Cogan

Environmental Consulting

Air Quality Report:

Petersham Nurseries

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AIR – ODOUR - CLIMATE

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Document Control

Client	Reference	Author	QC	QA	Date
Petersham Nurseries Ltd	COGAN_P1014A_A2	AC	AC	AC	20/05/2024

Executive Summary

The air quality impacts of the non-permitted use of Petersham Nurseries have been assessed.

Consideration has been given to the potential air quality impacts of pollutant emissions associated with non-permitted vehicular traffic upon the local area. All impacts have been determined to be negligible following relevant guidance and the use is unlikely to delay compliance with regulated thresholds in the local area.

Overall, the air quality effects of the Site are judged to be 'not significant'.

Contents

1 Introduction

1.1 Cogan Environmental Consulting Limited has been commissioned to provide technical air quality support for an Appeal submitted under Section 174 of the Town and Country Planning Act 1990 (as amended) against an Enforcement Notice (ref. 18/0025/EN/BCN) served by the London Borough of Richmond upon Thames in respect of the site at Petersham Nurseries.

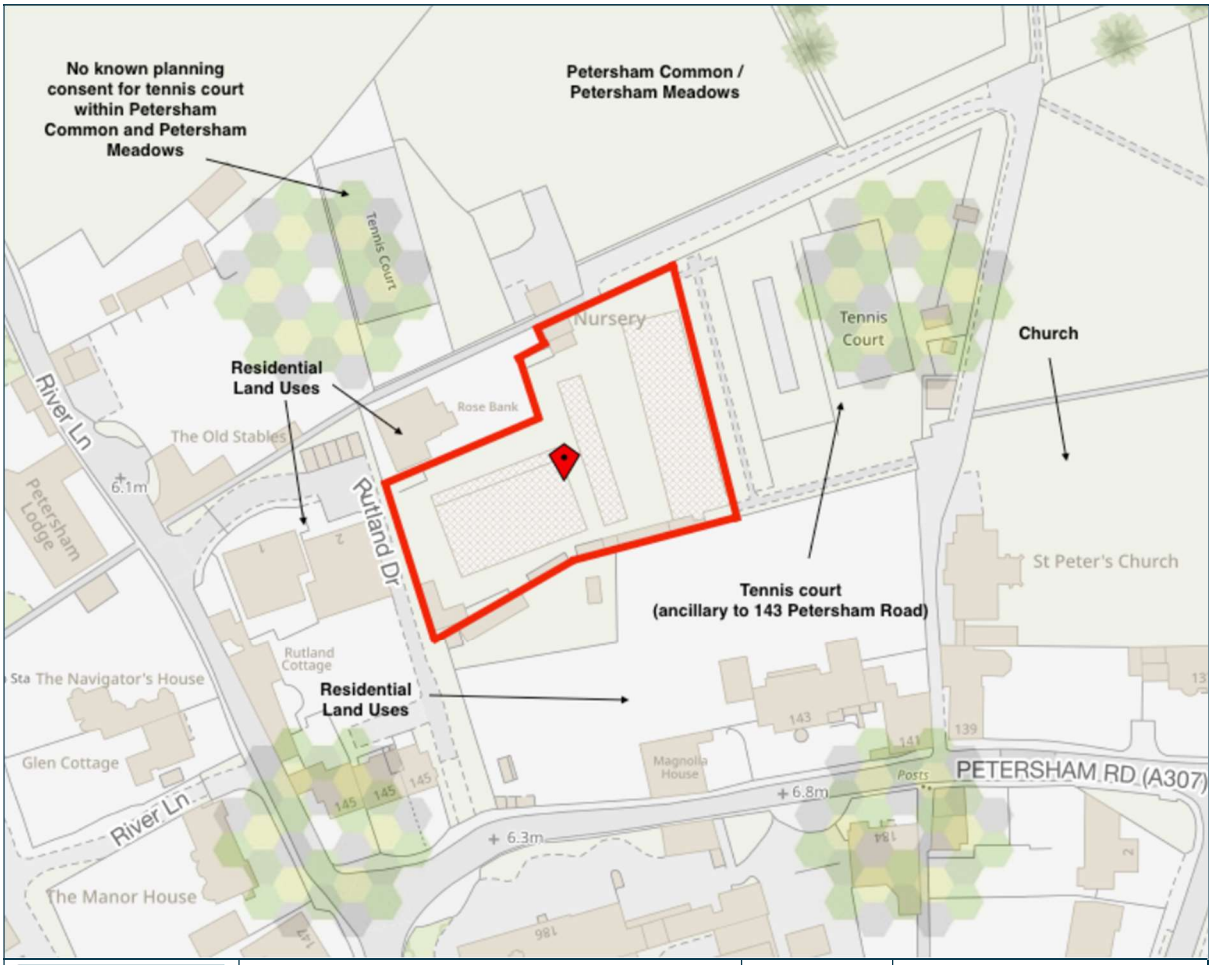
1.2 Petersham Nurseries comprises a garden centre with ancillary café/restaurant. It includes three glass greenhouse structures, separate brick and timber buildings, and outdoor areas, which together accommodate the plant and shop sales, display areas, seating areas, the kitchen, toilets, and staff office.

2 Location

2.1 The application site forms Land at Petersham Nurseries, Petersham Road, Petersham, Richmond, TW10 7AB ("the Site"). The location of the application site is shown in Figure 2.1.

2.2 Petersham Nurseries is located on the northern side of Petersham Road, to the rear of 143 Petersham Road (also known as Petersham House). The site is accessed via Church Lane, which runs between 141 Petersham Road and St Peter's Church. Pedestrian access is via two footpaths that run from River Lane and Church Lane.

Figure 2.1: Location of application site



Cogan Environmental Consulting	Drawing Title:	Drawing Ref:	COGAN_P1014A_A2_Figure 2.1
	Location of application site	Author:	AC
		QA/QC:	AC / AC
Figure notes: Imagery © 2024 Google, Map data © 2024.		Date:	20/05/2024

3 Potential Air Pollution Source

3.1 Staff and customers access Petersham Nurseries using several modes of transport. This includes a number of vehicle movements for which pollutant emissions may be released, impacting on local air quality.

3.2 Planning permission (reference 08/4312/FUL) was granted in 2009 for Petersham Nurseries, permitting vehicle movements and resulting pollutant emissions associated with Site. This included conditions specifying the hours and areas of use of the café/restaurant.

- The permitted times include 10:00 – 16:30 Tuesday to Saturday and 11:00 – 16:30 Sunday.
- The permitted areas include those identified in Approved Drawing Number DP7/2857 for Permission 071235/FUL.

3.3 It is understood that the Council are under-enforcing the permitted times, such that the non-permitted use begins from 17:00 (rather than 16:30).

3.4 The Council have issued an Enforcement Notice for an alleged breach of planning control stating that the café/restaurant use is operating in excess of these times and beyond the extent of permitted areas.

3.5 The potential air pollution source of concern refers to the pollutant emissions from the additional vehicles generated as a result of the non-permitted use (i.e. due to increased operational hours and increased capacity).

3.6 The development under consideration comprises the extension of the hours of operation to allow up to three evenings per week (between Wednesday to Saturday) and an extended area of seating, as shown on the agreed Enforcement Appeal Plan. This will include enabling the provision of an evening 'supper club' offering three days per week and allow for additional outdoor seating (noting that the nature of this seating means it will be primarily be used on a seasonal basis).

4 Policies, Legislation and Guidance

4.1 All relevant policies, legislation and guidance have been reviewed and their information used in the production of this assessment. The key sources of information relevant to this assessment are set out below; the full details of which can be found in Technical Appendix - Annex 3: Policy, Legislation and Guidance.

Table 4.1: Key Relevant Policies

Scale	Policy
National	• National Planning Policy Framework (NPPF) • National Air Quality Plan
Regional	• The London Plan
Local	• London Borough of Richmond Upon Thames Local Plan • Air Quality Supplementary Planning Document

Table 4.2: Key Relevant Strategies

Scale	Legislation
National	• Clean Air Strategy • A Green future: our 25 year plan to improve the environment • Clean Growth Strategy • Road to Zero • Transport Decarbonisation Plan • The Ten Point Plan for a Green Industrial Revolution
Regional	• London Environment Strategy • Mayor's Transport Strategy

Table 4.3: Key Relevant Legislation

Scale	Legislation
National	• Environment Act 2021 • Air Quality Standards Regulations 2010 • The Environment (miscellaneous Amendments) (EU Exist) Regulations 2020 • Air Quality Regulations 2000 • Air Quality (England) (Amendment) Regulations 2002 • The Environment Act 1995 • Environmental Protection Act 1990 • The Town and Country Planning Act 1990 • Health and Safety at Work etc. Act 1974

Table 4.4: Key Relevant Guidance

Scale	Policy
National	• Planning Practice Guidance (PPG) • Defra LAQM Technical Guidance 2022 (TG22) • EPUK/IAQM Land-Use Planning and Development Control: Planning for Air Quality 2017
Regional	• London Local Air Quality Management (LLAQM) Technical Guidance 2019 • London Local Air Quality Management (LLAQM) Policy Guidance 2019 • Air Quality and Planning Guidance

5 Assessment Approach

5.1 The approach to the assessment is explained in Technical Appendix - Annex 5: Assessment Methodology. The methodologies used follow those set out in relevant guidance (see Table 4.4) and utilise professional judgement. The professional competence of the author is set out in Technical Appendix - Annex 2: Professional Competence.

5.2 The findings of the assessment in relation to human health are considered in relation to two separate types of criteria, covered by different legislation, policy, and guidance. These include Air Quality Objectives (AQOs) and Limit Values (LVs). Further details are provided in Technical Appendix - Annex 4: Assessment Criteria.

6 Assessment of Impacts

6.1 The risk of air quality effects upon the local area has been assessed following the EPUK and IAQM guidance[27]. See Annex 5: Assessment Methodology in the Technical Appendix for details. This uses a staged approach.

6.2 To aid the assessment, the transport consultant has provided relevant information, which is presented in Table 6.1. The vehicles accessing Petersham Nurseries are predominantly cars (circa 1% heavy goods vehicles).

Table 6.1: Relevant Traffic AADT Flows

Road	2024 Base	Permitted Use	Non-Permitted Use	Base + Permitted Use	Base + Permitted Use + Non-Permitted Use
Petersham Road	16448	132	17	16580	16597
Church Lane	57	198	26	255	282

Stage 1

6.3 The Site is non-residential, provides less than 1 ha of floor space and no parking spaces. Following the stage 1 screening criteria there is no need to consider the impacts of the Site upon the local area and the effects are considered 'not significant'.

6.4 However, it is acknowledged that there is space for parking outside the Site along Church Lane for more than ten vehicles. As such, consideration has been given to Stage 2 of the approach.

Stage 2

6.5 The impacts of emissions from operational vehicles upon air quality in the local area has been considered. The transport consultants for the project have stated there are on average 26 vehicles movements per day (as an Annual Average Daily Traffic (AADT) flow).

6.6 The Site is located within an Air Quality Management Area (AQMA) that covers the whole borough. Within an AQMA, the screening criteria set out in the EPUK and IAQM guidance is a change of Light Duty Vehicle (LDV) flow of more than 100 AADT or a change of Heavy Duty Vehicle (HDV) flow of 25 AADT.

6.7 Virtually all vehicles accessing the Site are LDVs, therefore the screening criteria is 100 AADT.

6.8 As the non-permitted use of the Site results in 26 AADT, the impacts are screened out. The impacts are therefore considered to likely be negligible and hence effects 'not significant'.

6.9 From a professional perspective, it is clear at this point that the non-permitted use will not have any material effects and under normal circumstances no further assessment would be undertaken.

6.10 However, it should be noted that the guidance states the following in relation to the screening criteria:

"They are intended to function as a sensitive "trigger" for initiating an assessment in cases where there is a possibility of significant effects arising on local air quality. This possibility will, self-evidently, not be realised in many cases. The criteria should not be applied rigidly; in some instances, it may be appropriate to amend them on the basis of professional judgement, bearing in mind that the objective is to identify situations where there is a possibility of a significant effect on local air quality".

6.11 To further evidence and clarify that the non-permitted use of the Site will not result in any significant effects upon the local area, an assessment has been undertaken.

Assessment

6.12 Given the scale of likely effects a simple assessment has been carried out using professional judgement. The assessment quantifies and compares pollutant emissions and concentrations associated with the non-permitted use to both the permitted use and that of local roads.

Emission Calculation and Comparison

6.13 For simplicity of demonstrating the conclusions, it has been assumed that emissions from all vehicle movements are the same. Emissions for each vehicle movement have been calculated using the latest version of Defra's Emissions Factors Toolkit (EFT v12.0.1)[1]; this is the recommended approach to calculating vehicle emissions in the UK by Defra[26].

6.14 Emissions of nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$), the pollutants of most concern from road traffic emissions, have been calculated for both the permitted and non-permitted uses of Petersham Nurseries as well as for baseline flows of Church Lane and Petersham Road. The resulting emissions are given in Table 6.2.

Table 6.2: Calculated Emissions

Scenario	Permitted Use	Non-Permitted Use	Church Lane Base	Petersham Road Base	Church Lane Base + Permitted Use	Petersham Road Base + Permitted Use
Vehicles (AADT)	198	26	57	16448	255	16580
NOx Emission (µg/km/s)	566	74	163	46990	729	47367
PM_{10} Emission (µg/km/s)	89	12	26	7433	115	7493
$PM_{2.5}$ Emission (µg/km/s)	47	6	13	3893	60	3924

Table notes:

Emissions based on all vehicles being LDVs and year of 2022. Although another year such as 2024 could have been used, 2022 was used as it was required to calculate concentrations further below. The choice of year for the emission comparison is immaterial given all vehicles have been assumed to be LDVs.

6.15 To put the non-permitted emissions into context, they have been compared to the emissions from the permitted use, Church Lane and Petersham Road. This is presented in Table 6.3.

[1] Defra (2023). Emissions Factors Toolkit v12.0.1. Available at: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/emissions-factors-toolkit/

Table 6.3: Non-Permitted Use Emission Comparison

Scenario	Non-Permitted Use Percentage of Permitted Use	Non-Permitted Use Percentage of Church Lane [a]	Non-Permitted Use Percentage of Petersham Road [a]
PM_{10} Emission	13.1%	10.2%	0.2%
PM_{10} Emission	13.1%	10.2%	0.2%
$PM_{2.5}$ Emission	13.1%	10.2%	0.2%

Table notes:
[a] Compared to base + permitted use to demonstrate non-permitted change.

Concentration Comparison

6.16 The emission comparison only accounts for one part of the wider picture, as air quality in the local area is influenced by other sources. To take account of other sources and provide a more holistic assessment, concentration contributions from the non-permitted use have been inferred and compared to total concentrations, in order to derive impacts following guidance.

6.17 Local NO_2 concentrations are best described by monitoring carried out by the London Borough of Richmond Upon Thames. The Council have measured annual mean concentrations of NO_2 approximately 160 m south of the Site using monitoring site 30 (Petersham Rd, near The Russell Schl). The latest year with valid data available at this monitoring site is 2022, for which it measured a concentration of 20 µg/m^3.

6.18 Measurements at this monitoring site would have been influenced by road traffic emissions and background conditions.

6.19 Background concentrations of NO_2 have been obtained from the maps of background concentrations published by Defra[2], which includes average concentrations for each 1 km x 1 km of the UK. The background concentration for the monitoring site (as well as the Site and local area) is 16.2 µg/m^3.

6.20 It can therefore be inferred that the contribution from road traffic (i.e. vehicles using Petersham Road) is 3.8 µg/m^3.

6.21 During 2022, traffic along Petersham Road would have included both base traffic and permitted use traffic. The worst-case assumption has been made that it did not include non-permitted use traffic.

6.22 The concentration contribution per vehicle movement has then been calculated as 0.00022728 µg/m^3 (i.e. 3.8 µg/m^3 / 16580 vehicles).

[2] Defra and Devolved Administrations (2024). Background Mapping data for local authorities. Retrieved from UK AIR Air Information Resource: https://uk-air.defra.gov.uk/data/laqm-backgroundhome

6.23 This has then been used to calculate the concentration contribution of the non-permitted use. There will be 26 AADT, hence the non-permitted use concentration contribution is 0.0059 µg/m^3 (0.03% of the measured total concentration along Petersham Road).

6.24 Putting this into further context (using the same approach), the total concentration for Church Lane is estimated to be 16.3 µg/m^3 and the non-permitted use concentration contribution of 0.0059 µg/m^3 is 0.04% of this.

6.25 Following the EPUK and IAQM guidance's approach for describing impacts (see Technical Appendix - Annex 5: Assessment Methodology), the resulting impacts are presented in Table 6.4.

6.26 The annual mean impacts of the non-permitted use have been demonstrated to be Negligible along both Petersham Road and Church Lane.

6.27 Although there is some uncertainty in the approach used, including taking account of dwelling distances from roads, the resultant impacts will not alter since the annual mean concentrations are so low.

Table 6.4: Predicted Concentration Changes and Resultant Impacts

Road	NO_2 Change (µg/m^3)	NO_2 Concentration (µg/m^3)	NO_2 Concentration Relative to AQO (40 µg/m^3)	% Change in Concentration Relative to AQO (40 µg/m^3)	Impact Descriptor
Petersham Road	0.0059	20.0	75% or less of AQO	0%	Negligible
Church Lane	0.0059	16.3	75% or less of AQO	0%	Negligible

6.28 Regarding short-term impacts, previous research carried out on behalf of Defra and the Devolved Administrations[26] identified that exceedances of the 1-hour mean NO_2 AQO are unlikely to occur where the annual mean is below 60 µg/m^3. Where annual mean concentrations are below these levels the short-term impacts are considered negligible. Since the annual mean concentrations along Petersham Road and Church Lane are likely to be around 20.0 µg/m^3 and 16.3 µg/m^3, respectively, the impacts will be negligible.

6.29 For PM_{10} and $PM_{2.5}$, concentration contributions could not be calculated. There are no roadside measurements of $PM_{2.5}$ in the borough with which to use in the calculation. While there are roadside measurements of PM_{10} in the borough (i.e. 15 µg/m^3 at the Castelnau Library, Barnes roadside monitoring site), Defra's background concentration for the monitoring site (16.9 µg/m^3) is higher than that measured, meaning the calculation cannot be carried out. Given the emission comparison for PM_{10} and $PM_{2.5}$ is equivalent to that for NOx (which reacts in the atmosphere to form NO_2), it is considered extremely likely that the impacts for PM_{10} and $PM_{2.5}$ would also be negligible.

Consideration of LV Compliance

6.30 Defra has predicted roadside concentrations of NO_2, PM_{10} and $PM_{2.5}$ for some of the roads in the local area as part of Defra's commitment to assess compliance with the LVs. This includes Petersham Road.

6.31 Defra has not predicted any exceedances of the PM_{10} and $PM_{2.5}$ LVs anywhere in the UK.

6.32 For NO_2, Defra undertakes annual compliance assessments. The predicted concentrations from the 2022 compliance assessment for Petersham Road is 22 µg/m^3, well below the annual mean LV (40 µg/m^3).

6.33 The concentration contribution from the non-permitted use of the Site will not alter compliance with the LV.

7 Significance of effects

7.1 The significance of the effects has been judged based on the professional experience and taking account of the EPUK and IAQM guidance[27].

7.2 Overall, the air quality effects of the non-permitted use of the Site upon the local area are judged to be 'not significant'. This takes account of the assessment findings:

- The potential impacts are screened out as negligible by both Stage 1 and Stage 2 screening criteria.
- The assessed impacts have been demonstrated to all be negligible.
- The non-permitted use of the Site will not lead to any exceedances of the AQOs.
- The non-permitted use of the Site will not lead to any changes to the AQMA.
- The non-permitted use of the Site will not lead to any exceedances of the LVs or delay in compliance with the LVs.

8 Conclusion

8.1 The air quality impacts of the non-permitted use of the Site have been assessed.

8.2 Consideration has been given to the potential air quality impacts of pollutant emissions associated with non-permitted vehicular traffic upon the local area. All impacts have been determined to be negligible following relevant guidance and the use is unlikely to delay compliance with regulated thresholds in the local area.

8.3 Overall, the air quality effects of the Site are judged to be 'not significant'.

9 Technical Appendix

Annex 1: Glossary

Table 9.1: Glossary of terms used in the assessment

Term	Meaning
AADT	Annual Average Daily Traffic
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Air Quality Standard
Defra	Department for Environment, Food & Rural Affairs, England's regulator for improving and protecting the environment.
EPUK	Environmental Protection UK, a UK environmental non-governmental organisation (NGO) working to improve the quality of the local environment which has published guidance on assessing air quality.
HDV	Heavy Duty Vehicle
HSE	Health and Safety Executive, Britain's national regulator for workplace health and safety, which has published guidance on kitchen ventilation.
IAQM	Institute of Air Quality Management, a professional body for air quality practitioners which has published guidance on assessing air quality.
LAQM	Local Air Quality Management
LDV	Light Duty Vehicle
NO_2	Nitrogen dioxide
NOx	Nitrogen oxides
PM	Particulate Matter (dust)
$PM_{2.5}$	PM with a diameter of less than 2.5 micrometres
PM_{10}	PM with a diameter of less than 10 micrometres
PPG	Planning Practice Guidance

Annex 2: Professional Competence

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Austin is Director and Practice Manager at Cogan Environmental Consulting Limited. He is a Chartered Environmentalist with over 15 years' experience in environmental sciences, covering indoor and outdoor air quality, odour, dust, bioaerosols, greenhouse gases and climate change. He is a committee member of The Council of Property Search Organisations and has developed a number of guidance documents in the industry, including on indoor and outdoor air quality and most recently on odour.

Throughout his career, he has been involved in over 1,000 projects across the UK and abroad, focusing on supporting planning applications and environmental permit applications. His expertise covers a diverse range of sectors, including residential, student, commercial, retail, leisure, community, education, healthcare, distribution, and hospitality developments, industrial, waste, agricultural, power generation, and utility projects, and defence, aviation, and infrastructure schemes. These have included technical reviews for both indoor and outdoor air quality assessments, and climate change assessments for aviation, as well as the provision of expert witness services for air quality and odour.

He has a long history of supporting local authorities with local air quality concerns, including Clean Air Zones, Local Plans, Air Quality Management Areas, Air Quality Action Plans, and feasibility studies involving microsimulation modelling. Austin has also been involved in multiple projects for JNCC, EA, GLA, National Highways and NGOs, undertaking research and development activities. He is an experienced business manager, having managed multiple high-profile projects as well as operating multiple environmental businesses, where he previously led the development of licensed observational meteorological data and numerical weather prediction data which is widely used by the industry.

Austin is also an international expert in the field of climate change, having monitored greenhouse gases globally. He pioneered research in satellite observations and instrument design at the UK's Space Research Centre, where he was involved in software and algorithm development, instrumentation design, data analysis and collaboration with many internation bodies, including NASA, JAXA, CNES and ESA. He has produced numerous scientific papers and presented at conferences both nationally and internationally.

Annex 3: Policy, Legislation and Guidance

9.1 The national, regional, and local policies, strategies, legislation and guidance relevant to this assessment are set out in the tables below.

National Policy

Table 9.2: Relevant National Policies

Policy	Relevant Information
National Planning Policy Framework[3]	The National Planning Policy Framework (NPPF) sets out planning policy for England. It includes advice on when air quality should be a material consideration in development control decisions. The relevant paragraphs are set out below. Paragraph 7. *"The purpose of the planning system is to contribute to the achievement of sustainable development, including the provision of homes, commercial development, and supporting infrastructure in a sustainable manner. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs. At a similarly high level, members of the United Nations – including the United Kingdom – have agreed to pursue the 17 Global Goals for Sustainable Development in the period to 2030. These address social progress, economic well-being and environmental protection".* Paragraph 8. *"Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):* *…* *c) an environmental objective – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy".* Paragraph 10. "So that sustainable development is pursued in a positive way, at the heart of the Framework is a presumption in favour of sustainable development". Paragraph 55. *"Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition".* Paragraph 96. *"Planning policies and decisions should aim to achieve healthy, inclusive and safe places and beautiful buildings which* *…* *enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling".* Paragraph 108. *"Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:* *…*

[3] DLUHC (2023). National Planning Policy Framework, Department for Levelling Up, Housing and Communities.

	d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains…". Paragraph 180. *"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, taking into account relevant information such as river basin management plans..".* Paragraph 191. *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development…"* Paragraph 192. *"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".* Paragraph 194. *"The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities".*
National Air Quality Plan[4,5]	Defra and the Department for Transport's plans describe how the UK will comply with the annual mean Nitrogen Dioxide (NO_2) limit values. Alongside a package of national measures, the Plan requires those English Local Authorities (or the GLA in the case of London Authorities) that are predicted to have exceedances of the limit values beyond 2020 to produce local plans by December 2018. These plans must have measures to achieve the statutory limit values within the shortest possible time and may include the implementation of a charging Clean Air Zone (CAZ).

Regional Policy

Table 9.3: Relevant Regional Policies

Policy	Relevant Information
The London Plan[6]	The London Plan sets out the overall strategic plan for London, setting out an integrated economic, environmental, transport and social framework for the development of London. It includes several policies referring to air quality, which are set out below. The plan includes Policy SI 1 on improving air quality:

[4] Defra and DfT (2017). UK plan for tackling roadside nitrogen dioxide concentrations.
[5] Defra and DfT (2018). Supplement to the UK plan for tackling roadside nitrogen dioxide concentrations.
[6] GLA. (2021). The London Plan, The Spatial Development Strategy for Greater London.

A. *"Development Plans, through relevant strategic, site–specific and area–based policies, should seek opportunities to identify and deliver further improvements to air quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality.*

B. *To tackle poor air quality, protect health and meet legal obligations the following criteria should be addressed:*

   1) *Development proposals should not:*

      a) *lead to further deterioration of existing poor air quality*

      b) *create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits*

      c) *create unacceptable risk of high levels of exposure to poor air quality.*

   2) *In order to meet the requirements in Part 1, as a minimum:*

      a) *development proposals must be at least Air Quality Neutral*

      b) *development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality in preference to post–design or retro–fitted mitigation measures*

      c) *major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of B1*

      d) *development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people should demonstrate that design measures have been used to minimise exposure.*

C. *Masterplans and development briefs for large–scale development proposals subject to an Environmental Impact Assessment should consider how local air quality can be improved across the area of the proposal as part of an air quality positive approach. To achieve this a statement should be submitted demonstrating:*

   1) *how proposals have considered ways to maximise benefits to local air quality, and*

   2) *what measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.*

D. *In order to reduce the impact on air quality during the construction and demolition phase development proposals must demonstrate how they plan to comply with the Non–Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.*

E. *Development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on–site. Where it can be demonstrated that emissions cannot be further reduced by on–site measures, off–site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development".*

Policy GG3 on 'Creating a healthy city' states:

"To improve Londoners' health and reduce health inequalities, those involved in planning and development must… seek to improve London's air quality, reduce public exposure to poor air quality and minimise inequalities in levels of exposure to air pollution".

Policy SD4 on 'The Central Activities Zone (CAZ)' states:

"Taking account of the dense nature of the CAZ, practical measures should be taken to improve air quality, using an air quality positive approach where possible (Policy SI 1 Improving air quality) and to address issues related to climate change and the urban heat island effect".

Local Policy

Table 9.4: Relevant Local Policies

Policy	Relevant Information
London Borough of Richmond Upon Thames Local Plan[7]	The Local Plan sets out policies and guidance for the development of the borough over the period to 2033. It includes several objectives and policies relating to air quality, which are summarised below. Strategy Objectives – A Sustainable Future *"4. Reduce or mitigate environmental impacts and pollution levels (such as air, noise, light, odour, fumes water and soil) and encourage improvements in air quality, particularly along major roads and areas that already exceed acceptable air quality standards".* Policy LP 8 – Amenity and Living Conditions *"All development will be required to protect the amenity and living conditions for occupants of new, existing, adjoining and neighbouring properties. The Council will:* *…* *4. ensure there is no harm to the reasonable enjoyment of the use of buildings, gardens and other spaces due to increases in traffic, servicing, parking, noise, light, disturbance, air pollution, odours or vibration or local micro-climatic effects…".* Policy LP 10 – Local Environmental Impacts, Pollution and Land Contamination *"A. The Council will seek to ensure that local environmental impacts of all development proposals do not lead to detrimental effects on the health, safety and the amenity of existing and new users or occupiers of the development site, or the surrounding land. These potential impacts can include, but are not limited to, air pollution, noise and vibration, light pollution, odours and fumes, solar glare and solar dazzle as well as land contamination.* *Developers should follow any guidance provided by the Council on local environmental impacts and pollution as well as on noise generating and noise sensitive development. Where necessary, the Council will set planning conditions to reduce local environmental impacts on adjacent land uses to acceptable levels.* *…* *Air Quality* *B. The Council promotes good air quality design and new technologies. Developers should secure at least 'Emissions Neutral' development. To consider the impact of introducing new developments in areas already subject to poor air quality, the following will be required:* *1. an air quality impact assessment, including where necessary, modelled data;* *2. mitigation measures to reduce the development's impact upon air quality, including the type of equipment installed, thermal insulation and ducting abatement technology;* *3. measures to protect the occupiers of new developments from existing sources;* *4. strict mitigation for developments to be used by sensitive receptors such as schools, hospitals and care homes in areas of existing poor air quality; this also applies to proposals close to developments used by sensitive receptors…".* The Local Plan also states in supplementary text for this policy that: *"Developers should explore ways to minimise any harmful and adverse environmental impacts of development, including during construction and demolition. Where possible, development that is likely to generate pollution should be located away from sensitive uses such as hospitals, schools, care homes and wildlife sites. The design and layout of new development should minimise conflict between different land uses, taking account of users and occupiers of new and existing developments. Therefore, any noisy or polluting activities or features such as plant equipment, should be positioned away from sensitive areas where possible to ensure any detrimental impacts on health, living conditions or amenity are kept to acceptable levels.* *In addition, where there are already significant adverse effects on the environment, amenity or living conditions due to pollution, sensitive uses should ideally be steered away from those areas. However, given the limited availability of land for development in this borough, this will*

[77] London Borough of Richmond Upon Thames (2018). Local Plan, As Adopted by Council 3 July 2018.

	not always be possible. Therefore, new developments, including changes of use, should mitigate and reduce any adverse impacts resulting from air and light pollution, noise, vibration and dust to acceptable levels. *The Council will be preparing SPDs and/or Advice Notes to provide additional guidance on local environmental impacts, pollution, air quality, noise and construction management, which will contain further guidance and clear requirements, including methodologies, for the various assessments that may need to be submitted as part of certain types of planning applications".*
Air Quality SPD[8]	The Supplementary Planning Document (SPD) Air Quality, published by the London Borough of Richmond Upon Thames sets out when and how air quality should be considered for planning applications. It states: *"The following broad principles will be applied when considering planning applications for development that has the potential to impact on air quality, result in an increase in the number of people exposed to poor air quality or cause disamenity…prevent development which is unacceptable in terms of air quality, odour, dust or other air emissions"* and *"For smaller operations that may give rise to odours, dust, smoke, dust or other air emissions, including commercial operations such as nail bars and commercial kitchens, information on the pollution control systems may be sufficient".*

National Strategy

Table 9.5: Relevant National Strategies

Strategy	Relevant Information
Clean Air Strategy 2019[9]	The strategy focuses on reducing emissions of nitrogen oxides (NOx), ammonia (NH_3), particulate matter (PM), non-methane volatile organic compounds (NMVOCs) and sulphur dioxide (SO_2). For particulate matter the emission reduction targets are 30% by 2020, and by 46% by 2030 and for NOx 55% by 2020 and 73% by 2030 all from a 2005 baseline. This strategy sets out the aim for new enforcement powers at a national and local level, across all sectors of society and sets out the comprehensive action that is required from government and society to meet these targets. The strategy includes actions to reduce emissions from transport (including road, maritime, rail, aviation and NRMM, homes, farming and industry. *"New legislation will create a stronger and more coherent framework for action to tackle air pollution. This will be underpinned by new England-wide powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to take action in areas with an air pollution problem".*
A Green future: our 25 year plan to improve the environment[10]	This 25-year environmental plan sets out the government's long-term plans to improve the environment within a generation. This includes the first goal 'Clean air' where the government states: *"we will achieve clean air by:* • *Meeting legally binding targets to reduce emissions of five damaging air pollutants.* • *This should halve the effects of air pollution on health by 2030.* • *Ending the sale of new conventional petrol and diesel cars and vans by 2040.* • *Maintaining the continuous improvement in industrial emissions by building on existing good practice and the successful regulatory framework".*
Clean Growth Strategy[11]	This strategy focuses on reducing the UK's carbon footprint, but also contains several policies and proposals that will also improve relate to air quality, including:

[8] London Borough of Richmond Upon Thames (2020). Supplementary Planning Document Air Quality.
[9] Defra and Devolved Administrations (2019). Clean Air Strategy 2019. Available at: https://assets.publishing.service.gov.uk/media/5c3b9debe5274a70c19d905c/clean-air-strategy-2019.pdf
[10] HM Government (2018). A Green Future: Our 25 Year Plan to Improve the Environment. Available at: https://assets.publishing.service.gov.uk/media/5ab3a67840f0b65bb584297e/25-year-environment-plan.pdf
[11] HM Government (2018). The Clean Growth Strategy. Leading the way to a low carbon future. Available at: https://assets.publishing.service.gov.uk/media/5ad5f11ded915d32a3a70c03/clean-growth-strategy-correction-april-2018.pdf

	• End the sale of new conventional petrol and diesel cars and vans by 2040 (subsequently brought forward to 2030) • Spend £1 billion supporting the take-up of ultra-low emission vehicles, • Develop the electric vehicle charging network • Accelerate the uptake of low emission taxis and buses • Work with industry to accelerate the transition to zero emission vehicles • Announce plans for the public sector to lead the way in transitioning to zero emissions vehicles • Invest £1.2 billion to make cycling and walking the natural choice for shorter journeys • Work to enable cost-effective options for shifting more freight from road to rail, including using low emission rail freight for deliveries into urban areas, with zero emission last mile deliveries • Delivering trials of Heavy Goods Vehicle (HGV) platoons, which could deliver significant fuel and emissions savings.
Road to Zero[12]	This paper outlines how the government will support the transition to zero tailpipe emission road transport and reduce tailpipe emissions from conventional vehicles during the transition. This paper confirms the Government's pledge to end the sale of new conventional petrol and diesel cars and vans by 2040 (subsequently brought forward to 2030), and states that the Government expects the majority of new cars and vans sold to be 100% zero tailpipe emission and all new cars and vans to have significant zero tailpipe emission capability by 2040, and that by 2050 almost every car and van should have zero tailpipe emissions. It states that the Government wants to see at least 50%, and as many as 70%, of new car sales, and up to 40% of new van sales, being ultra-low emission by 2030. It sets out a number of measures by which Government will support this transition, but is clear that Government expects this transition to be industry and consumer led. If these ambitions are realised then road traffic-related NOx emissions can be expected to reduce significantly over the coming decades.
Transport Decarbonisation Plan[13]	More recently, the Department for Transport (DfT) published a Transport Decarbonisation Plan (2021), which states: *"new diesel and petrol cars and vans would no longer be sold from 2030, and that all new cars and vans must be fully zero emission at the tailpipe from 2035"* This brings the dates significantly forward from the DfT Policy Paper.
The Ten Point Plan for a Green Industrial Revolution[14]	This sets out how the UK intends to achieve its vision for a cleaner, healthier, net zero carbon future. The focus is on the following ten points: • Point 1 Advancing Offshore Wind • Point 2 Driving the Growth of Low Carbon Hydrogen • Point 3 Delivering New and Advanced Nuclear Power • Point 4 Accelerating the Shift to Zero Emission Vehicles • Point 5 Green Public Transport, Cycling and Walking • Point 6 Jet Zero and Green Ships • Point 7 Greener Buildings • Point 8 Investing in Carbon Capture, Usage and Storage • Point 9 Protecting Our Natural Environment • Point 10 Green Finance and Innovation

Regional Strategy

[12] HM Government (2018). The Road to Zero, Next steps towards cleaner road transport and delivering our Industrial Strategy. Available at: https://assets.publishing.service.gov.uk/media/5b968e3ee5274a13859deed2/road-to-zero.pdf
[13] DfT (2021). Decarbonising Transport. A Better, Greener Britian. Available at: https://assets.publishing.service.gov.uk/media/610d63ffe90e0706d92fa282/decarbonising-transport-a-better-greener-britain.pdf
[14] HM Government (2020). The Ten Point Plan for a Green Industrial Revolution. Available at: https://assets.publishing.service.gov.uk/media/5fb5513de90e0720978b1a6f/10_POINT_PLAN_BOOKLET.pdf

Table 9.6: Relevant Regional Strategies

Strategy	Relevant Information
London Environment Strategy[15]	The London Environment Strategy was published in May 2018. The Strategy sets out a vision for improving London's environment for the benefit of all Londoners. One of the aims if for London to *"have the best air quality of any major world city by 2050, going beyond the legal requirements to protect human health and minimise inequalities".* The strategy considers air quality in Chapter 4; the Mayor's main objectives are: • *"reducing exposure of Londoners to harmful pollution across London – especially at priority locations like schools – and tackling health inequality* • *achieving legal compliance with UK and EU limits as soon as possible, including by mobilising action from the London boroughs, government and other partners* • *establishing and achieving new, tighter air quality targets for a cleaner London, meeting World Health Organization (WHO) health–based guidelines by 2030 by transitioning to a zero emission London to create a "zero emission London by 2050".* Policy 4.2.1 aims to: "*reduce emissions from London's road transport network by phasing out fossil fuelled vehicles, prioritising action on diesel, and enabling Londoners to switch to more sustainable forms of transport".* Policy 4.3.2 states: *"The Mayor will encourage the take up of ultra low and zero emission technologies to make sure London's entire transport system is zero emission by 2050 to further reduce levels of pollution and achieve WHO air quality guidelines".* An implementation plan for the Strategy has also been published which sets out what the Mayor will do between 2018 and 2023 to help achieve the ambitions in the strategy.
Mayor's Transport Strategy[16]	*The Mayor's Transport Strategy (GLA, 2018b) sets out the Mayor's policies and proposals to reshape transport in London over the next two decades. The Strategy focuses on reducing car dependency and increasing active sustainable travel, with the aim of improving air quality and creating healthier streets. It notes that development proposals should:* *"be designed so that walking and cycling are the most appealing choices for getting around locally".*

Legislation

Table 9.7: Relevant Legislation

Legislation	Relevant Information
Environment Act 2021[17]	This Act requires the Secretary of State to set a long-term target (defined as no less than 15 years after the date on which the target was set) to reduce people's exposure to $PM_{2.5}$. It also enables the Secretary of State to set other air quality targets, including for other air pollutants. These targets need to be laid as draft Statutory Instruments by 31 October 2022. The Government has consulted on an annual mean $PM_{2.5}$ target of 10 µg/m^3 by 2040 together with a 35% exposure reduction target by 2040 compared to 2018. *The Secretary of State must prepare an Environmental Improvement Programme (EIP). The first EIP is the 'A green future: our 25 year plan to improve the environment' published in 2018 and produce an annual report on the implementation of the EIP, including progress towards meeting the targets. Every five years the EIP must be reviewed. The review of the first EIP must be completed by 31st January 2023 and include the interim targets.*

[15] GLA (2018). London Environment Strategy.
[16] GLA (2018). Mayor's Transport Strategy.
[17] HMSO (2021). Environment Act, HMSO.

Air Quality Standards Regulations 2010[18] and The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020[19]	In additional to the AQOs set within the Air Quality Strategy, the European Union (EU) has set limit and target values for the protection of human health and critical levels for the protection of ecosystems. These were transposed into the Air Quality Standards Regulations 2010. The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 reduced the EU annual mean limit value for particulate matter ($PM_{2.5}$) from 25 to 20 µg/m^3. Like the AQOs, the limit values, target values and critical levels are set for individual pollutants and are made up of a concentration value, an averaging time over which it is to be measured, the number of exceedances allowed per year (if any) and a date by which it must be achieved. *(a) Some pollutants have more than one value covering different dates or averaging times. While the AQOs are policy targets, the government has the duty to ensure compliance with the legally binding limit values which is a national obligation rather than a local one.*
Air Quality Regulations 2000[20] and the Air Quality (England) (Amendment) Regulations 2002[21]	The air quality objectives (AQOs) for use by local authorities when considering human health and ecosystems were incorporated into legislation by the Air Quality Regulations 2000, and the Air Quality (England) (Amendment) Regulations 2002.
The Environment Act 1995[22]	Part IV of The Environment Act requires the Government to produce an Air Quality Strategy. This must include standards and objectives for the protection of human health and ecosystems. It also sets out the requirements of the Local Air Quality Management (LAQM) regime. LAQM requires every authority to carry out regular reviews and assessments of air quality in its area to identify whether the air quality objectives (AQOs) have been, or will be, achieved at relevant locations, by the applicable date. If this is not the case, the authority must declare an Air Quality Management Area (AQMA) and prepare an action plan which identifies appropriate measures to be introduced in pursuit of the objectives. The AQOs are policy targets often expressed as a maximum ambient concentration, for a specific averaging period, not to be exceeded, either without exception or with a permitted number of exceedances, within a specified timescale. For ecosystems the air quality standards are based on critical levels and critical loads derived for different habitats. Exceedance of these values are used as an indication of the risk to the ecosystem. Critical loads are values of pollutants deposited onto a habitat below which significant effects do not occur. Critical levels are the concentrations of pollutants above which direct adverse effects on vegetation or ecosystems may occur.
Environmental Protection Act 1990[23]	Part III of The Environmental Protection Act 1990 sets out what constitutes a statutory nuisance and local authority duties to investigate complaints and require remedial measures. It states: *"…the following matters constitute "statutory nuisances…* *(b) smoke emitted from premises so as to be prejudicial to health or a nuisance;* *(c) fumes or gases emitted from premises so as to be prejudicial to health or a nuisance;* *(d) any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance…".*
The Town and Country Planning Act 1990	The Town and Country Planning Act 1990 sets out the regulatory framework for land use planning within which local authorities need to operate and additionally Planning Policy Statement 23, (PPS23) Planning and Pollution Control advises local authorities that they should take account of the impacts that a new development will have on the quality of air.
Health and Safety at Work etc. Act 1974[24]	Air quality related health and safety concerns from workplaces is controlled under the Government's Health and Safety at Work etc Act. It is the employer's duty to ensure employees

[18] HMSO (2010) The Air Quality Standards Regulations, ENVIRONMENTAL PROTECTION, 2010, No. 1001, STATUTORY INSTRUMENTS.
[19] HMSO (2020) The Environment (miscellaneous Amendments) (EU Exit) Regulations 2020 (Vol, Statutory Instrument No 1312).
[20] HMSO (2000). The Air Quality Regulations, 2000, Statutory Instrument 928. HMSO.
[21] HMSO (2002). The Air Quality (England) (Amendment) Regulations, 2002, Statutory Instrument 3043. HMSO.
[22] HMSO (1995). The Environment Act 1995.
[23] HMSO (1990). Environmental Protection Action 1990.
[24] HMSO (1974). Health and Safety at Work etc. Act 1974.

	and members of the public are not exposed to unacceptable fumes due to work related activities.

National Guidance

Table 9.8: Relevant National Guidance

Guidance	Relevant Information
Planning Practice Guidance[25]	The NPPF is supported by Planning Practice Guidance (PPG) on air quality. This provides guidance on how planning can take account of the impact of new development on air quality. This sets out what air quality considerations need to be addressed, how detailed assessments should be, and how air quality impacts can be mitigated.
Defra (2022) LAQM Technical Guidance[26]	Defra and the devolved administrations have published a guidance document on Local Air Quality Management (LAQM) - Local Air Quality Management Technical Guidance (LAQM.TG22) (Defra, 2021). This document is designed to support local authorities in carrying out their duties under the Environment Act 1995 and subsequent regulations. LAQM is the statutory process by which local authorities monitor, assess, and take action to improve local air quality. The Technical Guidance provides tools, approaches and technical information related to air quality.
EPUK and IAQM (2017) Guidance on Land-Use Planning & Development Control: Planning For Air Quality[27]	Environmental Protection UK (EPUK) in partnership with The Institute of Air Quality Management (IAQM) have produced guidance (EPUK/IAQM, 2017) on Land-Use Planning & Development Control: Planning For Air Quality. EPUK and IAQM have produced this guidance to ensure that air quality is adequately considered in the land-use planning and development control processes. It provides a means of reaching sound decisions, having regard to the air quality implications of development proposals and provides guidance on how air quality considerations of individual schemes may be considered within the development control process, by suggesting a framework for the assessment of the impacts of developments on local air quality.

Regional Guidance

Table 9.9: Relevant Regional Guidance

Guidance	Relevant Information
London Local Air Quality Management (LLAQM) Technical Guidance 2019[28]	*The GLA produced technical guidance, the London Local Air Quality Management (LLAQM) Technical Guidance 2019 (LLAQM.TG(19)) to support London boroughs in carrying out their duties under the Environment Act 1995 and connected regulations. It supersedes all previous LAQM guidance applicable to London boroughs.*
London Local Air Quality Management (LLAQM) Policy Guidance 2019[29]	*The GLA produced policy guidance, the London Local Air Quality Management (LLAQM) Policy Guidance 2019 (LLAQM.PG(19)) to support London boroughs in carrying out their duties under the Environment Act 1995 and connected regulations. It sets out the policy implementation of the Mayor's London Local Air Quality Management (LLAQM) framework.*
Air Quality and Planning Guidance[30]	*The London Councils, the collective of London local government comprising the 32 boroughs and the City of London Corporation, published 'Air Quality and Planning Guidance' in 2007. It provides a technical advice on how to deal with planning applications that could have an impact on air quality.*

[25] DLUHC & MHCLG (2019). Guidance, Air quality. Available at: https://www.gov.uk/guidance/air-quality--3
[26] Defra and the Devolved Administrations (2022). Local Air Quality Management Technical Guidance (TG22).
[27] EPUK/IAQM. (2017). Land-Use Planning & Development Control: Planning For Air Quality.
[28] GLA (2019). London Local Air Quality Management (LLAQM) Technical Guidance 2019 (LLAQM.TG(19)).
[29] GLA (2019). London Local Air Quality Management (LLAQM) Policy Guidance 2019 (LLAQM.PG (19)), Pursuant to Part IV of the Environment Act 1995.
[30] London Councils (2007). Air Quality and Planning Guidance.

Annex 4: Assessment Criteria

9.2 The findings of the assessment in relation to human health are considered in relation to two separate types of criteria, covered by different legislation, policy, and guidance. These include Air Quality Objectives (AQOs) and Limit Values (LVs). These regulated thresholds are set out in Table 9.10.

Table 9.10: Regulated Thresholds for Human Health

Pollutant	Time Period	Criteria Type	Concentration, and the number of exceedances allowed per year	Date to be achieved from and maintained after
Nitrogen dioxide (NO_2)	1-hour Mean	AQO / LV	200 µg/m^3 not to be exceeded more than 18 times a year	31st Dec 2005 / 1st Jan 2010
	Annual Mean	AQO / LV	40 µg/m^3 not to be exceeded	31st Dec 2005 / 1st Jan 2010
Particulate Matter (PM_{10})	24-hour Mean	AQO / LV	50 µg/m^3 not to be exceeded more than 35 times a year	31st Dec 2004
	Annual Mean	AQO / LV	40 µg/m^3 not to be exceeded	31st Dec 2004
Particulate Matter ($PM_{2.5}$)	Annual Mean	AQO [a] / LV	20 µg/m^3 not to be exceeded	2020 / 2020

Table notes:

[a] Not in Regulations and there is no legal requirement for local authorities to meet it.

Annex 5: Assessment Methodology

9.3 The non-permitted use will lead to changes in road traffic flows along local roads, the emissions from which may impact upon local air quality.

9.4 The assessment follows appropriate methodologies from the EPUK/IAQM[27] and Defra[26]. The approach used is described below.

Stage 1

9.5 Table 6.1 of the EPUK and IAQM guidance[27] provides the Stage 1 screening criteria. The approach first considers the size and parking provision of a development; if the development is residential and is for fewer than ten homes or covers less than 0.5 ha, or is non-residential and will provide less than 1,000 m^2 of floor space or cover a site area of less than 1 ha, and will provide ten or fewer parking spaces, then there is no need to progress to a Stage 2 and in general there is no need to consider the impacts of the development on the local area.

Stage 2

9.6 The guidance provides example criteria and states the following in relation to the criteria:

"They are intended to function as a sensitive "trigger" for initiating an assessment in cases where there is a possibility of significant effects arising on local air quality. This possibility will, self-evidently, not be realised in many cases. The criteria should not be applied rigidly; in some instances, it may be appropriate to amend them on the basis of professional judgement, bearing in mind that the objective is to identify situations where there is a possibility of a significant effect on local air quality".

9.7 The second stage then compares the changes in vehicle flows on local roads that a development will lead to against specified screening criteria. Where these criteria are exceeded, a detailed assessment is required, although the guidance advises *that "the criteria provided are precautionary and should be treated as indicative"*, and *"it may be appropriate to amend them on the basis of professional judgement".*

9.8 The criteria relating to road traffic are:

- A change of LDV flows of:
  - more than 100 AADT within or adjacent to an AQMA
  - more than 500 AADT elsewhere.
- A change of HDV flows of:
  - more than 25 AADT within or adjacent to an AQMA
  - more than 100 AADT elsewhere.

- Where roads are realigned near to sensitive receptors and the change in alignment is 5 m or more and the road is within an AQMA. Applies to junctions that cause traffic to significantly change vehicle acceleration/deceleration, e.g. traffic lights, or roundabouts.
- Where bus flows will change by:
  - more than 25 AADT within or adjacent to an AQMA
  - more than 100 AADT elsewhere.

Simple or Detailed Assessments

9.9 Where an air quality assessment is identified as being required, then this may take the form of either a Simple Assessment or a Detailed Assessment (i.e. utilising detailed dispersion models), however, it should be noted that exceeding a screening criterion in Table 6.2 of the guidance does not automatically lead to the requirement for a Detailed Assessment and the use of professional judgement and sufficient evidence can be considered appropriate at times (Simple Assessment).

Describing Impacts

Long-term (Annual Mean) Impacts on Air Quality at Locations of Human Health Exposure

9.10 The approach set out in the EPUK and IAQM guidance provides a method for describing the impacts on local air quality arising from development.

9.11 Impact descriptors for individual receptors are used which expresses the magnitude of incremental change as a proportion of an AQO and then examining this change in the context of the new total concentration and its relationship with the assessment criterion. Table 9.11 sets out the matrix for determining the impact descriptor for annual mean concentrations at individual receptors, based on the EPUK and IAQM guidance.

Table 9.11: Annual Mean Impact Descriptors for Individual Receptors

Annual Mean Concentration with Non-Permitted Use (µg/m³)	% Change in Concentration relative to the AQO (µg/m³)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Short-term (24-hour, 8-hour, 1-hour and 15-minute mean) Impacts on Human Health

9.12 The short-term 1-hour mean NO_2 and 24-hour mean PM_{10} AQOs are assessed in relation to the risk of a breach in number of period (1-hour or 24-hour) exceedances.

9.13 Previous research carried out on behalf of Defra and the Devolved Administrations[26] identified that exceedances of the 1-hour mean NO_2 AQO are unlikely to occur where the annual mean is below 60 µg/m^3. Similarly, exceedances of the 24-hour mean PM_{10} AQO are unlikely to occur where the annual mean is below 32 µg/m^3. Where annual mean concentrations are below these levels the short-term impacts are considered negligible.

Significance

9.14 The approach developed by EPUK and IAQM[27] has been used. The guidance is that the assessment of significance should be based on professional judgement, with the overall air quality impact of the development described as either 'significant' or 'not significant'.

9.15 If none of the criteria in Stage 1 and 2 are met, then there should be no requirement to carry out an air quality assessment for the impact of the development on the local area, and the impacts can be considered as having a 'not significant' effect.

9.16 Where the impacts are Negligible the overall significance is judged to be 'not significant'.

9.17 Where a Simple or Detailed assessment is carried out, in drawing the determination of significance, the following factors should be taken account of:

- the existing and future air quality in the absence of the development;
- the extent of current and future population exposure to any impacts;
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts;
- the potential for cumulative impacts. In such circumstances, several impacts that are described as Slight individually could, taken together, be regarded as having a 'significant' effect for the purposes of air quality management in an area, especially where it is proving difficult to reduce concentrations of a pollutant. Conversely, a Moderate or Substantial impact may not have a 'significant' effect if it is confined to a very small area and where it is not obviously the cause of harm to human health; and
- the judgement on significance relates to the consequences of the impacts; i.e. will they have an effect on human health that could be considered as significant? In the majority of cases, the impacts from an individual development will be insufficiently large to result in measurable changes in health outcomes that could be regarded as 'significant' by health care professionals.

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