

CITY OF LONDON CORPORATION

Department of Markets and Consumer Protection

City of London Air Quality Supplementary Planning Document



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**City of London Air Quality
Supplementary Planning Document**

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1 Introduction

1.1 Background

1.1.1 This Supplementary Planning Document (SPD) sets out the City Corporation's requirements for reducing air pollution from new and refurbished developments within the Square Mile. Together with other City Corporation SPD's, it provides detailed guidance on policies within the City Corporation's Local Plan and the Mayor of London's London Plan.

1.1.2 This is the City Corporation's first SPD for Air Quality which has been written with reference to GLA Guidance and supports actions in the City Corporation's Air Quality Strategy.

1.2 City of London Planning Framework

1.2.1 The London Plan and the City Corporation's Local Plan together form the statutory planning framework used to determine applications for planning permission.

1.2.2 The Local Plan was adopted in 2015. It is comprised of 22 Core Strategic Policies (CS) and, where applicable, supporting Development Management Policies (DM). The main air quality policy is DM 15.6 and forms part of CS15: Sustainable Development and Climate Change (see Appendix D for this and supporting policies). The Local Plan is currently being reviewed to provide guidance up to 2036 and an updated version will be available in 2019.

1.3 Relationship of this SPD to Policy

1.3.1 Appendix E sets out the SPD's relationship to the national, regional and local policy and guidance affecting air quality in the City of London, as well as its relationship to the City of London Air Quality Action Plan (AQAP). The AQAP is incorporated in the City Corporation's Air Quality Strategy 2015-2020, which is summarised in Appendix C, together with other relevant City Corporation Strategies.

1.4 Overarching Aim of this SPD

1.4.1 The overall aim of this document is to provide further guidance on the City Corporation's Local Plan in relation to minimising the impact of developments on air quality in the Square Mile.

1.5 Objectives and SPD format overview

- 1.5.1 Although not the objective of this SPD, this SPD highlights the importance of air quality as a material planning consideration and seeks to ensure that all possible measures to reduce the impact of developments on air quality are considered and, where possible, adopted in a consistent way within the City of London.
- 1.5.2 The objectives of this SPD on air quality are:
- (a) to highlight the existing policy framework in London and the City of London (see [Appendix E](#))
 - (b) to provide guidance on measures that can be implemented to mitigate the potentially harmful impacts of new and upgraded developments on air quality in the City of London through:
 - Development and Building Design (including sustainable travel) (see [section 2](#))
 - Heating and Energy Supply (see [section 3](#))
 - Deconstruction and construction (including sustainable travel) (see [section 4](#))
 - (c) to provide guidance on the requirements of air quality impact assessments and the circumstances under which these will be required (see [section 5](#)) and
 - (d) to provide guidance on the use of CIL, planning conditions and Section 106 obligations to improve air quality (see [section 6](#))

1.6 Compliance with this SPD and Air Quality Condition(s)

- 1.6.1 To ensure all air quality factors have been considered, planning applications will be assessed in accordance with the checklist in [Appendix A](#). It is understood that not all relevant information may be available at the time of application. Planning consent may therefore be granted subject to a planning condition which requires the developer to provide a 'pre-occupation' Air Quality Report signposting and demonstrating compliance with this SPD. The Air Quality Report may take the form of a summary statement which references other documents. [Appendix B](#) will provide best practice examples as they become available.

1.7 Changes in technology and opinion

- 1.7.1 In order to reflect changing technology and opinion, [Appendix B](#) provides links to the City of London webpages which contain advances in technology, guidance and case studies which are considered best practice. These pages will be updated to reflect efforts to improve air quality. Updated best practice guidance will not be applied retrospectively once planning permission has been granted. Notwithstanding this, as changes to guidance will be to improve air quality, the developer is requested to have due regard to the new content where possible.

1.8 Overview of considerations and requirements

1.8.1 Figure 1 overleaf summarises the considerations which address the air quality requirements of this SPD and includes reference to the relevant section. It also shows whether the information should be provided at application stage and/or pre-occupation stage. Overall the measures:

- **Minimise the production of pollution** through design, construction site management and low NO_x technology. Low NO_x technology is considered to be technology where NO_x emissions are less than 40mg/kWh (dry gas and 0% O₂). The City Corporation is aware of developments where ultra-low NO_x appliances (less than 15mg/kWh NO_x emissions) have been installed. The use of ultra-low NO_x technology is therefore actively encouraged.
- **Reduce exposure** through appropriate building and open space location and design as well as the appropriate location of combustion emission points.

Figure 1: Summary of SPD Requirements

SPD Requirements	Planning Application Requirements	Pre-Commencement/ Occupation details (where conditioned)
<u>Section 2: Sustainable Development and Building Design</u>		
Reduce Emissions: ✓ Reduce energy consumption through building design ✓ Provide for remaining energy needs through low emission technologies ✓ Provide for sustainable travel See section: 2.2	Incorporate into design. Provide Delivery and Service Plans (DSP), transport assessments and travel plans as required. See energy and heating requirements below.	Include a brief statement with regard to how the building design and sustainable travel measures reduce emissions and therefore minimise impact on air quality.
Reduce Exposure Through Design: ✓ Ventilation inlets: – away from sources of pollution e.g. opening windows at height and away from plant – consider installation of filtration ✓ Private and communal outdoor space positioned away from sources of pollution ✓ Well-designed public realm providing access to areas away from pollution ✓ Greening to trap fine particulates ✓ Combustion exhausts away from receptors See section: 2.3	Incorporate into design. Where the <u>Clean Air Act</u> applies, include a plan showing combustion emission points relative to general access areas e.g. roof terraces.	Where the Clean Air Act applies, include an 'as installed plan' showing combustion emission points relative to general access areas e.g. roof terraces.
<u>Section 3: Heating and Energy Supply</u>		
Energy demand: ✓ Energy efficient buildings to reduce heating/power demands, with efficient, renewable, low and zero emission sources for remaining needs e.g. use of air and ground source heat pumps ✓ Compliance with Energy Hierarchy See sections: 3.1 / 3.2	Demonstrate a commitment within the planning application to: • install low NO_x technology. • submit a commissioning report demonstrating compliance with Mayor's emission limits.	Submit details and use of combustion plant installed, including: • low /ultra-Low NO_x technology • latest Euro standard generators
Combustion plant: ✓ Install low/ultra-low NO_x boilers ✓ Biomass/biofuel plant discouraged ✓ Meet NO_x and PM emission standards ✓ Minimise use of generators and newest Euro standard only See sections 3.3 / 3.4 / 3.5		Submit commissioning reports demonstrating compliance with SDC SPG and plans to maintain compliance.

Combustion Flues: ✓ at least 1m above roof level ✓ 3m above general access areas / amenity space (where the Clean Air Act applies) ✓ In accordance with approved Air Quality Impact Assessment See section 3.6	Incorporated into design. Where Clean Air Act applies, submit plans showing emission points.	Clean Air Act application to be submitted (where applicable).
<u>Section 4: Reducing Air Quality impacts during construction / deconstruction</u>		
Scheme of Protective Works detailing: ✓ Dust Control measures to be adopted ✓ Details of continuous monitoring and trigger levels ✓ NRMM compliance commitment ✓ Commitment to sourcing an alternate power source to diesel generators ✓ No engine idling policy ✓ CLP in line with TfL best practice See section 4.4	Where an Air Quality Impact Assessment is submitted at application stage, include a risk assessment and sensitive receptors and methods to minimise air quality impact.	Submit Scheme of Protective works in accordance with the latest version of the City Corporation's <u>Code of Practice for Deconstruction and Construction</u> prior to commencement of works.
<u>Section 5 Air Quality Impact Assessments</u>		
Air Quality Neutral Assessment (or Air Quality Positive as policy emerges) required when the floor space is 1,000m² or more or 10 or more residential dwellings: ✓ Building emissions ✓ Transport emissions See section 5.2	Submit relevant assessments with planning application	Demonstrate compliance with Air Quality Neutral Assessment (as installed). Where not air quality neutral, include details of Local Planning Authority approved mitigation adopted.
Detailed Air Quality Impact Assessment for major developments when it: ✓ is within 50m of sensitive use (see figure 4) ✓ creates a significant change in traffic (see explanation) ✓ requires an EIA ✓ involves the Environmental Permitting Regulations For all developments with: ✓ exposes sensitive or a high number of people to air pollution (schools hospitals and >75 residential properties) ✓ creates exposure for long periods of the day (e.g. adjacent to busy roads) ✓ CHP, biomass or biofuel plant. See Section 5.3		

2 Development and Building Design

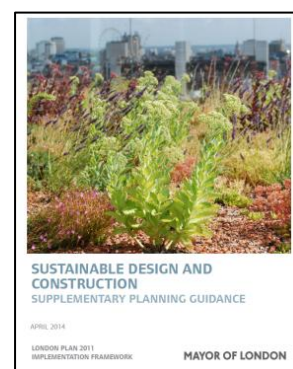
Overall Objective: to ensure:

- a) that the development design minimises the generation of pollution by being energy efficient, reducing emissions associated with the operation of the building and facilitating a reduction in vehicle movements and
- b) reducing exposure by maximising the distance between users and sources of pollution (such as flues and busy roads).

To fulfil the requirements of Local Plan Policy CS15.4(i), 15.6 (2), (3) & (6) and London Plan Policies 5.3 and 7.14

2.1 Background

- 2.1.1 The design and layout of the development and building will have an impact on the amount and location of pollution it produces. Suitable design can also reduce the exposure of occupants to existing poor air quality. The City Corporation therefore requires that the design principles described below and detailed in the Mayor's Sustainable Design and Construction SPG (SDC) are incorporated into the design and are available for discussion at the pre-application stage and presented within planning applications.



2.2 Reducing Emissions through Building Design

- 2.2.1 **Energy Efficiency and Low Emission Technology:** Appropriate building design reduces energy use and therefore the development's air quality footprint. The sustainable design principles of energy efficient design, retro-fitting measures, pollution control and urban greening, in accordance with London and Local Plan policies achieve this. See City of London sustainable design case studies within Appendix B. The remaining energy demand must be supplied through the use of technologies which do not add to emissions of particulates or nitrogen dioxide (ultra-low/low NOx technology). See Section 3 for further guidance on this.
- 2.2.2 **Sustainable Travel:** Emissions from road traffic are the dominant source of elevated pollutant concentrations in London. The planning process is just one way in which the City Corporation seeks to improve air quality through sustainable travel.
- 2.2.3 The Local Plan Core Strategic Policy CS16 (4) V requires developers to demonstrate how the environmental impacts (together with road danger and servicing) will be minimised by submitting the following plans and assessments as part of the planning application process (where applicable); there should also be a consideration of using low emission river transport (where applicable). See Appendix B for guidance relating to:
- delivery / servicing plans (DSP)
 - construction logistic plans (CLP)
 - transport assessments
 - travel plans

2.2.4 The City Corporation promotes infrastructure for modes of transport with low impacts on air quality through the Local Plan and the development management process, which incorporates:

- car free design
- provision of cycling facilities such as secure cycle storage; and
- provision of infrastructure for low emission vehicles such as electric vehicle recharging points (per parking bay), including rapid chargers

2.3 Reducing Exposure through Development and Building Design

2.3.1 The annual level of nitrogen dioxide (NO₂) exceeds the air quality objective of **40µgm³** across much of the City. The whole of the City of London is therefore an Air Quality Management Area and development and building design should ensure that exposure to higher levels of pollution are mitigated against.

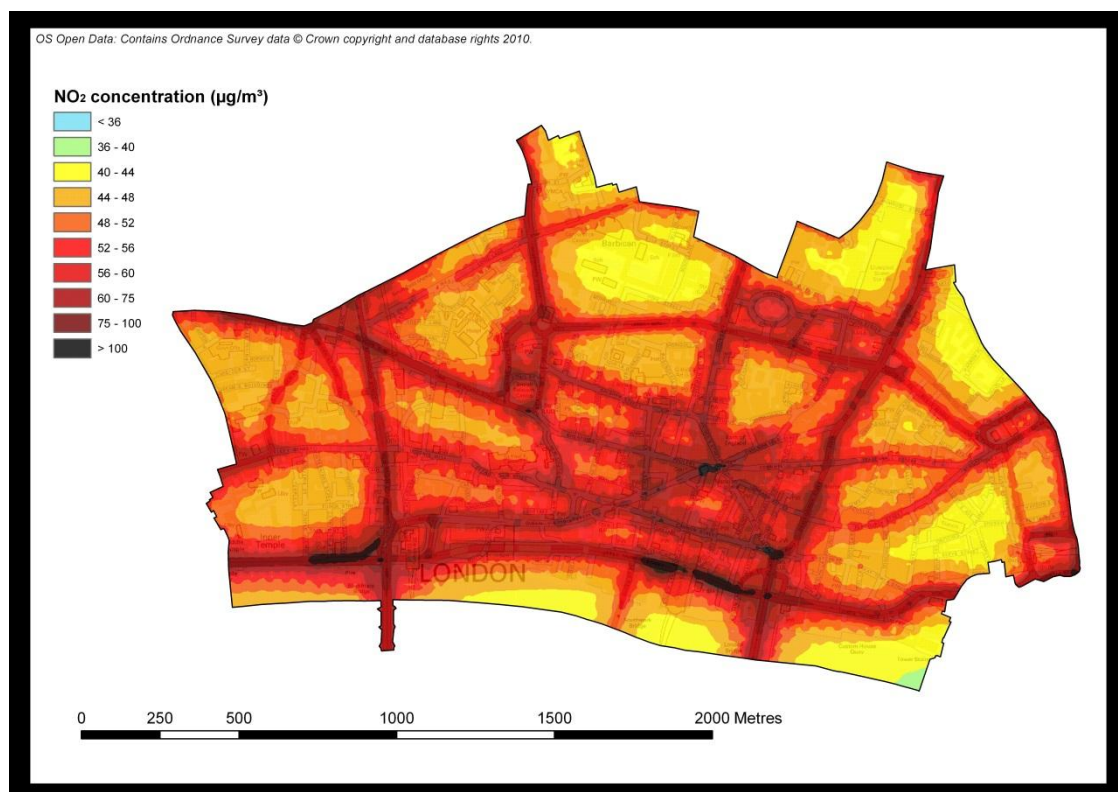


Figure 2: Modelled NO₂ levels for 2015

2.3.2 Figure 2 demonstrates that the main source of air pollution in the City is road vehicles and concentrations of pollution are highest adjacent to busy roads, such as Upper Thames Street. Nitrogen dioxide levels decrease with increasing distance from the edge of the road and with height. Please contact the Air Quality Team for the latest concentration information via cityair@cityoflondon.gov.uk

2.3.3 Suitable development and building design can further increase distances between sources of air pollution and human receptors thereby reducing the

pollution exposure of building occupants and outside space users. This is particularly relevant where developments include sensitive uses such as medical centres, hospitals, residential units, schools and children's playgrounds. Reducing exposure through development and building design can be achieved through appropriate:

- building ventilation
- outdoor private and communal space
- public realm design
- green roofs, walls and planting

2.3.4 **Building Ventilation:** The City Corporation requires the impact of outdoor air pollution on indoor air quality in new developments be taken into account at the earliest stages of building design. This includes ensuring:

- ventilation inlets and the location of opening windows are on higher floors away from sources of air pollution at the ground level, but also away from stationary sources such as combustion plant (see [section 3.6](#))
- air conditioning systems can be fitted with filters which filter particulates and NO₂; the appropriate standard filter should be maintained following installation. See case study links in [Appendix B](#).

2.3.5 **Outdoor Private and Communal Space:** Roof gardens and terraces are a common feature in City developments. The location of outdoor space in relation to sources of air pollution (for example busy roads and boiler flues) is an important consideration. Exposure should be minimised through appropriate positioning and orientation of the space away from busy roads and combustion sources, where this also meets the requirements of the Local Plan to protect the amenity of neighbouring building occupiers.

2.3.6 **Public Realm:** Where public realm forms part of the development this provides an opportunity to encourage low pollution areas where people can spend time away from busy roads. The development should therefore incorporate design (where possible) that provides low pollution routes through the development, so that these routes are taken instead of along busy roads. The Public Realm should ensure that recreational, seating and exercise areas are away from or screened from sources of pollution, for example by greening. Further details can be found in guidelines 9.1 and 14.2 of the [Public Realm SPD](#), and are presented in [Appendix C](#)

2.3.7 **Green Roofs, Walls and Planting:** As well as increasing biodiversity, plants can play a role in trapping fine particles (PM₁₀ and PM_{2.5}) found in the air we breathe. Research indicates that plants with small leaves (which disrupt the flow of air) and fine hairs on their surface work best; however, leaves which cover a large surface or are grooved also provide surfaces upon which particles can be trapped. See [Appendix B](#) for more information and the types of plants which may be beneficial. To help improve air quality, developers are encouraged to source trees and plants which have these characteristics to include in open spaces, and on green walls and roofs. The selection of

species should also have regard to future climate conditions and reference needs to be made to the [City of London Tree Strategy SPD](#). See [Appendix B](#) for links to additional research, guidance and green roofs and walls case studies.

- 2.3.8 **Combustion Exhaust:** Care should be taken to locate flues and exhaust vents away from recreational areas such as open spaces, roof terraces or gardens. Consideration also needs to be given to emission points associated with neighbouring roofs. See [section 3.6](#) for a consideration of flue and exhaust position.

3 Heating and Energy Supply

Overall Objective: to minimise the use and emissions from combustion plant within the building.

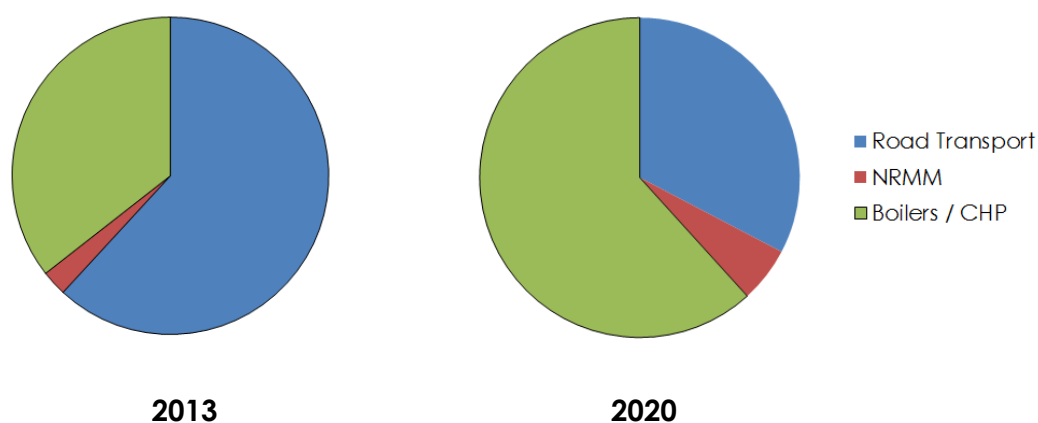
To fulfil the requirements of Local Plan Policy 15.6 (2), (3), (4) & (6) and London Plan Policies 5.3 and 7.14

3.1 Background

3.1.1 The sustainable design principles require that developments make the fullest contribution to the mitigation of, and adaptation to, climate change and minimise emissions of carbon dioxide. The adoption of technologies to generate heat and energy from efficient and/or renewable sources, such as solar water heating, district heating, air and ground source heat pumps and/or photovoltaic panels in major developments can minimise air pollution emissions. This is due to the technologies either not requiring combustion or, in the case of district heating, being more efficient at heating than individual boilers.

3.1.2 It should be noted that the main source of NO_x in the City is currently road transport. However, there is a predicted shift by 2020 to boilers and CHP generating a greater proportion of NO_x (see figure 3). Zero and low NO_x technology is therefore strongly encouraged.

Figure 3 Anticipated changes in the source of NO_x in the City of London
(source: London Atmospheric Emission's Inventory 2013)



3.2 Energy Hierarchy

3.2.1 In accordance with the City Corporation's Local Plan:

- Buildings should be designed to be energy efficient to reduce the need and size of heating plant which overall minimises the buildings air quality footprint.
- Where required, energy should be provided through low and zero emission technology.

- With regard to Policy 5.6 of the London Plan, decentralised energy in development proposals:
 - a** should evaluate the feasibility of Combined Heat and Power (CHP) systems, and where a new CHP system is appropriate also examine opportunities to extend the system beyond the site boundary to adjacent sites.
 - b** should select energy systems in major developments in accordance with the following hierarchy:
 - connection to existing heating or cooling networks;
 - site wide CHP network;
 - communal heating and cooling;
 - c** should consider potential opportunities to meet the first priority in this hierarchy as outlined in the London Heat Map tool. Where future network opportunities are identified, proposals should be designed to connect to these networks.

3.2.3 It is acknowledged that the GLA energy hierarchy policies may change with the development of London Environment Strategy and the new London Plan. Developers should have regard to the emerging policies at the time of application.

3.3 Gas Boilers

3.3.1 Wherever possible operators should design the building so that there is no need for combustion plant. If gas boilers are installed in developments they must be low NO_x boilers¹, this includes where the installation is part of a refurbishment. The City Corporation would prefer that the lowest possible NO_x emission technology is sourced and installed. As a MINIMUM, the dry NO_x level must be less than 40mg/kWh. The City Corporation is aware of developments where ultra-low NO_x appliances (less than 15mg/kWh NO_x emissions) have been installed. The use of ultra-low NO_x technology is therefore actively encouraged.

3.3.2 It should be noted that Maximum BREEAM credits can be gained for low NO_x technology.

3.4 Biomass or Biofuel Boilers and CHP

3.4.1 When sited and specified appropriately in accordance with the energy demands of the building, CHP systems and biomass or biofuel boilers can have benefits in terms of carbon emissions. However, they can give rise to significantly higher emissions of NO_x and/or PM₁₀ emissions than regular gas boilers, and developers should ensure that the emission standards set in the Mayor's SDC SPG are not exceeded¹. The SDC SPG does not currently provide guidance where plant is <50kWth input. The City would expect such plant to meet a NO_x emission limit of <50mgNm³ at 5% O₂ (dry gas) as a minimum.

¹ Following the publication of the government's Housing Standards Review in March 2015, the requirement for low NO_x boilers and the on-site energy generation limits referenced cannot be required for developments that are only residential. However, the Mayor of London and national government have obligations regarding compliance with the EU limits for ambient concentrations. In order to address those obligations, in particular with respect to NO₂, developers are strongly encouraged to implement this guidance.

- 3.4.2 When considering how to achieve, or work towards the achievement of, the renewable energy targets, the City Corporation would prefer developers not to consider installing a biomass burner due to the City's status as an Air Quality Management Area for fine particles and nitrogen dioxide. Research indicates that the widespread use of these appliances has the potential to increase particulate levels in London to an unacceptable level.
- 3.4.3 As the CHP kWth input requirement increases, opportunities to achieve the required low NO_x technology are more complex, for example the need for single catalytic reduction (SCR), which has a similar space requirement to the CHP and has on-going costs. Where the CHP requirement would require the use of SCR to meet the NO_x emission standard, opportunities should be investigated to install smaller units with NO_x abatement to meet the demand.
- 3.4.4 Where CHP, biomass or biofuel boilers are proposed, plant emissions must be evaluated as part of a detailed Air Quality Impact Assessment (see [Section 5](#)). Where permitted, the appliance will be required to meet high standards of air pollution control, with particular emphasis on:
- plant design and operation;
 - pollution abatement equipment;
 - the servicing and maintenance regime;
 - fuel quality, storage and delivery; and
 - exhaust stack height, to reduce the risk of increasing exposure.
- 3.4.5 Prior to CHP, biomass or biofuel plant coming into operation the following details must be submitted to and approved in writing by the Local Planning Authority; this will be conditioned within the planning consent:
- The results of an emissions test demonstrating compliance with the emission and efflux velocity requirements of the SDC SPG.
 - An equipment maintenance schedule demonstrating that the emission standard would always be met.

3.5 Generators

- 3.5.1 Diesel generators have high emissions of NO_x and PM₁₀ and their use in the City is discouraged due to their negative impact on air quality. Where a secondary electrical power supply cannot be assured, where possible, alternate technology generators should be sourced for the building (e.g. gas fired or battery backup). For construction sites, a temporary building supply should be secured prior to the commencement of works in order to avoid the use of diesel generators on site (in line with Policy DM2.1.2).
- 3.5.2 Where permanent standby diesel generators are installed, they should be the newest Euro standard available and where possible, their use should be limited to life saving and emergency situations and testing only. Where generators are supplied for business continuity, abatement to reduce emissions should be investigated. The type, siting and use of the generator should be carefully considered at the planning stage in relation to up to date guidance (see [Appendix B](#)).

3.5.3 Due to the air quality impact of generators and their potential to cause a statutory nuisance, the use of generators to supply the national grid at times of supply restriction and limitation is discouraged.

3.5.4 Generator hierarchy overview:

- Source a secondary supply
- Alternate technology e.g. battery reserve / gas generators
- Diesel fuelled generators (newest Euro standard only)
 - Life-saving and testing only
 - Business continuity with abatement

3.6 Combustion Flues and Efflux Velocity

3.6.1 A consideration of combustion flue location and emission discharge velocity is required at the planning stage to ensure appropriate provision has been made. All combustion plant (boilers, generators, CHP etc.) must terminate as a minimum at least 1 metre above the highest point of the building of which the plant serves, or as specified by the approved Air Quality Impact Assessment, unless agreed with the City Corporation. With regard to this requirement, consideration needs to be paid to the location of outside amenity space associated within the development and its neighbours.

3.6.2 A Clean Air Act 1993 Chimney height approval needs to be sought where a furnace is burning liquid or gaseous matter at a rate of 366.4 kilowatts or more or burning pulverised fuel or any solid matter at a rate of more than 45.4 kilograms or more an hour. Flues associated with this plant should therefore be at the recommended heights above nearby buildings and installed at least 3m above any general access areas and should meet discharge velocities above the recommended minimum. With regard to CHP and biomass boilers, discharge velocity requirements are provided in Appendix 7 of SDC SPG, or any updates thereof.

4 Reducing Dust and Air Quality Impacts during Construction

Overall Objective: to reduce NO₂ and PM₁₀ and PM_{2.5} emission during the deconstruction and construction phase through the use of zero and low emission technology and good site management. To fulfil the requirements of Local Plan Policy 15.6 (5) and London Plan Policies 5.3 and 7.14.

4.1 Background

- 4.1.1 Dust and other emissions from the construction and demolition of buildings have the potential to significantly impact local air quality. Appropriate emission and dust control mitigation measures are outlined in the Mayor's *The Control of Dust and Emissions During Construction and Demolition SPG* (CDECD) and have been incorporated into Chapter 4 of the City Corporation's *Code of Practice for Deconstruction and Construction*.
- 4.1.2 The Scheme of Protective Works (see section 4.4) submitted once planning permission is granted should include an Air Quality and Dust Management Plan (AQDMP) to ensure best practice mitigation measures are implemented during the deconstruction and construction phases of a development.



4.2 Risk Categorisation in the City Environment

- 4.2.1 The Mayor's CDECD SPG (2014) provides guidance with regard to which construction sites are considered high risk. Due to the building density in the City and un-predictable wind directions associated with high buildings, all sites are considered high risk, therefore maximum control measures in line with the City's Code of Practice and Mayor's SPG should be employed, to mitigate against dust and emission releases.

4.3 Continuous Monitoring

- 4.3.1 The CDECD SPG suggests that continuous monitoring for particulate matter is required at high risk sites. However, reliance on the results of continuous monitoring as an indicator that the site is doing all it can to reduce emissions is not sufficient due to the density and wind direction factors in the City mentioned above. As such, a greater emphasis should be placed on control measures such as damping down and site management (e.g. no-idling policy and NRMM compliance, see section 4.5 below).

- 4.3.2 Continuous monitoring positioned between construction sites and sensitive land users, such as buildings with opening windows, outside amenity and residential developments, is beneficial with regard to providing assurance to neighbours; however its reliance as an indicator of good site management is limited due to the above.

4.4 Scheme of Protective Works

- 4.4.1 As all developments in the City of London are considered high risk with regard to air quality impacts, an Air Quality and Dust Risk Assessment (AQDRA) as stated in the CDECD SPG is not required during the application phase; however, an Air Quality and Dust Management Plan (AQDMP) must be included in the **Scheme of Protective Works** submitted to, and approved by the City Corporation prior to works commencing on-site,
- 4.4.2 The AQDMP in the Scheme of Protective Works should contain the information detailed in the most recent version of the City Corporation's Code of Practice for Deconstruction and Construction.

4.5 Non-Road Mobile Machinery (NRMM)

- 4.5.1 The NRMM policy is set out in the Mayor's Dust and Emissions SPG. Since 1 September 2015 NRMM of net power between 37kW and 560kW used in Central Activity Zone or Canary Wharf are required to meet the standards set out below. This applies to both variable and constant speed engines for both NO_x and PM. These standards are based upon engine emissions standards set in EU Directive 97/68/EC and its subsequent amendments.
- 4.5.2 NRMM (within the above kW range) used on any site within the City will be required to meet Stage IIIB of the Directive as a minimum. From September 2018, this requirement changes to Stage IV. Any amendments of the policy and guidance must also be adhered to.
- 4.5.3 Prior to the commencement of any works, all developments within the City must register relevant NRMM online at www.nrmm.london/register. There are a small number of permitted exemptions to the above, and more details can be found at the website: www.nrmm.london
- 4.5.4 The AQDMP submitted should provide a commitment to adhering to this policy, or any update thereof.

5 Assessing Air Quality Impacts in the City of London

Overall Objective: *to ensure that new and changes to development do not adversely affect air quality in the Square Mile.*

To fulfil the requirements of Local Plan Policy 15.6(1) & (4) and London Plan Policies 5.3 and 7.14

5.1 Background

5.1.1 The City Corporation assesses the impact of development on air quality to ensure that proposals will not impact negatively on the air quality in the Square Mile. In line with the policy context in London, the City Corporation requires all new major developments to be at least '**air quality neutral**', and if necessary, to be accompanied by an **Air Quality Impact Assessment**. This approach will manage and prevent further deterioration of existing poor air quality. The sections below set out the City Corporation's requirements.

5.2 Air Quality Neutral Assessments

5.2.1 As part of the application process, for major developments (a floor space of 1000m² or more or 10 or more residential units), the development's building and transport emissions must be calculated and compared to the Air Quality Neutral Benchmarks. As required by London Plan Policy 7.14, all major developments must be air quality neutral or better. See Appendices 5 and 6 in the SDC SPG and Air Quality Neutral Planning Support Update: GLA 80371, April 2014, or updated subsequent guidance².

5.2.2 It is acknowledged that there is an emerging policy relating to developments being air quality 'positive' rather than air quality 'neutral' and Developers should have regard to this new guidance if it is available at the time of application.

5.2.3 The air quality neutral assessment should be submitted with the planning application. There are two elements to the air quality neutral assessment that developers are required to take into account:

- determine the relevant emission benchmark for **buildings** for NO₂ and PM₁₀ at the site, based on its land use class and location; then, calculate the site's NO₂ and PM₁₀ emissions from buildings and compare them with the buildings benchmark. The report should present the data used in the calculation, including the plant emission data; and

² Note: Following the publication of the government's Housing Standards Review in March 2015, the Air Quality Neutral benchmarks and on-site energy generation limits referenced cannot be required for developments that are residential only. However, the Mayor of London and national government have obligations regarding compliance with the EU limits for ambient concentrations. In order to address those obligations, in particular with respect to NO₂, developers are strongly encouraged to implement the guidance detailed.

- determine the relevant emission benchmark for **transport** for NO₂ and PM₁₀ at the site; then, calculate the site's NO₂ and PM₁₀ emissions from transport and compare them with the transport benchmark. The report should present the data used in the calculation.

5.2.4 Both building and transport emission benchmarks should be met in order to achieve air quality neutral requirements. The calculation should be submitted with the planning application. Where the benchmarks cannot be met developers must undertake mitigation in discussion with the City Corporation and/or make a contribution to off-setting their emissions as described in Section 6.

5.3 Air Quality Impact Assessments

5.3.1 An Air Quality Impact Assessment will be required in the circumstances detailed in section 5.3.2 below. The sections which follow provide advice on carrying out the impact assessment, which should be submitted with the planning application.

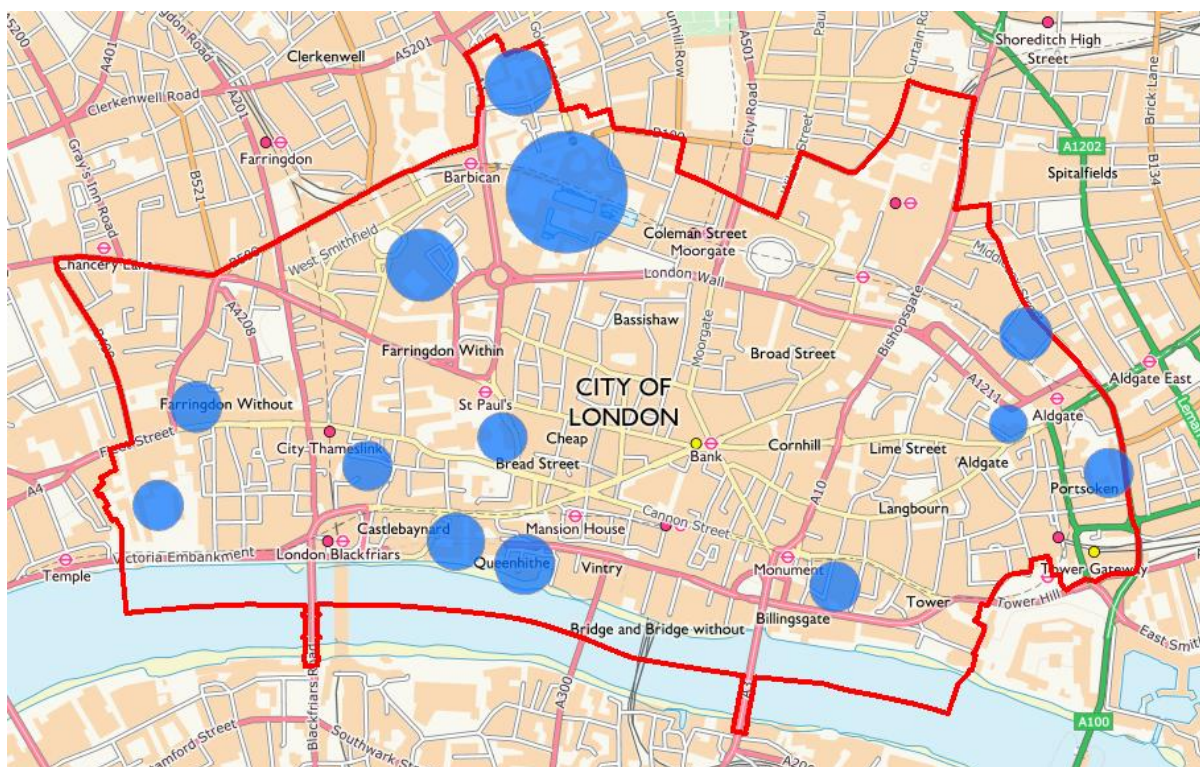
Criteria to conduct an Air Quality Impact Assessment

5.3.2 A detailed Air Quality Impact Assessment must be submitted at the application stage for **major developments** which:

- are in close proximity to a sensitive land use.** This includes developments within 50m of the locations shown in figure 4 overleaf (*including large residential areas - as detailed in the Local Plan, schools, nurseries and St Bartholomew's Hospital*)
- create a significant change in traffic.** In developments that introduce, or increase car parking facilities by 100 spaces or more, or with the potential to significantly change road traffic on any road exceeding 10,000 vehicles per day. Significant changes include:
 - increase in traffic volumes > 5% (Annual Average Daily Traffic (AADT) – or peak);
 - lower average vehicle speed or significant increase in congestion;
 - significant increase in the percentage of HGVs;
- are associated with the **Environmental Permitting Regulations**
- developments requiring an **Environmental Impact Assessment**

For **all** developments which:

- expose sensitive or a high number of people to air pollution:** This includes schools, hospitals and developments with more than 75 homes; or where people will be exposed to poor air quality for significant periods of the day, in particular developments located on busy roads where exceedences of the air quality objectives are seen (see figure 2 in Section 2).
- involve the following energy generation:** CHP, biomass or biofuel plant.



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(see <https://www.cityoflondon.gov.uk/maps/Pages/interactive-maps.aspx>)

Figure 4
Location of Sensitive Land Use

Requirements of an Air Quality Impact Assessment

5.3.3 The scope of an air quality impact assessment is:

- To assess local air quality pollutants and dust
- To assess the current baseline situation in the vicinity of the proposed development;
- To predict the future impact in the first year of operation, both with and without the proposed development, but including all consented development, by calculating statistics that can be compared with the air quality objectives.

This information should be provided in the assessment report.

5.3.4 The following advice should be followed when conducting the Air Quality Impact Assessment:

- (a) **Emissions:** Create an inventory of the PM₁₀, PM_{2.5} and NO_x emissions associated with the proposed development, including the type and quantity of emission concentrations, during the construction and operational phase. This shall cover transport, stationary and mobile emission sources. Sources of data include Defra's Emissions Factor Toolkit for emissions from traffic and the London Atmospheric Emissions Inventory (LAEI). The assessment shall include a commitment to low NO_x technology for boilers and CHP where applicable.

- (b) **Sensitive receptors:** Sensitive receptors, at relevant heights, that could be affected by the development must be identified as part of the assessment (and shown on a map).
- (c) **Exposure:** An indication of the number of new occupiers and users of the site who will be exposed to poor air quality as a result of the development (the occupiers/users should also be shown on a map).
- (d) **Cumulative impacts:** Consider the potential cumulative impacts on air quality which may arise during the construction or operational phases as a result of emissions arising from other developments which are planned within a 100m radius of the development.
- (e) **Impact and Significance:** Standard impact descriptors (for example as detailed in the Institute of Air Quality Management Guidance) should be used to describe the air quality impact of the development on relevant receptors. A professional judgement with regard to the significance of the impact should be provided. However, as detailed in the Association of London Government (ALG) 2006 guidance, the City Corporation will ultimately decide the air quality significance of the development.
- (f) **Mitigation:** As detailed in section 4.2 all sites in the City are deemed to be high risk with regard to the demolition and construction phases. Mitigation to reduce emissions during these phases should be detailed in the assessment. An outline of, and justification for, mitigation measures associated with the design, location and operation of the development in order to reduce air pollution and exposure to poor air quality should also be included.

Dispersion Modelling Requirements:

- 5.3.5 Dispersion modelling shall be carried out in accordance with appropriate guidance see Appendix B. Due to the complex nature of the City's environment, the type of model selected must be appropriate for a complex urban environment with tall buildings and street canyons.
- 5.3.6 The assessment must specify the model inputs and verification (where appropriate), assumptions made (for example plant operating hours and conditions) and technical details related to the proposed appliance, fuel type, emission concentrations, and maintenance and exhaust stack details.
- 5.3.7 The assessment must include a prediction of the current baseline and future PM₁₀, PM_{2.5} and NO_x concentrations. Predictions of future concentrations should be both with and without the proposed development.
- 5.3.6 Where proposed plant uses biomass or biofuel, the detailed Air Quality Impact Assessment shall also compare the impact of emissions from the proposed biomass boiler/CHP and a gas boiler/CHP of identical thermal rating.

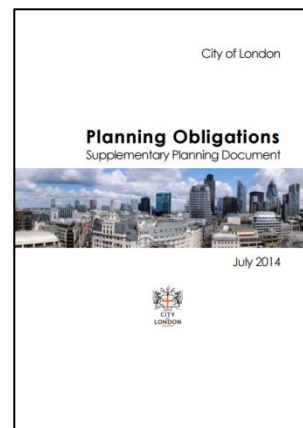
Overarching Principles of Assessment

- 5.3.9 When conducting the assessment, developers must assess the **cumulative impact** of multiple sources from the new development e.g. the combined impact of vehicles and energy sources. The developer must also assess the cumulative impact of the proposed development with all consented developments nearby. Consideration of proposed but not yet consented development may be required and developers should check with the Air Quality Team before commencing a study.
- 5.3.10 Where applicable, assessments should be carried out using a **worst-case approach**. For example, if certain parameters are unknown, worst case assumptions should be used to ensure that assessment results are conservative in nature.

6 Planning Conditions and Section 106 Obligations in the City of London

6.1 Background

- 6.1.1 Planning permission can be granted subject to planning conditions. Conditions are a useful tool to enhance the quality of a development and to ameliorate any adverse impacts that might otherwise arise. A planning obligation (under Section 106 of the Town and Country Planning Act 1990 (as amended)) can also be used as a site specific mitigation mechanism. The Community Infrastructure Levy (CIL) and Planning Obligations ensure that a development contributes to the improvement of the City's environment and facilities. See the [City Corporation's website](#) for more information.



- 6.1.2 The Mayor of London also operates a CIL and planning obligations to raise funds towards meeting the cost of Crossrail. These measures apply across Greater London, including the City. [Visit the Mayor's website for further information](#). These measures do not directly address air quality, although the opening of Crossrail might result in a reduction in the need to use motorised transport in and into the City.

6.2 Community Infrastructure Levy (CIL)

- 6.2.1 The CIL is a charge on new development that is used to help fund the provision of infrastructure necessary to support development in the City of London. The CIL operates through a charging schedule and is supported by a 'regulation 123 list' which outlines the broad types of infrastructure that will be funded. The amount of CIL received and expended is monitored and reported on an annual basis. See the website for more details.
- 6.2.2 Most developments where there is an increase in floorspace of at least 100m² will be required to pay the CIL. There is no specific air quality component to the CIL within the City of London, but the Regulation 123 list identifies a range of infrastructure investment which could mitigate the impacts of airborne pollution in the City (e.g. through the provision and improvement of open spaces), reduce the potential for emissions (e.g. through decentralised energy facilities or transport and public realm improvements leading to a reduction in vehicular traffic in specific areas).

6.3 Planning obligations – S106

- 6.3.1 Within the City of London, planning obligations (often called s106 agreements) are agreements with developers for the provision of site-specific mitigation measures necessary to ensure a development meets the requirements of the Local Plan and for affordable housing, local training, skills and job brokerage. The City Corporation's Supplementary Planning Document (SPD) explains how obligations are operated.
- 6.3.2 The City of London Local Plan Policy CS4 indicates that s106 planning obligations will be used to address site specific mitigation. The National Planning Practice Guidance indicates that planning conditions and obligations can be used to secure air quality mitigation where the relevant tests are met (Paragraph: 008 Reference ID: 32-008-20140306).

Core Strategic Policy CS4: Planning Contributions

To manage the impact of development, seeking appropriate developer contributions:

1. Requiring contributions through the Community Infrastructure Levy to assist in the delivery of the infrastructure necessary to support implementation of the Local Plan.
2. Requiring s106 planning obligations, having regard to the impact of the obligation on the viability of development, for:
 - (i) site specific mitigation meeting statutory tests;
 - (ii) affordable housing;
 - (iii) local training, skills and job brokerage;
 - (iv) local procurement in the City and City Fringe.
3. Requiring qualifying development to make an additional contribution to meeting the costs of Crossrail construction in accordance with the provisions of the London Plan.

- 6.3.3 Paragraph 62 of the City Corporation's Planning Obligations SPD indicates that the City Corporation may seek additional or alternative s106 planning obligations to those listed in the SPD where justified by local circumstances or to deliver other priorities in the Local Plan and where such planning obligations meet statutory tests.
- 6.3.4 Section 106 planning obligations may be used to ensure that construction sites meet various requirements for the control of dust and emissions from construction and demolition, and to ensure that monitoring is put in place on High Risk Sites.

6.4 Conditions

- 6.4.1 Conditions seeking to improve air quality may take a number of forms with the aim of reducing impacts on air quality and reducing exposure. Planning conditions will meet government requirements set out in the National Planning Practice Guidance.

Appendix A: Air Quality Planning Checklist

SPD Section	What	Summary of requirement	Required/ submitted (Y/N)	Detail / Doc Ref
Application				
5	Air Quality Neutral Assessment	Major developments (1,000m ² or more or 10 Residential dwellings or more)		
5	Detailed Air Quality Impact Assessment	major developments when it: • is within 50m of sensitive use • creates a significant change in traffic (see explanation) • creates exposure for long periods of the day • requires an EIA or involves EPR For all developments which: • exposes sensitive or a high number of people to air pollution (schools, hospitals and >75 residential properties) • include CHP, biomass or biofuel plant		
2	Sustainable Travel	As per requirements in Local Plan Core Strategy CS16 (4) V		
2/3	Energy Efficiency	Energy Statement (where applicable)		
Application Consideration				
2	Ventilation inlets	• inlets away from source of pollution • Filtration for particles and NO₂		
2	Private Outdoor space	• Away from combustion sources e.g. roads		
2	Public Realm	• Low pollution routes through development • Away from pollution sources		
2	Greening	• Air quality plants • Screening from pollution source		
2/3	Combustion Flues	• 1m above highest roof. • 3m above general access areas. • Away from air intakes • Location plan		
3	Combustion Plant	Submit intention for: • Low NO_x boilers and NO_x CHP • Exclusion of biomass / biofuel • Minimised generator use		

Appendix B: Research, Good Practice and Guidance

In order to reflect changing technology and opinion, the links below contain guidance and case studies which are considered best practice. These pages will be updated to reflect efforts to improve air quality. Updated best practice guidance will not be applied retrospectively once planning permission has been granted. Notwithstanding this, as changes to guidance will be to improve air quality, the developer is requested to have due regard to the new content where possible.

Section 2: Development and Building Design	Case Studies / Research Sustainable Design Case Studies – City of London Website Building Ventilation (particulates) - Camfil Building Ventilation (nitrogen dioxide) – to follow Green Roofs Case Studies - City of London Website Green Walls Case Studies – City of London Website Delivery and Servicing Case Studies – to follow Air Quality and Planting Research – Kings College 2015 Air Quality Planting – Friends of City Gardens Website Guidance GLA: Sustainable Design and Construction SPG Sustainable Development Planning Requirements – City of London Website Delivery & Servicing Plans (DSP) – City Guidance 2017 Construction Logistic Plans (CLP) – TFL Guidance 2013 Transport Assessments – TFL Guidance – May 2006 Travel Plans – City of London Advice Notes City of London Air Quality Planting Guide – to follow
Section 3: Heating and Energy Supply	Case Studies / Research To follow Guidance Minimising Emissions from Generators – City Guide 2012 City of London CHP Guide – to follow Alternatives to Diesel Generators – to follow EPUK Guidance - CHP and Biomass
Section 4: Reducing dust and Air Quality impacts during construction	Case Studies / Research To follow Guidance GLA: The Control of Dust and Emissions During Construction and Demolition SPG City of London Code of Practice for Deconstruction and Construction

Section 5: Assessing Air Quality Impacts in the City of London	Case Studies / Research To follow Guidance: LLAQM TG016 - 2016 Institute of Air Quality Management Guidance - Planning for Air Quality 2017 Association of London Government Guidance 2006 City of London Air Quality Assessment Guide – to follow
Section 6: Planning Obligations	Case Studies / Research to follow Guidance: Community Infrastructure Levy and Planning Obligations - City of London Website

Appendix B Amendment Log:

Date	Action

Appendix C: Supporting Strategies and SPD's

C1: Air Quality Strategy

There are ten policy areas in the City Corporation's Air Quality Strategy and all policy areas detail a number of actions, Policy 6 relates to reducing emission from new developments. The air quality strategy can be found at: www.cityoflondon.gov.uk/air

1. Air quality monitoring
2. Political influence and commitment
3. Working with the Mayor of London
4. Working with other external organisations
5. Reducing emissions from transport
6. Reducing emissions from new developments
7. Leading by example
8. Recognising and rewarding good practice
9. Raising awareness
10. Air quality and public health

C2: Supporting Strategies and SPD's

The City Corporation has a number of strategies and SPDs which support the implementation of the Local Plan and Air Quality Strategy. These documents can be found on the City of London website; it should be noted that a Freight SPD is being developed at the time of this SPD's publication. The following are the main strategies that support air quality improvements.

Health and Wellbeing Strategy: The air quality strategy also supports the Health and Wellbeing Strategy's overarching aims to promote the health and wellbeing of residents and workers in the City.

Open Spaces Strategy (adopted as an SPD): Seeks to promote the contribution of open spaces to the health and wellbeing of City and wider communities through use of trees and shrubs and other vegetation to counter air pollution, designs that encourage people to stay away from the busiest routes & designs that protect those most vulnerable to the effects of air pollution. See the excerpt overleaf:

9. Promote the potential contribution open spaces can make to the improved health and well-being of City and wider communities.

- 4.2.33 There are several ways in which open spaces can help improve the health of the City's communities. These include allowing people to relax and exercise, enabling cultural events where space and funding are available and providing opportunities for community cohesion through volunteering activities.
- 4.2.34 Equipment in open spaces that can be used for play and/or exercise can encourage people to improve their health and fitness. Such equipment may be appropriate in spaces where the long-term maintenance of the equipment can be paid for through developer contributions.
- 4.2.35 The main source of air pollution in the City is road vehicles. The following issues should be considered when designing open space schemes to improve the health of the City's communities:
- The use and siting of trees and shrubs and other vegetation that has a positive benefit on air quality. Deciduous trees are preferable because of their ability to capture pollution;
 - Designs that encourage people to spend time away from the busiest, most polluted roads. This will help to reduce exposure to the highest levels of pollution in the City;
 - Designs that protect the people most vulnerable to poor air quality such as children and the elderly.

Public Realm SPD contains two relevant air quality Aims and Guidelines:

4.9 Aim 6: More sustainable streets and spaces

- 4.9.1 The enhancement and management of the public realm should embrace sustainability as an overarching and long term approach. This should include bio-diverse planting schemes, which are robust and resilient to future climate conditions and which minimise the need for high levels of maintenance, along with Sustainable drainage systems, improved air quality, reduced noise, and the use of sustainable and long life materials that can be re-laid and are easily maintained.

4.10 Aim 7: Support and encourage wellbeing and healthy lifestyles

- 4.10.1 The City's public realm should be planned, designed and managed in ways that positively influence the health and wellbeing of workers and residents. This includes improving air quality and encouraging healthy modes of transport such as walking and cycling.

9.2 Air quality

Guideline 9.1: Traffic management schemes and public realm proposals should incorporate measures to lower emissions and reduce the harm caused by poor air quality.

- 9.2.1 The whole of the City of London is designated as an Air Quality Management Area. It has some of the highest levels of air and noise pollution in the country due to the density of development and its geographical location.
- 9.2.2 The main source of air pollution in the City is road vehicles. Concentrations of pollution are highest adjacent to the busiest roads, such as Upper and Lower Thames Street. The City Air Quality Strategy 2015-2020 outlines a number of measures that are being taken to improve air quality in the Square Mile.
- 9.2.3 Streets can be designed not only to assist in the overall improvement of air quality, but also to reduce an individual's exposure to pollution. For example, concentrations of some pollutants fall off with increasing distance from the edge of the road.
- 9.2.4 The following responses should be considered in traffic management and enhancement schemes, where appropriate:
- The use of trees and other vegetation that has a positive effect on air quality.
 - Designs that encourage people to walk and cycle rather than use motorised transport.
 - Provide alternative 'quiet' cycle and pedestrian routes away from main roads.
 - Traffic restrictions in areas of high exposure to poor air quality.
 - Designs that encourage people to spend time away from the busiest, most polluted roads.
 - Defined 'engine off' areas, such as bus stands, taxi ranks and tourist coach parking.
 - Smoothing the flow of traffic by reducing congestion, stop-start traffic and traffic queues and the consequent emission 'spikes'.
 - Designs that protect and segregate play and exercise activities from areas of poor air quality.

14.4 Active travel

Guideline 14.2: Practical measures to encourage active travel should be incorporated into traffic management schemes and enhancement proposals for streets and spaces.

- 14.4.1 The layout of towns and cities and the design and quality of the street environment can directly influence activity levels, especially walking and cycling. Designing streets to promote active travel, such as cycling and walking, can reap the additional benefits of increasing physical activity, reducing the risk of obesity, reducing morbidity from air pollution and reducing the risk of road traffic accidents.
- 14.4.2 Practical measures include the provision of cycle facilities, wider and less cluttered footways with better crossing facilities, increased pedestrian priority and safer crossings and junctions.

Appendix D: Local Plan Policies

In assessing schemes that may affect air quality in the City of London the City Corporation will have particular regard to the following specific policies relating to air quality and health found in the Local Plan.

D1: Local Plan and Air Quality

Air quality sits in Core Strategic policy CS15 and the main supporting DM Policy is DM15.6. The relevant excerpts are detailed below:

Local Plan: Sustainable Development and Climate Change – Core Strategic policy CS15:

The aim of this strategy is to enable businesses and residents to make sustainable choices in their daily activities, creating a more sustainable City, adapted to the changing climate, by...*requiring development to positively address: local air quality, particularly nitrogen dioxide and particulates (PM₁₀) the City's Air Quality Management Area Pollutants.*

Local Plan Policy DM15.6 Air Quality

- 1) Developers will be required to consider the impact of their proposals on air quality and, where appropriate, provide an Air Quality Impact Assessment.
- 2) Development that would result in deterioration of the City's nitrogen dioxide or PM10 pollution levels will be resisted.
- 3) Major developments will be required to maximise credits for the pollution section of the BREEAM or Code for sustainable Homes assessment relating to on-site emissions of oxides of nitrogen (NO_x).
- 4) Developments will be encouraged to install non-combustion low and zero carbon energy technology. A detailed air quality impact assessment will be required for combustion based low and zero carbon technologies, such as CHP plant and biomass or biofuel boilers, and necessary mitigation must be approved by the City Corporation.
- 5) Construction and deconstruction and the transport of construction materials and waste must be carried out in such a way as to minimise air quality impacts.
- 6) Air intake points should be located away from existing and potential pollution sources (e.g. busy roads and combustion flues). All combustion flues should terminate above the roof height of the tallest building in the development in order to ensure maximum dispersion of pollutants.

D2: Local Plan: Health and Wellbeing related to Air Quality

Core Strategic Policy CS8 – Aldgate

...Improve the amenities around the Aldgate area, and seek to improve opportunities for health care services and facilities for residents.....

4) Enhancing the public realm of the Aldgate area, its streets and spaces....Identifying opportunities for urban greening schemes, congestion and **pollution reduction measures**, particularly in the vicinity of Sir John Cass School and Middlesex Street and Mansell Street Estates.....

Core Strategic Policy CS21: Housing

Policy DM 21.5 ...Housing Quality Standards – All new housing has to be of a standard that facilitates the health and wellbeing of occupants.....

Core Strategic Policy CS22 – Social Infrastructure & Opportunities – ...Maximise opportunities for the City's residential and working communities to access suitable health facilities...and opportunities, while fostering cohesive communities & healthy lifestyles.....

2(iv) ensuring that the **use, design and management** of new development and spaces help deliver healthy outcomes, particularly for more deprived residents.....

4(II) protecting and enhancing existing education facilities including schools, adult and higher education premises, and ensuring that new facilities are **sited in appropriate locations**.....

D3: Local Plan with reference to Section 2: Building Design

Local Plan Policy DM15.6 Air Quality

- 2) Development that would result in deterioration of the City's nitrogen dioxide or PM10 pollution levels will be resisted.
- 3) Major developments will be required to maximise credits for the pollution section of the BREEAM or Code for sustainable Homes assessment relating to on-site emissions of oxides of nitrogen (NOx).
- 6) Air intake points should be located away from existing and potential pollution sources (e.g. busy roads and combustion flues). All combustion flues should terminate above the roof height of the tallest building in the development in order to ensure maximum dispersion of pollutants.

Policy DM 3.4 – Traffic Management –Require developers to reach agreement with the City of London & TFL on the design and implementation of traffic management & highway security measures.....

Local Plan Policy DM 10.4 – Environmental enhancement – ...The City Corporation will work in partnership with developers, TFL & other organisations to design and implement schemes for the enhancement of highways, the public realm and other spaces.....

Policy DM 15.1 Sustainability requirements

1. Sustainability Statements must be submitted with all planning applications in order to ensure that sustainability is integrated into designs for all development.
2. For major development (including new development and refurbishment) the Sustainability Statement should include as a minimum:
 - BREEAM or Code for Sustainable Homes pre-assessment;
 - an energy statement in line with London Plan requirements;
 - demonstration of climate change resilience measures.
3. BREEAM or Code for Sustainable Homes assessments should demonstrate sustainability in aspects which are of particular significance in the City's high density urban environment. Developers should aim to achieve the maximum possible credits to address the City's priorities.
4. Innovative sustainability solutions will be encouraged to ensure that the City's buildings remain at the forefront of sustainable building design. Details should be included in the Sustainability Statement.
5. Planning conditions will be used to ensure that Local Plan assessment targets are met.

Policy DM 15.2 Energy and CO₂ emissions assessments

1. Development design must take account of location, building orientation, internal layouts and landscaping to reduce likely energy consumption.
2. For all major development energy assessments must be submitted with the application demonstrating:
 - energy efficiency – showing the maximum improvement over current Building Regulations to achieve the required Fabric Energy Efficiency Standards;
 - carbon compliance levels required to meet national targets for zero carbon development using low and zero carbon technologies, where feasible;
 - where on-site carbon emission reduction is unviable, offsetting of residual CO₂ emissions through 'allowable solutions' for the lifetime of the building to achieve national targets for zero-carbon homes and non-domestic buildings. Achievement of zero carbon buildings in advance of national target dates will be encouraged;
 - anticipated residual power loads and routes for supply.

Core Strategic Policy CS16 – Public Transport Streets & Walkways – ...Build on the City's central position and good transport infrastructure to further improve sustainability & efficiency of travel into and around the City....

Policy DM 16.1	Transport impacts of development – ...Development proposals likely to have impact on transport must be accompanied by assessment of the transport implications during both construction & operation....
Policy DM 16.2	Pedestrian Movement – ...Facilitation of suitable pedestrian movement around the City.....
Policy DM 16.3	Cycle Parking –...on site cycle parking must be fitted in accordance with the local standards set out in table 16.2. The provision of on-site cycle parking supports people who cycle into the City....
Policy DM 16.4	Facilities to encourage active travel – ...such as walking, cycling and running must be provided in new developments. ...
Policy DM 16.5	Parking & Servicing Standards – ...New developments must meet the regulations on parking spaces within the City. Parking and servicing standards allows for minimal car parking space associated with all new developments. This discourages people from driving into the City. All off street car parking spaces and serviced areas must be equipped to conveniently recharge electric vehicles
Policy DM 16.6	Public Parking Spaces – ...No new public car parks will be permitted in the City, including the temporary use of vacant sites....
Policy DM 16.8	River Transport – ...Safeguarding the piers, steps and shores . River transport encourages the use of the river in order to reduce road transport of people and goods....

Local Plan: Open Spaces

Policy CS19Open Spaces and Recreation encourages greening on new developments, particularly green roofs. In addition, it encourages healthy lifestyles through improved access to open space and facilities, particularly through improved **public transport**.....

A summary of other Local Plan Policies

Core Strategic Policy CS5 – North of the City – Ensure City benefits from transport improvements in the North of the City for rejuvenation and 'eco-design' to compensate the **sustainable transport infrastructure**.

Core Strategic Policy CS6 – Cheapside and St Pauls – Enhancement of the area to promote the cultural and leisure activities on offer

Core Strategic Policy CS7 – Eastern Cluster – Accommodate the expansion of office space, while balancing the accommodation of tall buildings, public realm, **transport** and security.

Core Strategic Policy CS8 – Aldgate – Regenerate the amenities & environment of the Aldgate area by **improving the transport and pedestrian links**.

Core Strategic Policy CS9 – Thames and Riverside – Ensure the City capitalises on the on the riverside location, sustaining the **rivers functional uses** in transport, navigation, and recreation.

D4: Local Plan with reference to section 3: Heating and Energy

Local Plan Policy DM15.6 Air Quality

- 3) Major developments will be required to maximise credits for the pollution section of the BREEAM or Code for sustainable Homes assessment relating to on-site emissions of oxides of nitrogen (NO_x).
- 4) Developments will be encouraged to install non combustion low and zero carbon energy technology. A detailed air quality impact assessment will be required for combustion based low and zero carbon technologies, such as CHP plant and biomass or biofuel boilers, and necessary mitigation must be approved by the City Corporation.

Policy DM 15.3 Low and zero carbon technologies

1. For development with a peak heat demand of 100 kilowatts or more developers should investigate the feasibility and viability of connecting to existing decentralised energy networks. This should include investigation of the potential for extensions of existing heating and cooling networks to serve the development and development of new networks where existing networks are not available. Connection routes should be designed into the development where feasible and connection infrastructure should be incorporated wherever it is viable.
2. Where connection to offsite decentralised energy networks is not feasible, installation of on-site CCHP and the potential to create new localised decentralised energy infrastructure through the export of excess heat must be considered.
3. Where connection is not feasible or viable, all development with a peak heat demand of 100 kilowatts or more should be designed to enable connection to potential future decentralised energy networks.
4. Other low and zero carbon technologies must be evaluated. Non combustion based technologies should be prioritised in order to avoid adverse impacts on air quality.

Other Local Plan Policies

DM2.1.....infrastructure provision for connection to existing decentralised energy.....

CS7Energy efficient buildings in the Eastern cluster.....

DM10.1New Developments to minimise energy use.....

D5: Local Plan with reference to Section 4: Local Policy – Construction and Deconstruction

Local Plan Policy DM15.6 Air Quality

- 5) Construction and deconstruction and the transport of construction materials and waste must be carried out in such a way as to minimise air quality impacts.

Core Strategic Policy CS17 – Waste – ...Promote and support sustainable decisions to be taken by the minimisation, transport and management of their waste, capitalising on the City's riverside location for **sustainable waste transfer....**

Policy DM 17.2

Designing out Construction Waste – ...New developments should be designed to reduce impact of deconstruction & construction on the environment through, transport of waste and construction materials **by river** wherever practicable. ...

D6: Local Plan with Reference to Section 5: Air Quality Impact Assessments

Local Plan Policy DM15.6 Air Quality

- 1) Developers are required to consider the impact of their proposals on air quality and, where appropriate, provide an Air Quality Impact Assessment.
- 4) Developments will be encouraged to install non combustion low and zero carbon energy technology. A detailed air quality impact assessment will be required for combustion based low and zero carbon technologies, such as CHP plant and biomass or biofuel boilers, and necessary mitigation must be approved by the City Corporation.

Appendix E: Background to Air Quality Policy

E1: The Air Quality Strategy for England, Scotland, Wales & Northern Ireland

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007) sets out air quality objectives and policy options to improve air quality in the UK. It required all local authorities to assess and review air quality on a regular basis under the Local Air Quality Management (LAQM) regime. Targets were set for seven pollutants that all local authorities were obliged to work towards, which are equal to the statutory air quality objective values imposed under the Air Quality Regulations for England, Scotland, Wales and Northern Ireland. The seven pollutants for which local authorities were originally required to report and meet target values are:

- nitrogen dioxide (NO₂);
- particulates (PM₁₀);
- carbon monoxide;
- sulphur dioxide (SO₂);
- benzene;
- 1,3-butadiene; and
- lead.

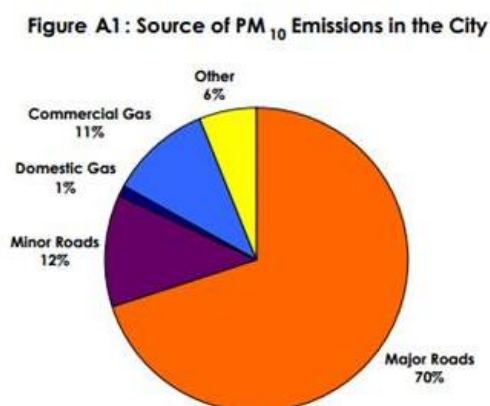
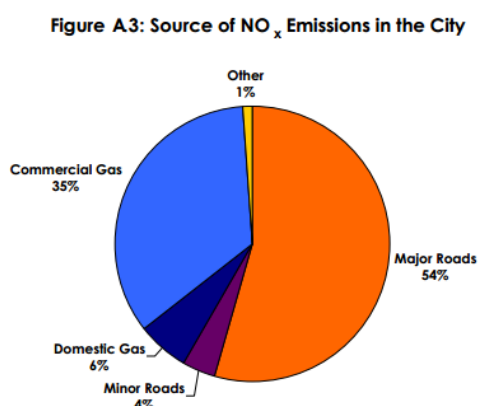
E2: London Local Air Quality Management (LLAQM) Framework

In 2016 a new London specific LAQM regime was established (LLAQM). Defra and the Greater London Authority require local authorities to report on pollutants of greatest concern to the health of Londoners. These are: NO₂, PM₁₀, PM_{2.5} and SO₂. The City of London's LLAQM statutory reports can be found at www.cityoflondon/air

E3: Air Quality in the City of London

In January 2001 the City of London was designated an air quality management area (AQMA) for exceedences of PM₁₀ and NO₂. This designation has been in place since and due to the on-going exceedences has not been revoked.

According to the 2013 London Atmospheric Emissions Inventory (LAEI), the main sources of air pollution in the borough is road transport. The following pie charts show the percentage breakdown of each vehicle type and pollutant.



The City of London's Air Quality Strategy (AQS) (which incorporates the City Corporation's AQAP) sets out measures to reduce emissions from key sources of air pollution in the City, and helps to work towards achieving the required standards and objectives. The Strategy can be found at the following link: www.cityoflondon/air

E4: Greater London Policy

The Mayor of London's key priorities for air quality, as set out in the Mayor's Air Quality Strategy, are:

- Achieving the EU established health-based standards and objectives for a number of air pollutants; and
- Ensuring that all new developments 'air quality neutral' or better.

The London Plan policies relating to air quality and developments are set out below:

London Plan Policy 3.2	The Mayor will take account of the potential impact of development proposals on health and health inequalities. This includes improving air quality and minimising exposure to existing poor air quality.
London Plan Policy 5.3	Sustainability principles include minimising air pollution. Major development proposals should meet the minimum standards outlined in the Mayor's SPGs.
London Plan Policy 7.14	Developers and contractors should follow the guidance set out in the SPGs in the design and construction of their development. All development proposals should address local problems of air quality (e.g. within Air Quality Management Areas) and avoid further deterioration of existing poor air quality.

The Mayor has published two SPGs that deal with air quality:

- *Sustainable Design and Construction SPG* which includes guidance on preparing air quality assessments, minimising emissions, addressing exposure to air pollution, air quality neutral, emissions standards for combustion plant; and
- *The Control of Dust and Emissions during Construction and Demolition SPG* which describes requirements for dust assessments, pollutant monitoring and Ultra Low Emission Zone (ULEZ) standards for Non-Road Mobile Machinery.

E5: National Policy

The National Planning Policy Framework (NPPF) March 2012 states that:

"Planning policies should sustain compliance with and contribute towards EU Limit Values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan."

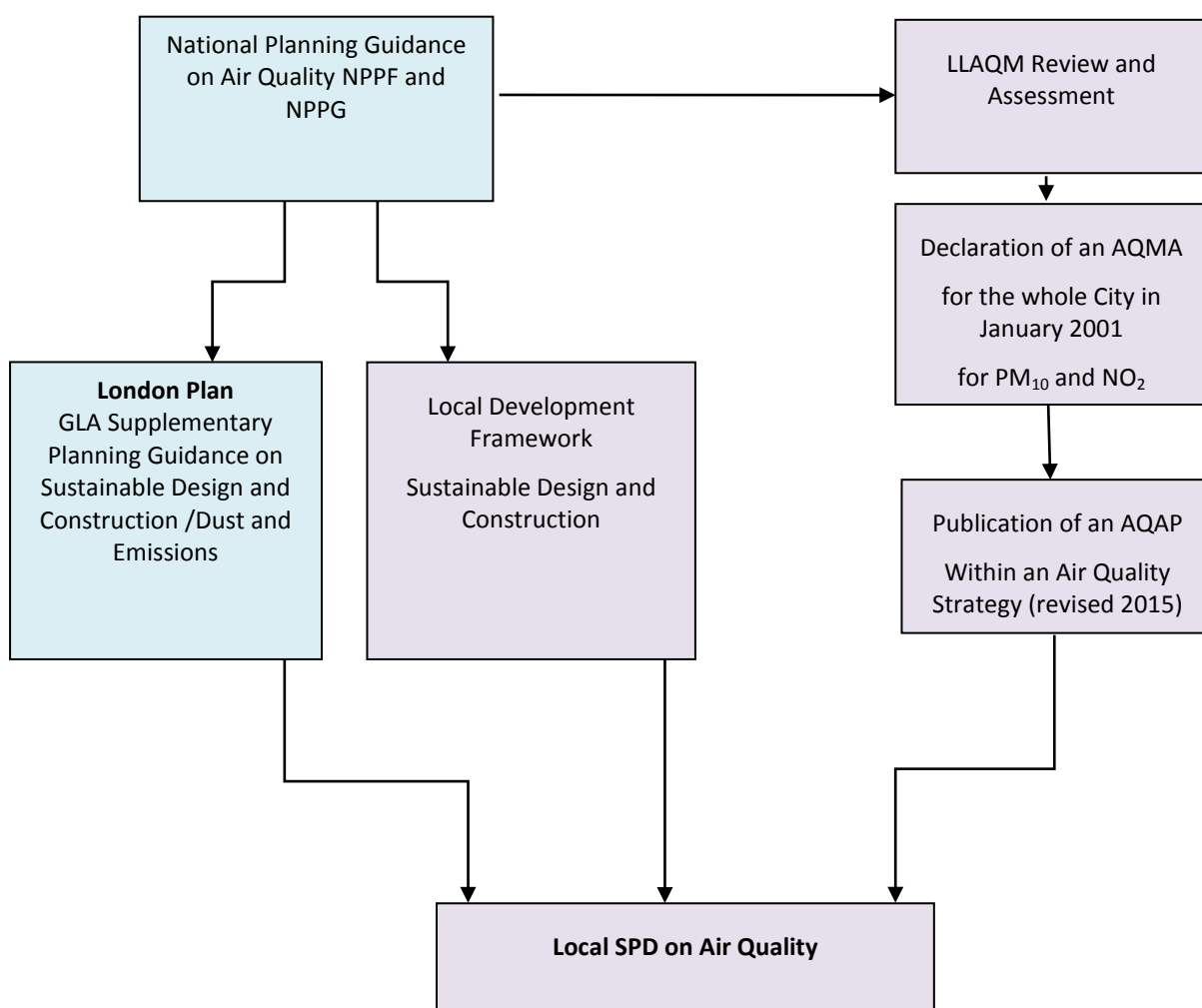
National guidance on when air quality is relevant to a planning decision, what should be included in an air quality assessment and the type of mitigation to be proposed can be found on the government's planning portal.³

E6: Permitting Under Part 1 of the Environmental Protection Act 1990

Industrial processes which may range from large industrial plant to dry cleaners and paint spraying workshops, are regulated by the Environment Agency (Part A1 processes) and the City (Part A2 and Part B processes). The planning regime must assume that the permitting regime will ensure the processes comply with their permits and the Act. The planning regime can, however consider whether a land use is appropriate and it must consider the exposure to pollutants. For developments requiring planning applications this is done at the planning application stage, and for existing processes it is an ongoing review through Air Quality Action Planning.

E7: The relationship between national, regional and local policy and guidance

The relationship of this SPD to national, regional and local policy and guidance, and the City of London AQAS is shown below together with the relevant policy.



³ <http://planningguidance.planningportal.gov.uk/blog/guidance/air-quality/>

Appendix F: Glossary

Air Quality Assessment (AQA)	An assessment of the impact of a development on the levels of certain pollutants in the local area.
Air Quality Management Areas (AQMAs)	Areas where the air quality objectives are likely to be exceeded. Declared by way of an order issued under the Section 83(1) of the Environment Act 1995.
Air Quality Objectives	Air quality targets to be achieved locally as set out in the Air Quality Regulations 2000 and subsequent Regulations. Objectives are expressed as pollution concentrations over certain exposure periods, which should be achieved by a specific target date. Some objectives are based on long term exposure (e.g. annual averages), with some based on short term objectives. Objectives only apply where a member of the public may be exposed to pollution over the relevant averaging time.
Best Available Techniques (BAT)	The basis for determining the appropriate technique for reducing pollution under the Prevention and Control of Pollution Regulations.
LLAQM.TG(16)	London Local Air Quality Management Technical Guidance (2016). This document provides London advice on how local authorities should assess air quality.
Exceedence	Concentrations of a specified air pollutant greater than the appropriate Air Quality Objective.
Limit Values/EU limit values	The maximum pollutant levels set out in the EU Daughter Directives on Air Quality. In some cases the limit values are the same as the national air quality objective, but may allow a longer period for achieving.
Mitigation	Mitigation measures will minimise, but not necessarily remove, the impact of or effect of poor air quality on a development.
National Air Quality Objectives	See Air Quality Objectives.
National Air Quality Strategy	The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. The current version at the time of producing this SPD was January 2000 with addendum published in February 2003.
NO ₂	Nitrogen dioxide
NO _x	NO _x = nitrogen oxides, which includes nitric oxide and nitrogen dioxide. Most pollution sources emit nitrogen oxides primarily as nitric oxide. However, once in the atmosphere nitric oxide can be converted to nitrogen dioxide. Therefore it is important to know the concentrations of both NO _x and NO ₂ .
Offsetting	Measures which 'compensate' for anticipated increases in pollution in the area but not necessarily at the exact locality. This might be for example by

	funding more general measures in the air quality action plan.
PM ₁₀	Fine particulate matter with a diameter of less than 10 microns diameter.
Part A1 and A2 Processes	Industrial processes which are regulated under the Pollution Prevention and Control (PPC) Regulations and subsequent Integrated Pollution Prevention and Control (IPPC) for emissions to all media (i.e. atmosphere, land and water).
Part B Processes	Industrial processes which are regulated under the Local Air Pollution Control (LAPC) and Local Air Quality Pollution Prevention and Control (LAPPC) Regulations for emissions to air only.
Polluting development	A development which will directly or indirectly increase levels of relevant pollutants. This may include industrial processes but may also include developments which could cause increased traffic emissions. These types of development may increase pollution concentrations.
PPC Regulations	Pollution Prevention and Control Regulations 2000 (as amended).
Risk Assessments	A comprehensive assessment of the risks associated with a particular hazard which is relevant to the development site.
Sensitive development	A development which would allow users of the site to potentially be exposed to pollutants above the objective for the relevant period. For example, the introduction of a new residential development into an area where an air quality objective is already exceeded, would create the potential for the exposure of residents to poor air quality above the objective. Incidentally, this type of development may also generate significant additional traffic flow and also be a polluting development.

Appendix G: Abbreviations

AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
CAB	Cleaner Air Borough
CDECD	<u>The Control of Dust and Emissions During Demolition and Construction SPG</u>
CAZ	Central Activity Zone
CLP	Construction Logistic Plans
DSP	Delivery and Service plans
EV	Electric Vehicle
GLA	Greater London Authority
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LLAQM	London Local Air Quality Management
NRMM	Non-Road Mobile Machinery
PM ₁₀	Particulate matter less than 10 micron in diameter
PM _{2.5}	Particulate matter less than 2.5 micron in diameter
SDC	<u>Sustainable Design and Construction SPG (2014)</u>
SPG	Supplementary Planning Guidance
TEB	Transport Emissions Benchmark
TfL	Transport for London

Appendix H: Further Information

City of London Contact Details	e-mail: Cityair@cityoflondon.gov.uk phone: 020 7332 3030 web: www.cityoflondon.gov.uk/air air quality data: www.londonair.org.uk/LondonAir
Mayor, Greater London Authority and Association of London Government	✓ The London Plan The Spatial Development Strategy for London ✓ Clearing the Air, The Mayor's Air Quality Strategy, December 2010 GLA ✓ Sustainable Design and Construction Supplementary Planning Guidance, April 2014, GLA. <i>This provides guidance on air quality neutral procedures and combustion emission limits.</i> ✓ The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance, July 2014, GLA. <i>The aim of this guidance is to protect the health of on-site workers and the public and to provide London-wide consistency for developers through the control and monitoring of dust and Non-Road Mobile Machinery (NRMM).</i> ✓ Technical Guidance Note: Assessment of Air Quality Issues of Planning Applications, 2006, Association of London Government (ALG)
National Regulation and Guidance	✓ Air Quality Standards Regulations 2010 ✓ UK Air Quality Strategy for England, Scotland, Wales and Northern Ireland, July 2007 ✓ National Planning Policy Framework Department for Communities and Local Government ✓ National Planning Practice Guidance, Housing Standards Review, 2015 ✓ London Local Air Quality Management Technical Guidance LLAQM.TG(016) ✓ Defra, Emissions Factor Toolkit ✓ Institute of Air Quality management Guidance • Development Control: Planning for Air Quality. • Biomass and Air Quality Guidance for Local Authorities ✓ Low Emission Strategies Partnership