Decrease
R78	Anglia Ruskin University, Charterhouse Street	N	GF	65.7	66.2	0.5	Negligible Increase
R79	West London College, Oxford Street	N	F 1	70.6	60.0	-10.6	Major Decrease
R80	Harley Street Private Hospital	S	F 1	72.2	70.7	-1.5	Minor Decrease
R81	Cavita, Wigmore Street	S	F 1	69.7	72.0	2.3	N/A
R82	Joe & The Juice, Wigmore Street	S	GF	69.4	71.5	2.1	N/A
R83	Zizzi restaurant, Wigmore Street	S	F 2	69.4	72.1	2.7	N/A
R84	The Italian Greyhound, Seymour Street	E	F 1	64.4	63.9	-0.5	N/A
R85	Angus Steakhouse Restaurant, Oxford Street	N	F 1	70.2	52.7	-17.5	N/A

Table 26. Night-time LAeq,1h Traffic Noise Results

Receptor	Location	Façade Direction	Floor	Traffic Noise Level $L_{Aeq,1h}$ dB (free-field)		Change dB	Magnitude of Impact
				Without Scheme	With Scheme		
R1	Harley Street	E	F 1	51.4	53.1	1.7	Minor Increase
R2	Wigmore Street	W	F 1	51.5	54.2	2.7	Minor Increase
R3	Oxford Street	W	F 1	56.8	35.8	-21.0	Major Decrease

Receptor	Location	Façade Direction	Floor	Traffic Noise Level $L_{Aeq,1h}$ dB (free-field)		Change dB	Magnitude of Impact
				Without Scheme	With Scheme		
R4	Savile Row	SW	F 1	54.4	53.9	-0.5	Negligible Decrease
R5	Chandos Street	W	GF	48.7	48.0	-0.7	Negligible Decrease
R6	Portman Square	N	F 2	60.5	61.3	0.8	Negligible Increase
R7	Bruton Street	SE	F 2	60.9	61.1	0.2	Negligible Increase
R8	Brook Street	S	F 1	60.2	60.8	0.6	Negligible Increase
R9	Piccadilly	SE	F 1	64.4	64.4	0.0	No Change
R10	Cavendish Square Gardens	E	F 1	51.8	53.3	1.5	Minor Increase
R11	Park Lane	N	F 3	59.9	60.1	0.2	Negligible Increase
R12	Seymour Street	S	F 1	58.2	59.1	0.9	Negligible Increase
R13	Grosvenor Square	E	GF	59.0	57.5	-1.5	Minor Decrease
R14	George Street / Gloucester Place	N	F 1	58.7	59.3	0.6	Negligible Increase
R15	Wigmore Street	N	F 1	60.6	62.8	2.2	Minor Increase
R16	Duke Street	S	F 1	51.2	50.9	-0.3	Negligible Decrease
R17	Cavendish Square Gardens	S	GF	57.4	54.3	-3.1	Moderate Decrease
R18	Regent Street	N	F 2	61.2	60.5	-0.7	Negligible Decrease
R19	Wimpole Street	W	GF	55.0	52.8	-2.2	Minor Decrease
R20	Upper Grosvenor Street	S	F 1	53.4	54.5	1.1	Minor Increase
R21	Bryanston Street	S	F 1	53.1	43.3	-9.8	Major Decrease
R22	Connaught Place	S	F 3	62.7	62.8	0.1	Negligible Increase
R23	Portman Square	N	F 3	57.0	55.5	-1.5	Minor Decrease
R24	Wimpole Street	W	F 1	56.4	51.9	-4.5	Moderate Decrease
R25	Manchester Square	S	F 1	56.1	55.7	-0.4	Negligible Decrease
R26	Great Castle Street	S	F 1	55.6	54.7	-0.9	Negligible Decrease

Receptor	Location	Façade Direction	Floor	Traffic Noise Level $L_{Aeq,1h}$ dB (free-field)		Change dB	Magnitude of Impact
				Without Scheme	With Scheme		
R27	Great Marlborough Street	NW	F 1	57.6	58.0	0.4	Negligible Increase
R28	Mount Street	N	F 1	58.9	57.9	-1.0	Minor Decrease
R29	James Street	E	F 1	57.9	47.5	-10.4	Major Decrease
R30	Regent Street	W	F 1	63.1	62.5	-0.6	Negligible Decrease
R31	Vere Street	S	F 4	59.0	50.3	-8.7	Major Decrease
R32	Oxford Street	N	F 2	59.6	47.2	-12.4	Major Decrease
R33	Manchester Square	S	F 3	53.7	54.5	0.8	Negligible Increase
R34	Stratford Place	NE	GF	52.4	56.2	3.8	Moderate Increase
R35	Grosvenor Square	S	F 1	59.8	58.7	-1.1	Minor Decrease
R36	Duke Street	W	GF	51.1	51.6	0.5	Negligible Increase
R37	Conduit Street	NW	F 1	62.4	62.3	-0.1	Negligible Decrease
R38	New Bond Street	NE	F 1	53.9	52.5	-1.4	Minor Decrease
R39	Grosvenor Street	S	F 5	51.0	51.2	0.2	Negligible Increase
R40	Mount Street	W	F 1	59.1	57.2	-1.9	Minor Decrease
R41	Piccadilly	SW	F 6	60.1	60.2	0.1	Negligible Increase
R42	George Street	N	F 3	55.4	56.0	0.6	Negligible Increase
R43	Maddox Street	SE	F 2	56.9	56.4	-0.5	Negligible Decrease
R44	Park Lane	SW	F 1	63.1	63.2	0.1	Negligible Increase
R45	Wigmore Street	S	F 1	60.0	61.8	1.8	Minor Increase
R46	Great Portland Street	E	F 4	59.0	58.1	-0.9	Negligible Decrease
R47	Regent Street	E	F 2	59.7	61.1	1.4	Minor Increase
R48	Upper Brook Street	S	GF	58.2	62.4	4.2	Moderate Increase
R49	Conduit Street	SE	F 1	62.2	62.4	0.2	Negligible Increase

Receptor	Location	Façade Direction	Floor	Traffic Noise Level $L_{Aeq,1h}$ dB (free-field)		Change dB	Magnitude of Impact
				Without Scheme	With Scheme		
R50	Portman Mews South	S	F 8	59.6	57.6	-2.0	Minor Decrease
R51	North Audley Street	N	F 1	61.7	58.3	-3.4	Moderate Decrease
R52	Margaret Street	N	F 1	51.5	56.7	5.2	Major Increase
R53	Wigmore Street	W	F 1	59.5	55.2	-4.3	Moderate Decrease
R54	Great Cumberland Place	S	F 1	54.8	53.7	-1.1	Minor Decrease
R55	Thayer Street	W	F 1	53.7	54.0	0.3	Negligible Increase
R56	North Audley Street	W	F 1	59.0	56.9	-2.1	Minor Decrease
R57	Spanish Place	W	F 1	51.3	49.8	-1.5	Minor Decrease
R58	Duke Street	W	F 4	56.6	56.2	-0.4	Negligible Decrease
R59	South Molton Street	W	F 2	49.2	42.1	-7.1	Major Decrease
R60	Charles Street	SE	GF	56.5	56.2	-0.3	Negligible Decrease
R61	Brown's Hotel, Albemarle Street	NE	F 1	53.9	54.0	0.1	Negligible Increase
R62	Sackville Street	N	F 6	51.5	51.1	-0.4	Negligible Decrease
R63	Chesterfield Street	S	F 1	58.8	58.9	0.1	Negligible Increase
R64	New Burlington Street	SE	F 3	57.2	56.7	-0.5	Negligible Decrease
R65	Welbeck Street	W	GF	54.5	56.5	2.0	Minor Increase
R66	Oxford Street	W	F 2	56.6	58.6	2.0	Minor Increase
R67	Park Street	W	GF	59.2	55.7	-3.5	Moderate Decrease
R68	South Audley Street	E	GF	60.1	58.2	-1.9	Minor Decrease
R69	South Audley Street	W	F 1	59.5	57.4	-2.1	Minor Decrease
R70	New Bond Street	SW	F 1	55.9	56.6	0.7	Negligible Increase
R71	Grosvenor Street	SE	F 1	53.7	54.1	0.4	Negligible Increase
R72	Davies Street	W	F 1	57.3	59.2	1.9	Minor Increase

Receptor	Location	Façade Direction	Floor	Traffic Noise Level $L_{Aeq,1h}$ dB (free-field)		Change dB	Magnitude of Impact
				Without Scheme	With Scheme		
R73	Marylebone Lane	SW	F 3	50.6	54.6	4.0	Moderate Increase
R74	St Georges C of E Primary School, Hanover Square	S	GF	48.7	49.6	0.9	N/A
R75	School Of Economic Science, Mandeville Place	E	GF	54.1	52.4	-1.7	N/A
R76	Albemarle Independent College, Dunraven Street	W	F 1	41.7	44.6	2.9	N/A
R77	London Park School Mayfair	SE	GF	64.6	64.5	-0.1	N/A
R78	Anglia Ruskin University, Charterhouse Street	N	F 1	54.0	54.6	0.6	N/A
R79	West London College, Oxford Street	N	F 1	59.7	51.0	-8.7	N/A
R80	Harley Street Private Hospital	S	GF	61.7	58.6	-3.1	N/A
R81	Cavita, Wigmore Street	S	F 1	60.0	62.0	2.0	N/A
R82	Joe & The Juice, Wigmore Street	S	GF	59.6	61.7	2.1	N/A
R83	Zizzi restaurant, Wigmore Street	S	F 1	60.1	62.8	2.7	N/A
R84	The Italian Greyhound, Seymour Street	E	F 1	54.3	53.8	-0.5	N/A
R85	Angus Steakhouse Restaurant, Oxford Street	N	F 1	59.5	43.7	-15.8	N/A

10.4 Generally, road traffic noise levels along Oxford Street in the Do Minimum are relatively high. Other roads in the area where noise levels at representative receptors are high are along Regent Street, Conduit Street, Bruton Street, Piccadilly, Berkley Square, Charles Street, Curzon Street, Mount Street, Grosvenor Street, Park Street, North and South Audley Street, Park Lane, Wigmore Street, Portman Square, Seymour Street, George Street and Mortimer Street.

10.5 One receptor is predicted to experience a major increase in daytime road traffic noise level, R52 (Margaret Street). This receptor is predicted to experience a major increase in noise due to the re-routing of traffic and bus routes from Oxford Street. This road now is expected to have 184 buses over an 18-hour period compared to none in the Do Minimum. The number of light vehicles is also expected to double from 1040 to 2234 and HGV traffic from 40 to 73 vehicles.

10.6 Seven receptors are predicted to experience major decreases in daytime road traffic noise levels as a result of the Proposed Scheme as described in the following paragraphs.

10.7 R3 (Oxford Street), R31 (Vere Street), R32 (Oxford Street), R59 (South Molton Street) and R79 (West London College, Oxford Street) are all predicted to experience major decreases in road traffic noise due to the Proposed Scheme. The receptors are all located either along or just off Oxford Street. The major reduction in road traffic noise at these receptors is due to the pedestrianisation of Oxford Street and the resulting removal of vehicles.

10.8 R29 (James Street) is predicted to experience a major decrease in road traffic noise levels. The major decrease is as a result of James's Street being closed off at the Oxford Street end due to the pedestrianisation of Oxford Street. This is likely to result in much fewer vehicles using James Street as through traffic would need to find an alternative route.

10.9 All of these receptors are located in positions that benefit directly from the closure of Oxford Street and James Street. Therefore, the change in noise levels will be noticeable and also the visual impact of the removal of cars along Oxford Street will impact the perceived noise at these receptors.

10.10 R21 (Bryanston Street), is predicted to experience a major decrease in road traffic noise levels. Due to the re-routing of vehicles as a result of the Proposed Scheme, Bryanston Street no longer acts as a through road for traffic travelling west. This reduces the number of vehicles using this road considerably, resulting in a major decrease in road traffic noise.

10.11 Four receptors are predicted to experience a moderate increase in daytime road traffic noise as described in the following paragraphs.

10.12 R34 (Stratford Place) and R73 (Marylebone Lane) are both predicted to experience a moderate increase in road traffic noise levels. The increases in road traffic noise levels at these receptors are due to the re-routing of bus routes 98 and 139 from Oxford Street.

10.13 R49 (Upper Brook Street), is predicted to experience a moderate increase in road traffic noise levels. This increase is due to re-routing traffic due to Park Street switching to a southbound direction and North Audley Street switching to a northbound direction with the Proposed Scheme in place. The traffic along this road is expected to double as a result of the Proposed Scheme.

10.14 The final receptor predicted to experience a moderate increase in daytime road traffic noise level is R76 (Albemarle Independent College, Dunraven Street). This increase is again due to re-routing traffic due to Park Street and North Audley Street switching directions with the Proposed Scheme in place.

10.15 Four sensitive receptors are predicted to experience a moderate decrease in daytime road traffic noise as described in the following paragraphs.

10.16 R24 (Wimpole Street), is predicted to experience a moderate decrease in road traffic noise levels. This is due to a reduction in half of vehicles using Wimpole Street between Wigmore Street and Welbeck Way. A reduction in vehicles along Wigmore Street at this receptors

location also contributes to the overall reduction in road traffic noise experienced at this receptor.

10.17 R26 (Great Castle Street), is predicted to experience a moderate decrease in road traffic noise levels. This is due to the total number of vehicles in the Do Something along this road being a quarter the total number in the Do Minimum. This road changes to an eastbound direction in the Do Something and due to the traffic re-routing less vehicles make use of this road as result of the Proposed Scheme.

10.18 R51 (North Audley Street), is predicted to experience a moderate decrease in road traffic noise levels. This receptor is located at the very end of the pedestrianized area of the Proposed Scheme therefore benefits from the removal of traffic along Oxford Street east of North Audley Street and the reduction in the number of vehicles travelling west along Oxford Street west of North Audley Street. North Audley Street in general is predicted to experience a minor decrease in road traffic noise levels.

10.19 R69 (South Audley Street), is also predicted to experience a moderate decrease in road traffic noise levels. The moderate decrease is a result of a combination of road traffic volumes decreasing along Adam's Row and South Audley Street when the Proposed Scheme is in place.

10.20 When considering the night-time change in road traffic noise levels 19 of the 80 receptors experience different magnitude of impact bands compared to the daytime. Sixteen of these receptors have small differences in the change column between daytime and night-time which results in moving one band up or down between negligible and minor change.

10.21 Three of the 19 receptors however experience moderate decreases in road traffic noise at night-time but only minor in the daytime. These receptors are described in the following paragraphs.

10.22 R17 (Cavendish Square Gardens), R53 (Wigmore Street), are predicted to experience a moderate decrease in night-time road traffic noise levels due to the Proposed Scheme. This is due to a decrease in the total number of vehicles using Cavendish Place and Wigmore Street with the Proposed Scheme in place.

10.23 R67 (Park Street), is predicted to experience a moderate decrease in night-time road traffic noise levels. The noise level decrease is a result of a decrease in the number of vehicles using these roads with the Proposed Scheme in place. This road switches its direction in the Do Something.

10.24 Of the representative receptors, ten experience a minor increase in road traffic noise levels in the daytime as described in the following paragraphs.

10.25 R1 (Harley Street), is predicted to experience a minor increase in road traffic noise levels. The noise level increase is a result of an increase in the number of vehicles using Harley Street with the Proposed Scheme in place.

10.26 R2, R15 and R45 (Wigmore Street), are all predicted to experience a minor increase in road traffic noise levels. The noise level increase is a result of an increase in the number of buses using this road with the Proposed Scheme in place. The increase in buses along this road is due to the closure of Oxford Street and bus routes 98 and 139 being re-routed along this road west of Marylebone Lane.

10.27 R10 (Cavendish Square Gardens), is predicted to experience a minor increase in road traffic noise levels. The noise level increase is a result of an increase in the number of vehicles using this road with the Proposed Scheme in place. The increase in the number of vehicles in due to enabling works for this Proposed Scheme resulting in more vehicles using Cavendish Square gardens.

10.28 R20 (Upper Grosvenor Street), is predicted to experience a minor increase in road traffic noise levels. The noise level increase is a result of an increase in the number of vehicles using Upper Grosvenor Street and Culross Street with the Proposed Scheme in place. The increase along

these roads is due to the switch in direction of Park Street and North Audey Street causing traffic travelling south on Park Lane to use Upper Grosvenor Street instead of travelling south from Oxford Street.

10.29 R39 (Grosvenor Street) and R72 (Davies Street) are predicted to experience a minor increase in road traffic noise levels. The noise level increase is a result of an increase in the number of vehicles using these roads with the Proposed Scheme in place.

10.30 R65 (Welbeck Street) is predicted to experience a minor increase in road traffic noise levels. The increase is due to the number of vehicles using Welbeck Street south of Bentinck Street and Welbeck Way with the Proposed Scheme in place.

10.31 R66 (Oxford Street) is predicted to experience a minor increase in road traffic noise levels. The increase is due to the number of vehicles using Great Portland Street with the Proposed Scheme in place. The increase in vehicles along Great Portland Street is due to the re-routing of bus route 98 from Oxford Street to along this road.

10.32 Of the selected receptors, 12 experience minor decreases in road traffic noise levels in the daytime as described in the following paragraphs.

10.33 R5 (Chandos Street) is predicted to experience a minor decrease in road traffic noise levels. This is a result of a decrease in the number of vehicles using Chandos Street north of Portland Place with the Proposed Scheme in place.

10.34 R13 and R35 (Grosvenor Square) are predicted to experience a minor decrease in road traffic noise levels. This is a result of a decrease in the number of vehicles using Grosvenor Square with the Proposed Scheme in place. This decrease is due to a decrease in the number of vehicles travelling down North Audley Street and Park Street and also due to the change in direction of these two roads with the Proposed Scheme in place.

10.35 R19 (Wimpole Street), R23 (Portman Square/Close) and R33 (Manchester Square), are predicted to experience a minor decrease in road traffic noise levels. The noise level decrease is a result of a decrease in the number of vehicles using these roads with the Proposed Scheme in place.

10.36 R38 (New Bond Street), is predicted to experience a minor decrease in road traffic noise levels. The noise level decrease is a result of a decrease in the number of vehicles using New Bond Street south of Brook Street with the Proposed Scheme in place.

10.37 R40 (Mount Street), is predicted to experience a minor decrease in road traffic noise levels. The noise level decrease is a result of a decrease in the number of vehicles using South Audley Street with the Proposed Scheme in place.

10.38 R50 (Portman Mews South), is predicted to experience a minor decrease in road traffic noise levels. This receptor is located at the end of the eastern extent of the proposed scheme where Oxford Street is open to traffic. The minor decrease in road traffic noise is the reduction in the number of vehicles along Oxford Street at this receptor’s location.

10.39 R56 (North Audley Street), is predicted to experience a minor decrease in road traffic noise levels. The noise level decrease is a result of a decrease in the number of vehicles using this road with the Proposed Scheme in place.

10.40 R68 (South Audley Street) and R75 (School Of Economic Science, Mandeville Place), are predicted to experience a minor decrease in road traffic noise levels. The noise level decrease is a result of a decrease in the number of vehicles using these roads with the Proposed Scheme in place.

10.41 Of the 80 representative receptors 38 are expected to experience a negligible change in daytime road traffic noise as a result of the Proposed Scheme.

10.42 Negligible decreases are predicted along Regent Street south of Oxford Street, Great Cumberland Place, Great Portland Street north of Margaret Street. The changes along Regent Street are as a results of Oxford Street closing resulting in a decrease of vehicles along Regent

Street. Other negligible decreases are due to minor decreases in traffic flows along these roads in the Do Something. This is due to the changes in the wider network as a result of the Proposed Scheme.

10.43 Negligible increases in road traffic noise occur in a rather sporadic nature both south and north of the Proposed Scheme. The sporadic nature of the negligible increases is due to the closing of Oxford Street with traffic finding alternative routes in the area.

10.44 TfL's aim to meet 'no net increase in noise' in NIAs has been met for this Proposed Scheme. Seven sensitive receptors inside NIAs are predicted to experience greater than or equal to minor decreases in road traffic noise whereas two are predicted to experience greater than or equal to minor increases in road traffic noise. Overall, there is a net decrease in noise levels within NIAs.

11. Summary and Next Steps

Air Quality and Carbon

11.1 In 2026, modelled annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations were predicted to be below the objective values with and without the Proposed Scheme at the majority of sensitive receptor locations. Two exceedances of the annual mean NO_2 objective were predicted at R9 (a residential property) and R77 (London Park School Mayfair), both of which are located on Piccadilly, an area with existing poor air quality, where measured levels in 2024 were 58.4 $\mu g/m^3$ at site DT3.

11.2 The greatest predicted reduction in annual mean NO_2 concentration was 3.5 $\mu g/m^3$, predicted at R32 (Oxford Street) where concentrations were predicted to decline from 30.7 $\mu g/m^3$ to 27.2 $\mu g/m^3$. This large reduction is considered a moderate beneficial change. All receptors on the sections of Oxford Street that are set to be pedestrianised under the Proposed Scheme experienced reductions in annual mean NO_2 concentrations.

11.3 The greatest predicted increase in annual mean NO_2 concentration was 2.1 $\mu g/m^3$ at R48 (Upper Brook Street) where concentrations were predicted to increase from 28.2 $\mu g/m^3$ to 30.3 $\mu g/m^3$ due to a predicted increase in traffic flow on this road. This is considered a slight adverse effect. There were small increases predicted at receptors on Piccadilly, which were considered moderate adverse effects, due to the higher concentrations.

11.4 Annual mean $PM_{2.5}$ concentrations at many receptors were close to or above the 2028 interim target of 12 $\mu g/m^3$ and were above the 2030 Mayor of London target of 10 $\mu g/m^3$ at all receptors excluding R38, both with and without the Proposed Scheme. This is due to the high background levels in London. The highest PM_{10} and $PM_{2.5}$ concentrations predicted with the Proposed Scheme were at R44 (Park Lane), at 25.0 $\mu g/m^3$ and 13.2 $\mu g/m^3$ respectively.

11.5 Changes in PM_{10} and $PM_{2.5}$ due to the Proposed Scheme were predicted to be small or imperceptible at all selected receptors and therefore the changes are considered to be negligible.

11.6 Overall, the impact of the Proposed Scheme on air quality is considered to be relatively balanced across selected receptors and a small reduction in overall road traffic related CO_2 emissions was predicted across the study area.

Noise

11.7 One receptor is predicted to experience a major increase in daytime road traffic noise level along Margaret Street. This receptor is predicted to experience major increases in noise due to the re-routing of bus traffic from Oxford Street. Seven receptors are predicted to experience major decreases in daytime road traffic noise. Four of these receptors are located along Oxford Street, Vere Street and South Molton Street. The receptors are all located either along or just off Oxford Street. One of these is also Bryanston Street which is predicted to get significantly less traffic in the DS and James' Street which is to be closed off to Oxford Street.

11.8 Seven sensitive receptors are predicted to experience moderate decreases in either daytime or night-time road traffic noise. These are at receptors located along Wimpole Street, Great Castle Street, North Audley Street and South Audley Street, Cavendish Square Gardens, Wigmore Street and Park Street. Four sensitive receptors are predicted to experience moderate increases in daytime road traffic noise. These are at receptors located along Stratford Place, Marylebone Lane, Upper Brook Street and Albemarle Independent College, Dunraven Street.

11.9 Minor changes in daytime road traffic noise are expected at 22 sensitive receptors. Of these 22 receptors, ten experience minor increases in road traffic noise and 12 experience minor decreases. Out of the 80 representative sensitive receptors, 38 are predicted to experience a negligible change in daytime road traffic noise as a result of the Proposed Scheme.

Next Steps

11.10 The next stage of the assessment will involve; identifying where there may be an overall potential significance of effect at the representative receptors, and following statutory processes.

11.11 For air quality, an overall view of significance will be made based on professional judgement of the changes at selected receptors.

11.12 For noise, a range of additional factors would be considered in identifying final significant effects. These would include:

- The magnitude of change in noise level;
- The absolute noise levels and their relation to national noise policy;
- The location of the noise sensitive parts of a receptor. For example, whether the impact is predicted outside a bedroom or less noise sensitive part of the building;
- The acoustic context, i.e. whether or not the acoustic character of the area has changed; and
- The likely perception of the change in traffic noise.

12. References

AEAT. (2008). Analysis of the Relationship Between Annual Mean Nitrogen Dioxide (Concentration and Exceedances of the 1-Hour Mean AQS Objective.
British Standard Institute. (2003). BS 7445 'Description and Measurement of Environmental Noise. Part 1 – Guide to Quantities and Procedures'.
Cambridge Environmental Research Consultants (CERC). (2013). ADMS-Roads Validation Papers.
Council of European Communities. (2008). *Ambient Air Quality and Cleaner Air for Europe Directive, 2008/50/EC.*
Department of Transport and the Welsh Office. (1988). Calculation of Road Traffic Noise
Department of Transport (2022). *TAG: Environmental Impacts Worksheet. November 2022*
Defra. (2003). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland: Addendum.
Defra. (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volume 1).
Defra. (2010) Noise Policy Statement for England. Department for Environment, Food and Rural Affairs.
Defra. (2013). Noise Action Plan.
Defra. (2019). A Green Future: Our 25 Year Plan to Improve the Environment.
Defra. (2000). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland.
Defra. (2024). Background Mapping data for local authorities.
Defra. (2022b). Local Air Quality Management Technical Guidance LAQM.TG(22).
Defra (2023). Air Quality Strategy for England.
Defra (2025). National Bias Adjustment Factors.
Department for Levelling Up, Housing and Communities & Ministry of Housing, Communities, & Local Government (MHCLG). (2024) Planning Practice Guidance (PPG). Available: https://www.gov.uk/government/collections/planning-practice-guidanceDfT (2014) National Policy Statement for National Networks. Department for Transport.
DfT (2023) Draft National Policy Statement for National Networks. Department for Transport.
DLUHC (2019) Planning Practice Guidance - Noise. Ministry of Housing, Communities and Local Government.Noise - GOV.UK (www.gov.uk)
EPUK/IAQM. (2017). Land-use Planning & Development Control: Planning for Air Quality.
EU Parliament. (2002). Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise.
GLA. (2010). Mayor's Air Quality Strategy.
GLA. (2018). London Environment Strategy.
GLA. (2018). Transport Strategy for London. Available at: https://www.london.gov.uk/sites/default/files/mayors-transport-strategy-2018.pdf
GLA. (2021). *The London Plan. The Spatial Development Strategy for Greater London.*
GLA. (2022). Addendum to the Mayor's Transport Strategy (MTS): Proposal 24.1.
Highways England. (2019). LA 105 Air Quality Guidance Revision 0.
Highways England. (2020). Design Manual of Roads and Bridges - LA111 Noise and Vibration
H.M Government. (1995). The Environment Act.
H.M Government. (2021). Environment Bill 2019-21.
13.HM Government (2023a). Environmental Improvement Plan 2023. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1133967/environmental-improvement-plan-2023.pdf
H.M Government (2023b) The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (SI 2023/96). Available at: https://www.legislation.gov.uk/uksi/2023/96/contents/made
London Atmospheric Emissions Inventory (LAEI). (2019). 2019 Air Quality Focus Areas. Retrieved from https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2019-air-quality-focus-areas
Laxen and Marner. (2003). Analysis of the Relationship Between 1-Hour and Annual Mean Nitrogen Dioxide at UK Roadside and Kerbside Monitoring Sites.
Ministry of Housing, Communities and Local Government (2019). Planning Practice Guidance (PPG)
SIN.2238. (2006). Environmental Noise (England) Regulations 2006. Statutory Instrument No. 2238.
TfL (2017). Healthy Streets for London. Available at: https://www.london.gov.uk/sites/default/files/healthy_streets_explained.pdf
TfL (2022). TfL's Baseline Natural Capital Account

TfL (2024a). Corporate Environment Plan. Available at: https://content.tfl.gov.uk/tfl-corporate-environment-plan-29-october-2024-acc.pdf
TfL (2024a) Green Infrastructure and Biodiversity Plan. Available at: https://content.tfl.gov.uk/green-infrastructure-and-biodiversity-plan-2024.pdf
TRL, (2006). Method for Converting the UK Road Traffic Noise Index $L_{A10,18h}$ to the EU Noise Indices for Road Noise Mapping.
The Statutory Office Limited. (2016). Air Quality Standards Regulations.
UK Statutory Instruments. (2020). The Environment (Miscellaneous Amendments (EU Exit) Regulations 2020.
WCC. (2010). Westminster Noise Strategy 2010-2015.
WCC. (2021). City Plan 2019-2040.
WCC. (2025). Air Quality Action Plan 2025-2030.
WCC. (2025a). Air Quality Annual Status Report for 2024.
World Health Organisation. (2021). WHO global air quality guidelines: particulate matter (PM2.5 and PM10), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. https://www.who.int/publications/i/item/9789240034228.
Westminster City Council (2024). Annual Status Report.

Appendix A Figures

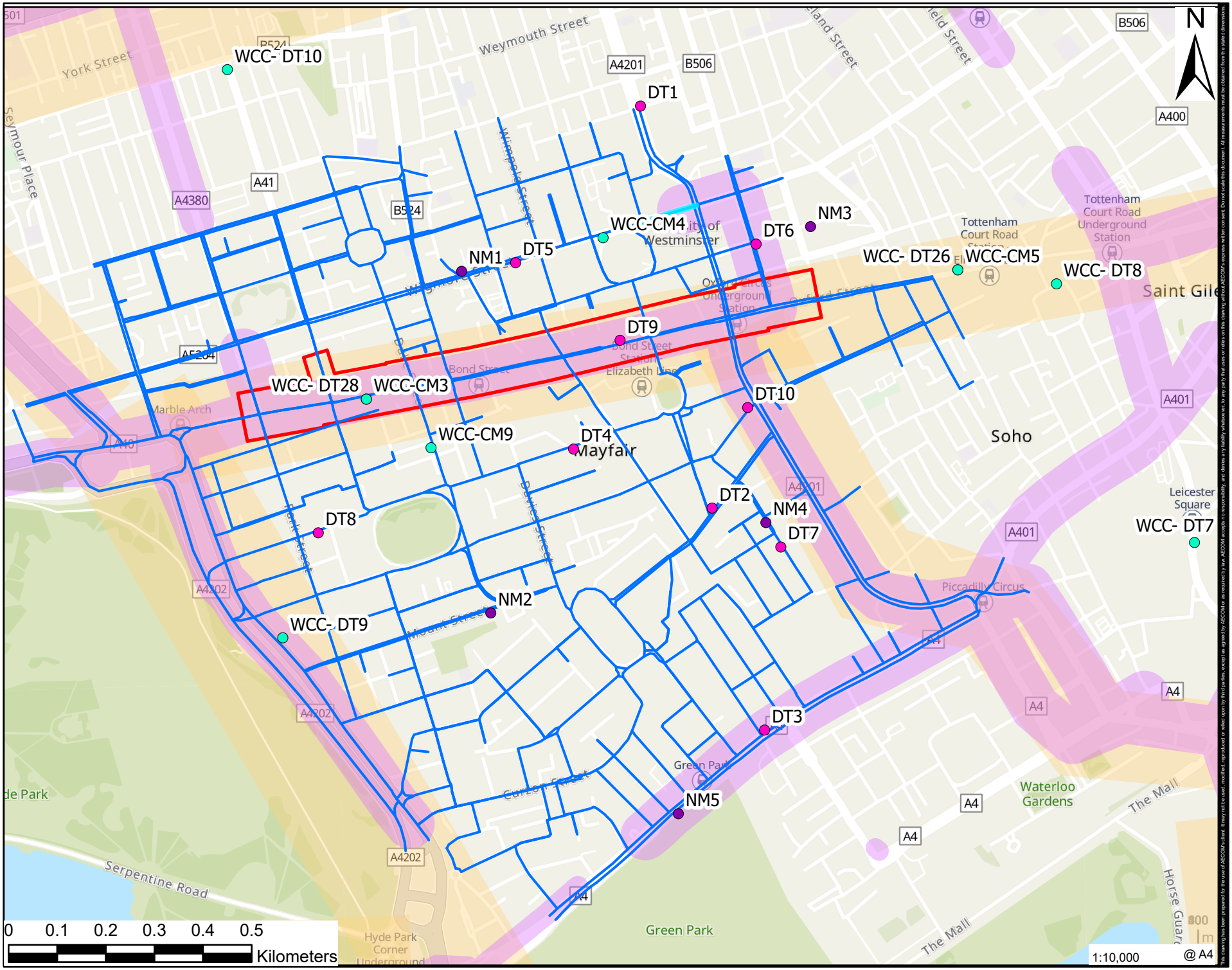
Figure 3. Study Area

Figure 4. Annual Mean NO_2 Concentrations in 2026 with the Scheme

Figure 5. Change in Annual Mean NO_2 Concentrations in 2026 with and without the Scheme

Figure 6. Change in daytime $L_{A10,18h}$ noise levels in 2026 between with and without scheme.

Figure 7. Change in night-time $L_{Aeq,1h}$ noise levels in 2026 between with and without scheme.



AECOM

PROJECT
Oxford Street Transformation Scheme

CLIENT
Transport for London

CONSULTANT
AECOM Limited
Sunley House
4 Bedford Park
Croydon
CR0 2AP
www.aecom.com

LEGEND
- Westminster LAQM Monitoring
- AECOM Scheme Specific NO_2 Monitoring
- AECOM Scheme Specific Noise Monitoring
- Modelled Road Network
- Proposed Scheme Boundary
- LAEI 2019 Focus Areas
- Noise Action Planning Important Areas

NOTES
Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, GeoTechnologies, Inc, METI/ NASA, USGS

ISSUE PURPOSE
FINAL

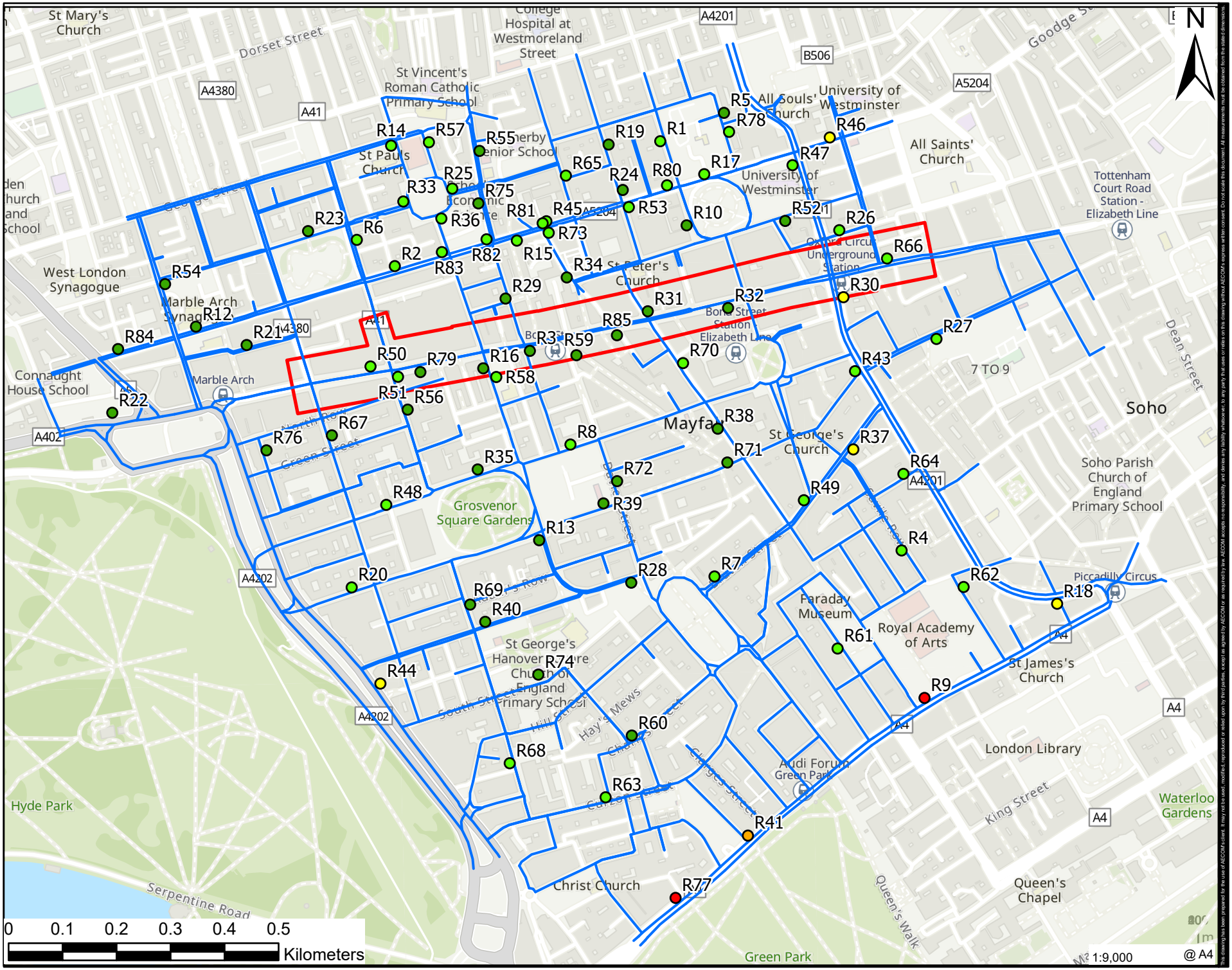
PROJECT NUMBER
60704426

SHEET TITLE
Study Area

SHEET NUMBER
Figure 3

This drawing has been prepared for the use of AECOM's client, it may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the stated dimensions.

Revision: Rev No. 1Drawn:DW Checked:IR Approved: AS Date: 04/11/2025



Revision: Rev No.1 Drawn:DWChecked:IR Approved: AS Date: 31/10/2025

AECOM

PROJECT
Oxford Street Transformation Scheme

CLIENT
Transport for London

CONSULTANT
AECOM Limited
Sunley House
4 Bedford Park
Croydon
CR0 2AP
www.aecom.com

LEGEND
- Modelled Road Network
- Proposed Scheme Boundary

Annual Mean NO_2 concentrations ($\mu g/m^3$)
- 24 - 28
- 28 - 32
- 32 - 36
- 36 -40
- 40 - 44

NOTES
Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, GeoTechnologies, Inc, METI/ NASA, USGS

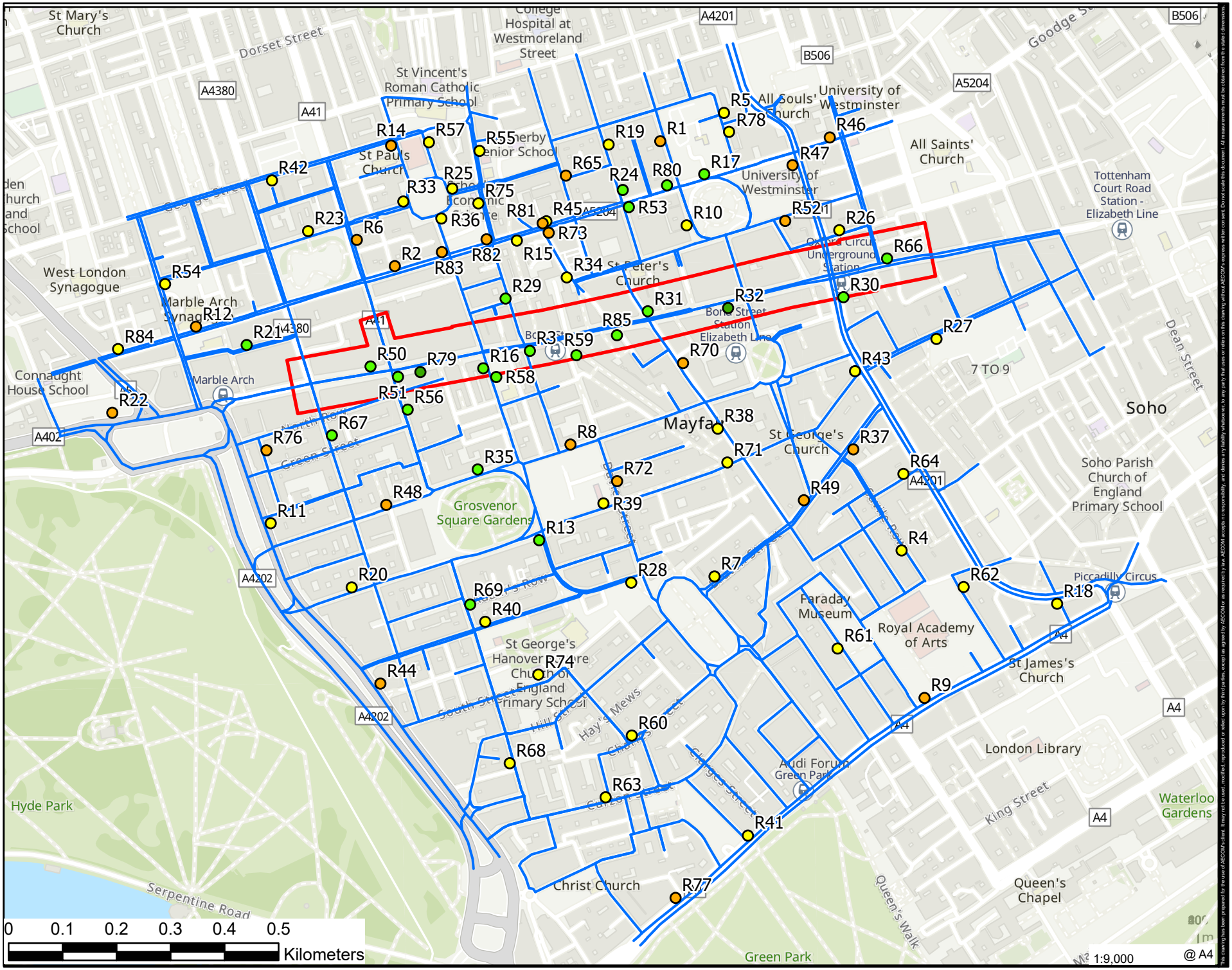
ISSUE PURPOSE
FINAL

PROJECT NUMBER
60704426

SHEET TITLE
Annual Mean NO_2 Concentrations in 2026 with the Scheme

SHEET NUMBER
Figure 4

This drawing has been prepared for the use of AECOM's client, it may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the stated dimensions.



AECOM

PROJECT
Oxford Street Transformation Scheme

CLIENT
Transport for London

CONSULTANT
AECOM Limited
Sunley House
4 Bedford Park
Croydon
CR0 2AP
www.aecom.com

LEGEND
- Modelled Road Network
- Proposed Scheme Boundary

Change in Annual Mean NO_2 concentrations ($\mu g/m^3$)
- -4 - -2.2
- -2.2 - -0.2
- -0.2 - 0.2
- 0.2 - 2.2

NOTES
Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, GeoTechnologies, Inc, METI/ NASA, USGS

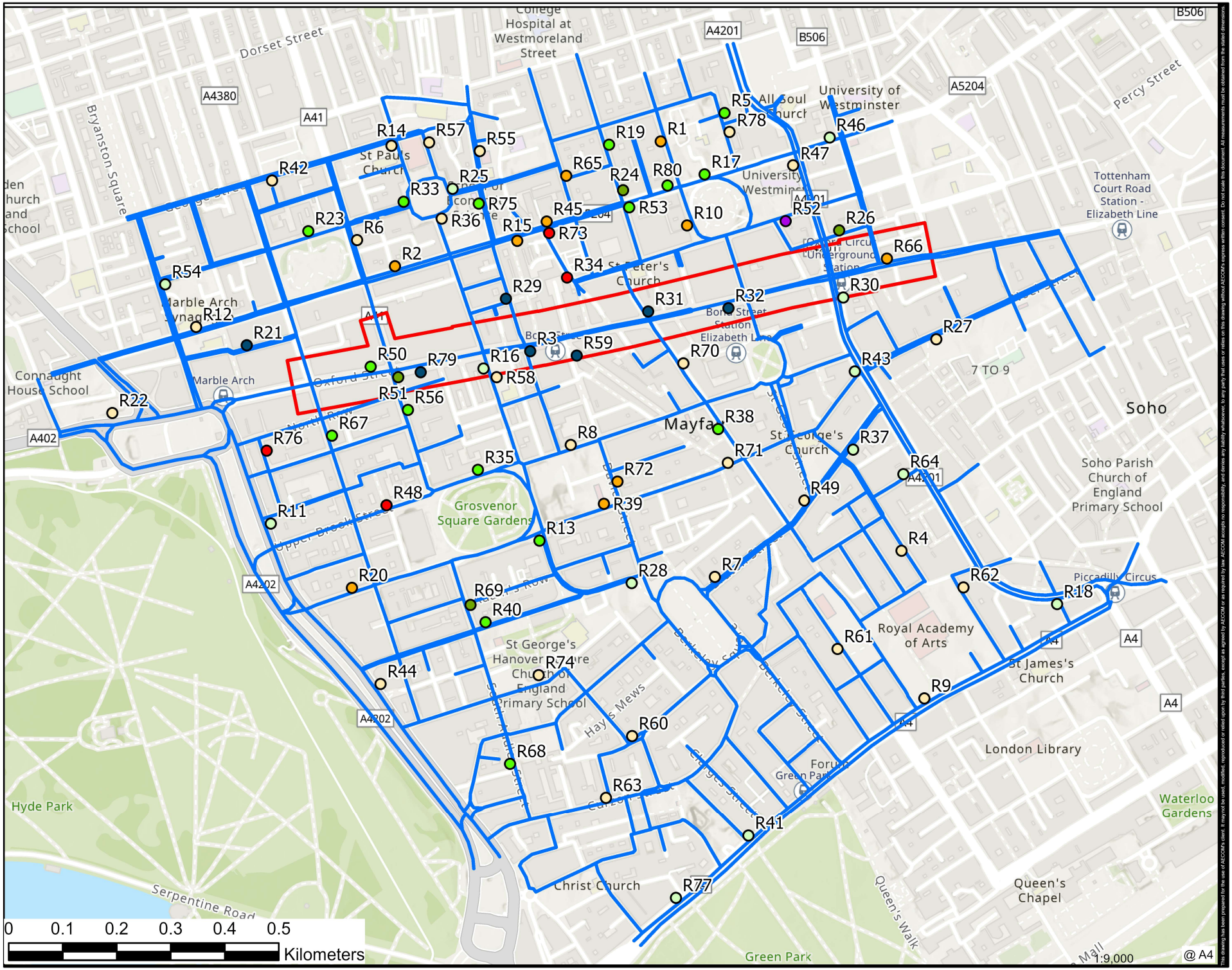
ISSUE PURPOSE
FINAL

PROJECT NUMBER
60704426

SHEET TITLE
Change in Annual Mean NO_2 Concentrations in 2026 with and without the Scheme

SHEET NUMBER
Figure 5

This drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the stated dimensions.



AECOM

PROJECT
Oxford Street Transformation Scheme

CLIENT
Transport for London

CONSULTANT
AECOM Limited
Sunley House
4 Bedford Park
Croydon
CR0 2AP
www.aecom.com

LEGEND
- Modelled Road Network
- Proposed Scheme Boundary

Change in $L_{A10,18h}$
- Major Increase
- Moderate Increase
- Minor Increase
- Negligible Increase
- Negligible Decrease
- Minor Decrease
- Moderate Decrease
- Major Decrease

NOTES
Esri, Intermap, NASA, NGA, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

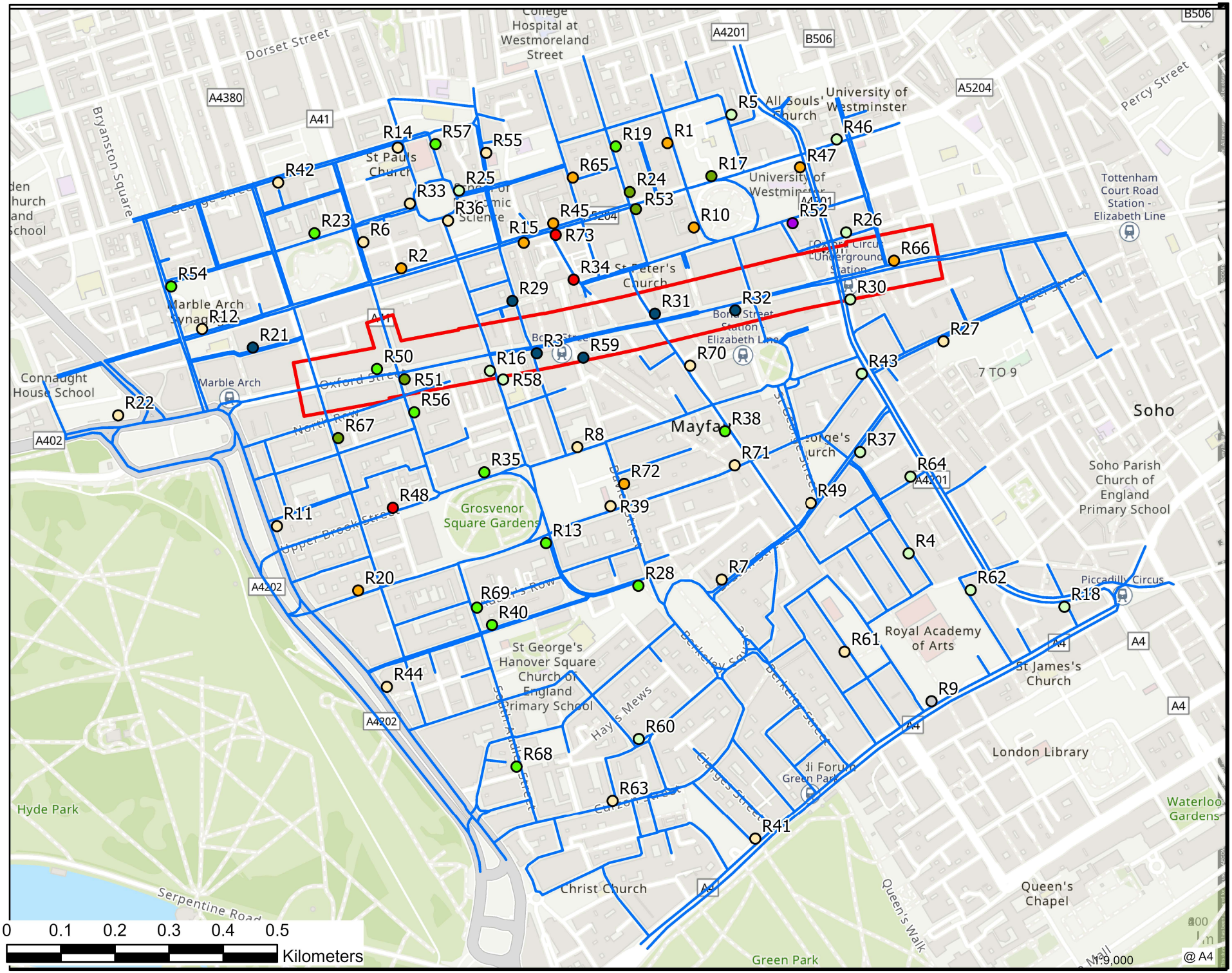
ISSUE PURPOSE
FINAL

PROJECT NUMBER
60704426

SHEET TITLE
Change in $L_{A10,18h}$ (06:00 - 00:00) in 2026 with and without the Scheme

SHEET NUMBER
Figure 6

This drawing has been prepared for the use of AECOM's client, it may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the stated dimensions.



AECOM

PROJECT
Oxford Street Transformation Scheme

CLIENT
Transport for London

CONSULTANT
AECOM Limited
Sunley House
4 Bedford Park
Croydon
CR0 2AP
www.aecom.com

LEGEND
- Modelled Road Network
- Proposed Scheme Boundary

Change in $L_{Aeq,1h}$
- Major Increase
- Moderate Increase
- Minor Increase
- Negligible Increase
- No Change
- Negligible Decrease
- Minor Decrease
- Moderate Decrease
- Major Decrease

NOTES
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

ISSUE PURPOSE
FINAL

PROJECT NUMBER
60704426

SHEET TITLE
Night-time change in $L_{Aeq,1h}$ in 2026 with and without the Scheme

SHEET NUMBER
Figure 7

1:9,000 @ A4

Revision: Rev No.1 Drawn:JM Checked: MMApproved: AS Date: 13/11/2025

Appendix B Noise Terminology

Term	Definition
Noise	Unwanted or unexpected sound.
”A” Weighting (dB(A))	The human ear does not respond uniformly across the audible frequency range. The “A” weighting is commonly used to simulate the frequency response of the ear.
Decibel (dB)	The decibel is a logarithmic ratio of two values of a variable. The range of audible sound pressures is approximately 2 x 10-5 Pa to 200 Pa. Using decibel notation presents this range in a more manageable form, 0 dB to 140 dB.
Reference Time Interval, Tr	The specified interval over which an equivalent continuous A-weighted sound pressure level is determined.
Ambient Noise Level, $L_{Aeq,T}$	The equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time that is usually composed of sound from many sources near and far.
Level $L_{A10,T}$	The A-weighted sound pressure level exceeded for 10% of a given time interval, T.
$L_{A10,18h}$	A-weighted Sound Pressure Level exceeded for 10% of each hour over the period 06:00 - 24:00 hours

Appendix C Committed Schemes

The Committed Schemes included in the future (2026) ONE Model scenarios are listed here:

- Camden Road/Camden Street Safer Junction
- Camden High Street Brittania Safer Junction
- Hampstead Road CV19 Cycle Lane
- Euston Road Churchway
- Brunswick Square
- Old Street
- Beech Street Closure
- WEP
- Edgware Road/Marylebone Flyover
- Little Portland Street
- Edgware Road Pedestrianisation Improvements
- Sussex Gardens
- Davies Street Reopening
- Dean Street Reopening
- Strand Aldwych
- Gresham Street / King Street
- Bank Interim
- London Bridge Cycle Improvements
- Waterloo IMAX
- Parliament Square Streetscape Project (PSSP)
- Knightsbridge Safer Junctions
- Beachamp Place
- Victoria Nova
- Lambeth Bridge
- Kennington Road
- Quietway 8/34
- CS4 Centre
- Homerton High Street
- Finborough Road.

Appendix D Air Quality Model Verification

When using modelling techniques to predict concentrations, it is necessary to make a comparison between the modelling results and the monitoring data, to ensure that the model is reproducing actual observations. The accuracy of the future year modelling results is relative to the accuracy of the base year results, therefore greater confidence can be placed in the future year concentrations if good agreement is found for the base year.

Modelling results are subject to systematic and random error; such errors arise due to many factors, such as uncertainty in the traffic data and the composition of the vehicle fleet, and uncertainty in the meteorological dataset. This can be taken into account by factoring the modelled results against monitoring data.

This process is referred to as model verification. The first step of which is to consider the performance of the model, prior to any adjustment, by comparing modelled and measured total NO_2 concentrations predicted and gathered at the same locations.

From these sites, those within the model area with sufficient data capture were considered suitable for the purposes of model verification. Following detailed analysis of each monitoring location a total of 6 monitoring sites were taken forward in the model verification process for Zone A and 1 monitoring site was used for Zone B. Table 27 details the sites removed from the verification process, whilst Table 28 details the sites used in verification for each Zone.

Two verification factors were calculated for this study, in order to accurately represent different sections of the study area. Zone B encompassed all receptors along Piccadilly and Zone A covered the rest of the study area. The Piccadilly area was identified as needing a separate verification factor due to the presence of high monitored concentrations at this location that did not fit with the rest of the study area.

Table 27. Monitoring sites excluded from model verification

Site ID	Reason for exclusion from verification
DT1	Traffic links were not modelled at sufficient distance (200m) away from this site
DT6	Monitored concentration lower than background concentration
DT7	Monitored concentration lower than background concentration
DT9	Monitored concentration lower than background concentration

Table 28. Monitoring sites used in model verification

Site ID	Site location	Verification Zone
WCC - DT28	Oxford Street East	A
DT2	Conduit Street	A
DT3	Piccadilly	B
DT4	Brook Street	A
DT5	Wigmore Street	A
DT8	Upper Brook Street	A
DT10	Maddox Street	A

Following Defra's Technical Guidance LAQM.TG(22), model performance was analysed at these eight monitoring sites. It was found that two sites had modelled NO_2 concentrations that differed to the monitored concentrations by more than 25% which means that, as per the guidance, a model adjustment factor was calculated. In this case, the model systemically slightly underpredicted, and the model adjustment factor was calculated to be 4.56 for Zone A and 5.31 for Zone B.

The factor was applied to modelled road NO_X contributions as summarised in Table 29 and following adjustment, no sites had modelled NO_2 concentration greater than +25% of the corresponding monitored concentrations. LAQM.TG(22) indicates that an RMSE within 10% of the AQO (4 $\mu g/m^3$) is ideal; the model performance is the therefore considered to be robust.

Table 29. Verification Details Zone A

Zone	Number of Sites	Number of Monitoring Sites within ±10% of the Monitored Concentration Pre-Adjustment	RMSE pre-adjustment ($\mu g/m^3$)	Fractional Bias pre adjustment)	Model Adjustment Factor	Number of Sites within ±10% of the Monitored Concentration Post Adjustment	RMSE post adjustment ($\mu g/m^3$)	Fractional Bias post adjustment)
A	6	2	5	0.1	4.56	5	2.6	0
B	1	0	21.9	0.5	5.31	1	0	0

The relationship between modelled and monitored NO_2 before and after adjustment at each monitoring site is shown in Table 30.

Table 30. Monitoring Data used in Model Verification

Site	Monitored Total NO_2 ($\mu g/m^3$)	Monitored Road NO_X ($\mu g/m^3$)	Modelled Adjusted Road NO_X ($\mu g/m^3$)	Modelled Total NO_2 Before Adjustment ($\mu g/m^3$)	Modelled Total NO_2 After Adjustment ($\mu g/m^3$)
WCC - DT28	33.6	16.5	16.2	28.5	33.5
DT2	36.6	28.3	20.1	27.5	33.7
DT3	58.4	95.8	95.8	36.5	58.4
DT4	26.2	1.1	13.5	26.9	31.2
DT5	30.9	9.4	5.0	27.5	29.1
DT8	26.6	15.5	13.3	26.9	31.1
DT10	32.0	6.4	11.1	30.4	33.9

Figure 8. Modelled vs Monitored Total NO_2 (After Adjustment), Zone A

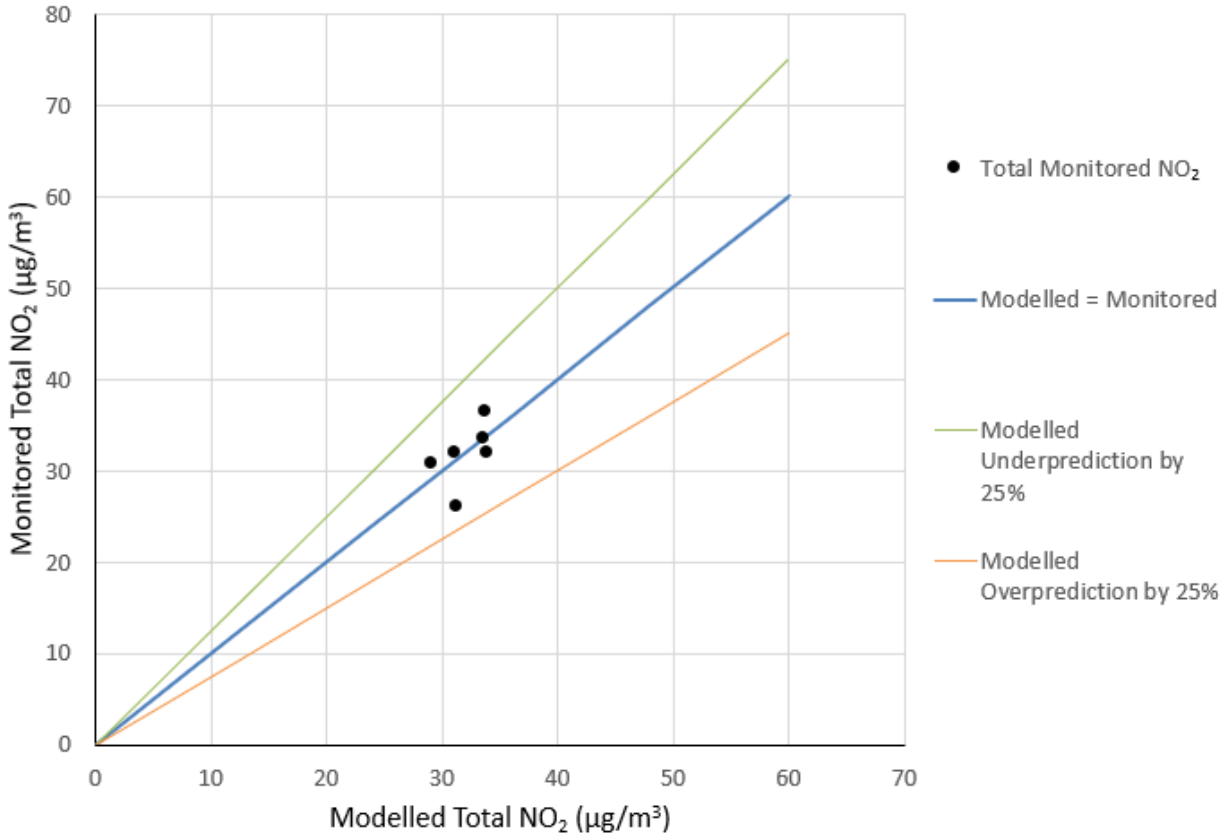
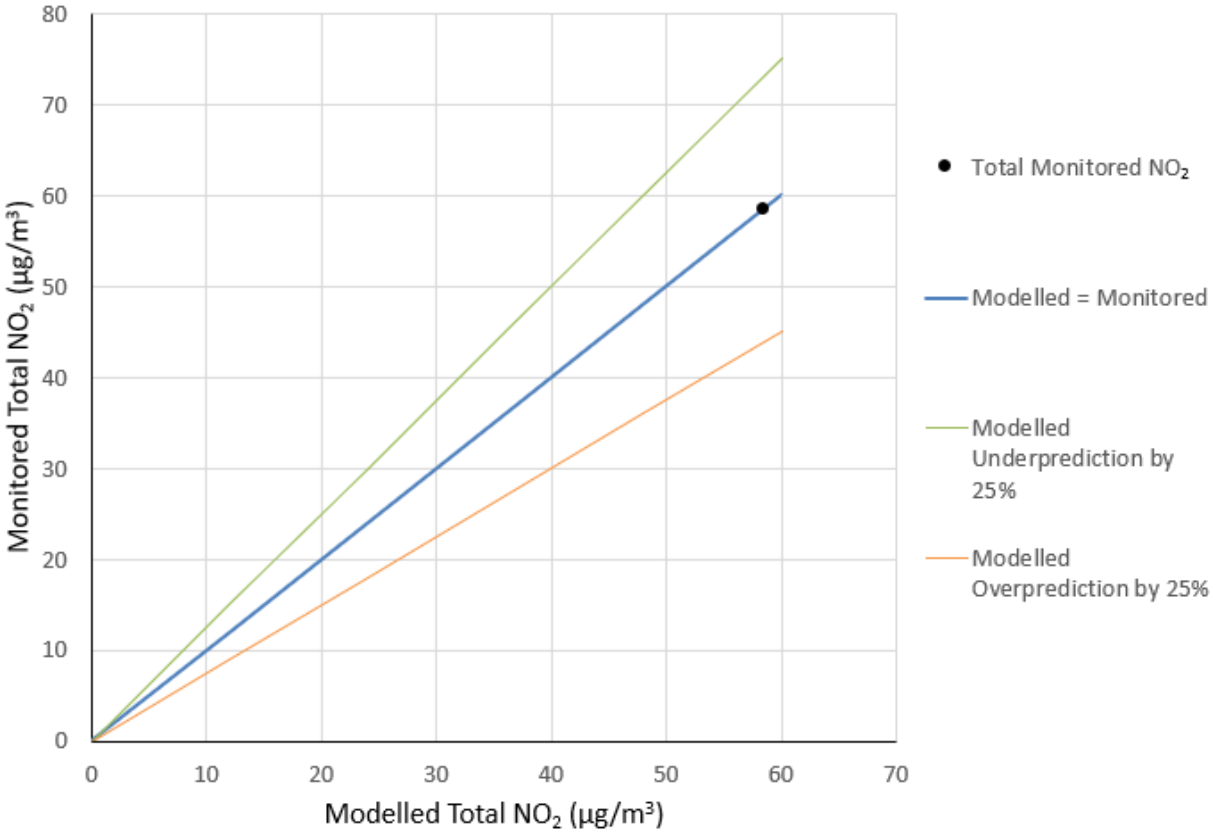


Figure 9. Modelled vs Monitored Total NO_2 (After Adjustment), Zone B



Appendix E Data and Assumptions

Data Provided

- OS mapping files from MasterMap® including TOPO layer from TfL in September 2025;
- AddressBase® layer with building points and uses provided by TfL in September 2025;
- Road scheme layout provided by TfL in pdf and .DWG format in August 2025; and
- AM and PM peak traffic data from ONE model developed by AECOM for a base year of 2024/5 and 2026 for a future-base (DM) and do something case (DS) in September 2025.

Traffic Modelling Assumptions

- Peak traffic data converted to 6- hour, 18-hour AAWT and 24-hour AADT format based on existing traffic count data in the study area provided by TfL and DfT using the methodology outlined in Section 6. Specific factors were applied were count data were available for individual roads, and a network-wide factor was applied to all other roads. This methodology has been used consistently on previous TfL schemes.
- Due to the strategic nature of the ONE model there is, in general, greater certainty on the flows on the key strategic routes rather than local or minor roads. This is for several reasons including:
  - The number of vehicles using the key routes is less sporadic and this is usually reflected in the count data.
  - The model is more likely to be validated well on the key routes and count data collected more regularly, due to their strategic importance.
  - Local roads within the model are more likely to represent several smaller local alternative routes, such as several parallel residential roads, and hence the individual flow volumes may not be fully representative.
- Traffic links were assigned bus flows by calculating total bus flows from bus routes within the study area and applying the average of this figure to relevant links.

Air Quality and Carbon Assumptions

- CO_2, NOx, PM_{10} and $PM_{2.5}$ vehicle emission factors assumed for 2024 for base and 2026 for opening year as per information in Defra's latest Emissions Factors Toolkit v13.1;
- Background NOx, NO_2, PM_{10} and $PM_{2.5}$ concentrations for the year 2024 and 2026 taken from Defra's 2021-based background maps unadjusted based on comparison with local monitoring data; and
- The assessment is based on traffic on roads modelled within the ONE model. As this is a strategic model it does not include all minor roads in the area, so these have not been included in the air quality model.

Noise Modelling Assumptions

- Ground conditions taken from available OS mapping where manmade and water ground types are set to hard ground and natural ground types are set to soft ground.
- Road surface correction: all traffic speeds in the study area less than 75 km/h, therefore road surface correction of -1 dB(A) applied to all roads in accordance with guidance in DMRB LA111 and CRTN for impervious road surfaces.
- Buildings heights were set based on the provided OS data. Visual checks were made on receptors to correct them to a height which was seen as more representative of the true building height with the correct number of floors.
- The assessment is based on traffic on roads modelled within the ONE model. As this is a strategic model it does not include all minor roads in the area, so these have not been included in the noise model.