

**MAYOR OF LONDON**

# London Plan Guidance

## **Air Quality Positive**

**February 2023**

## Copyright

### **Greater London Authority**

February 2023

Published by:

Greater London Authority

City Hall

Kamal Churchie Way

London

E16 1ZE

[www.london.gov.uk](http://www.london.gov.uk)

Enquiries 020 7983 4000

Email [planningsupport@london.gov.uk](mailto:planningsupport@london.gov.uk)

### **Other formats**

If you require this document in a more accessible format, please get in touch via our [online form](#) and tell us which format you need.

## Table of contents

1	About this document .....	2
1.1	What is the 'Air Quality Positive approach'? .....	2
1.2	Integrating an Air Quality Positive approach in the design process .....	2
2	Applying an Air Quality Positive approach .....	3
2.1	Masterplanning and development briefs .....	3
2.2	Planning applications.....	3
3	Identifying measures and approaches .....	5
3.1	Minimum requirements .....	5
3.2	Better design and reducing exposure .....	5
3.3	Building emissions.....	7
3.4	Transport emissions .....	8
3.5	Innovation and futureproofing.....	9
4	Air Quality Positive Statement .....	10
4.1	Purposes of the statement.....	10
4.2	Minimum requirements .....	10
4.3	Structure of the statement .....	11
4.4	Technical assessments .....	15
Appendix 1	Mayor of London Order (2008) .....	17
Appendix 2	Air Quality Positive matrix.....	19
Appendix 3	Technical assessments .....	28
A3.1	Overview.....	28
A3.2	Dispersion modelling .....	28
A3.3	Advanced analysis tools .....	28
A3.4	Qualitative tools .....	29
A3.5	Measuring and monitoring .....	29
A3.6	Other assessments.....	30

**London Plan Policy**

[Policy SI 1 Improving Air Quality – Part \(C\)](#)  
[Policy SD4 The Central Activities Zone \(CAZ\)](#)

**Plan making**

Air Quality Positive should be applied at the plan-making stage to masterplans (for example, Supplementary Planning Documents) and development briefs that include large-scale development sites that are likely to be subject to an [Environmental Impact Assessment \(EIA\)](#).<sup>1</sup> An Air Quality Positive Statement (AQP Statement) should be produced as part of the evidence base outlining the Air Quality Positive approach taken.

**Planning Application type and how the London Plan Guidance will be applied**

Air Quality Positive should be applied to masterplans and development briefs for large-scale development proposals subject to an EIA. In this context, ‘large-scale development’ refers to planning applications that are referable to the Mayor under the following categories of The Town and Country Planning (Mayor of London) Order 2008 detailed in Appendix 1:

- Category 1A
- Category 1B
- Category 2C(1)(a)-(f)
- Category 2C(2)
- Category 2C(3)
- Category 2D

An AQP Statement should be submitted as part of the EIA and updated as appropriate for reserved matters applications, outlining the Air Quality Positive approach taken. Where the proposal meets the above criteria for a large-scale development subject to an EIA, but does not have a masterplan or development brief, Air Quality Positive should still be applied.

**Who is it for**

All relevant parties should use this guidance when undertaking masterplans and development briefs for large-scale development. Applicants (and their planners, designers and architects) should use this guidance to ensure applicable planning applications are designed and delivered using an Air Quality Positive approach. Planning authorities should use this guidance when reviewing an AQP Statement submitted as part of an EIA.

---

<sup>1</sup> These are developments listed under [the Town and Country Planning \(Environmental Impact Assessment\) Regulations 2017](#).

## **1 About this document**

### **1.1 What is the 'Air Quality Positive approach'?**

1.1.1 The Air Quality Positive approach is a process of identifying and implementing ways to push development beyond compliance with both the Air Quality Neutral benchmarks and the minimum requirements of an air quality assessment. To achieve this, an AQP Statement should be submitted that demonstrates how benefits to local air quality have been maximised, and how measures to minimise pollution exposure will be implemented.

### **1.2 Integrating an Air Quality Positive approach in the design process**

1.2.1 To deliver an Air Quality Positive approach, technical air quality expertise should inform every stage of the design process to maximise air quality benefits. It requires planners, designers, architects and air quality experts to show, in their AQP Statement, what measures have been taken throughout the design stages. Air Quality Positive does not use a threshold in the assessment; it instead brings together a range of evidence to show how air quality has been considered holistically, and how the proposal maximises benefits to air quality.

1.2.2 Development design teams should identify opportunities to deliver an Air Quality Positive development in combination with addressing other requirements of London Plan policies at an early stage, such as those relating to design and layout, transport and energy.

1.2.3 This guidance considers measures that contribute to the delivery of an Air Quality Positive scheme under four key themes, set out in section 3:

- better design and reducing exposure
- building emissions
- transport emissions
- innovation and futureproofing.

## **2 Applying an Air Quality Positive approach**

### **2.1 Masterplanning and development briefs**

- 2.1.1 As a minimum, the guidance in section 3 should be followed in the development of relevant masterplans and development briefs to identify measures and approaches that have the potential to benefit local air quality, at an appropriate strategic or area-wide level.
- 2.1.2 Where possible, these plans should consider the phasing and timing of future key infrastructure delivery, such as energy centres, heat networks and transport. This is to ensure delivery in a way that secures the most beneficial outcomes to air quality. Where full build-out will take many years, it may also be necessary to consider intermediate and transitional phases of infrastructure delivery; and the implementation of measures to prevent negative impacts to air quality in the short term.
- 2.1.3 These plans should provide a framework within which individual sites within the masterplan or development brief can reinforce and enhance the Air Quality Positive approach, to ensure the benefits and principles are not lost during the subsequent development of individual plots of land. This may be achieved through a design code or phasing strategy. An AQP Statement should be produced to form part of an evidence base for any such plan (see section 3.5.2).

### **2.2 Planning applications**

- 2.2.1 This guidance provides examples and best practice to inform the preparation of statements for developments taking an Air Quality Positive approach.

#### **Full planning applications**

- 2.2.2 Full planning applications for large-scale developments subject to an EIA require the most specific and detailed commitments to Air Quality Positive measures. These applications must be accompanied by an AQP Statement, which should be submitted as part of the EIA at the planning application stage (see section 3.5.2).
- 2.2.3 Air Quality Positive measures that are fundamental to the design of a development, are relevant to the monitoring of the application, or seek further details that may potentially change are expected to be secured through conditions or legal and binding agreements, and enforced where necessary (see [London Plan paragraph 9.1.15](#)).
- 2.2.4 Consideration should be given to providing a legal mechanism – e.g. section 106 or 278 agreements – to secure off-site measures where appropriate, such as off-site infrastructure improvements or post-completion monitoring.

## **Outline planning applications**

- 2.2.5 Outline planning applications for large-scale developments subject to an EIA must be accompanied by an AQP Statement that details how measures will be secured in subsequent reserved matters.

## **Central Activities Zone (CAZ)**

- 2.2.6 As per London Plan Policy SD4, particular attention should be given to large-scale development proposals in the CAZ. Such proposals should address issues relating to climate change and the urban heat island effect; and set out practical measures to improve air quality through an Air Quality Positive approach.

## **Where an AQP Statement has already been produced**

- 2.2.7 Where an application is made for a site that already has an AQP Statement approved (for example, for an adopted site brief, adopted masterplan or granted outline permission), this should be updated to reflect the specifics of the application in terms of addressing Air Quality Positive measures; and resubmitted as part of the EIA at the planning application stage. The AQP Statement should:
- show how the relevant approaches and measures have been followed through, and implemented in the application
  - highlight any areas of change or variation; the potential impacts of these changes; and how these have been mitigated or addressed
  - highlight any detailed consideration that was absent at the earlier stage, which could impact on delivery of Air Quality Positive; and detail the potential impacts of these changes, and how these have been mitigated or addressed.
- 2.2.8 If the application is in accordance with the original AQP Statement and there are no additional detailed matters that need to be addressed, a summary statement outlining how the proposed measures are being delivered is sufficient.
- 2.2.9 Where full or reserved matter applications deviate significantly from those at the outline stage, it will be necessary to submit an updated AQP Statement to show that air quality conditions are at least as good as, if not better than, initially assumed. It should also be shown that any changes to the application do not prejudice the ability of subsequent phases to implement an Air Quality Positive approach.

## 3 Identifying measures and approaches

### 3.1 Minimum requirements

- 3.1.1 This section outlines the measures and approaches that should be considered in order to meet the requirements of [paragraph 9.1.13 of the London Plan](#).

### 3.2 Better design and reducing exposure

- 3.2.1 A key element to achieving an Air Quality Positive-compliant development or masterplan is using the design and layout of a development or plan area to improve the dispersion of air pollution. The approach should consider how the design can promote or create better air quality, and reduce exposure to pollution in the public and private spaces – day and night, and throughout the year.

#### Buildings

- 3.2.2 The design of buildings within a site has a significant impact on air flow, and therefore on the dispersion of pollutants. The following approaches can help optimise development design to maximise air quality benefits:
- optimising site layout, locating the most sensitive land uses, such as schools, nurseries and residential dwellings, in less polluted parts of a site
  - avoiding the creation of street canyons, which may result in an accumulation of air pollution by restricting dispersion, and encouraging air flow where possible
  - using building form, such as angles and stepped façades, to improve dispersion of pollution.
- 3.2.3 When considering design measures, care should be taken to consider unintended consequences – for example, high or uncomfortable wind speeds; creation of inaccessible green spaces; poor public realm; fragmented streetscape; poor-quality soundscape, etc.

#### Transport infrastructure and connectivity

- 3.2.4 Both the design of transport (e.g. highway and public space, site layout, parking and entrances) and transport links themselves have an impact on emission sources from transport; and provide an opportunity to deliver greater modal shift toward sustainable transport, which is necessary to deliver Air Quality Positive outcomes. The following design approaches can help to achieve this:

- direct and attractive routes to access and move around the site on foot and cycle, that are more convenient than using a private vehicle and can be used 24 hours a day – this encompasses, for instance, low-car or car-free development
  - segregated cycle provision that is well integrated into the wider area; and key cycle network routes and destinations
  - ‘car as guest’ road layouts, with pedestrians and cyclists having right of way and limitations on vehicle penetration into a development
  - junctions and transitions between different pedestrian and cyclist routes prioritising sustainable transport
  - modal filters, including those with bus gates/filters where appropriate
  - cycle parking and secure storage facilities that go beyond London Plan Policy T5 as a minimum; meet London Cycling Design Standards; and are at least as convenient as any car parking provision
  - separation of highway space for vehicles from sensitive receptors to air pollution, including pedestrians and cyclists, entrances to buildings, and public spaces and play areas
  - smooth, wide and clear pavements to enhance accessibility
  - facilities for cargo cycles and micro-consolidation services to encourage smarter delivery practices, and reduce emissions from freight and servicing
  - provision of sufficient and suitably located land for the development of the current and expanded public and active transport system, supporting London Plan Policy T3.
- 3.2.5 Development proposals and masterplans should adopt the [Healthy Streets Approach](#) and consider both the location and the function of highway space at an early stage, prioritising strategies that enhance access and connectivity for sustainable modes of transport. Proposals should include detailed consideration of how walking, cycling and public transport routes are convenient and attractive to use 24 hours a day; prioritised over car use; and link sensibly to the wider network and important destinations. The allocation of space for both parked and moving vehicles should also be minimised and designed to protect vulnerable road users; make sustainable transport modes convenient; and separate modes of transport that pollute from sensitive receptors on the site to reduce exposure to poor air quality.

## Public and green spaces

- 3.2.6 To reduce exposure to air pollution, outdoor areas such as parks and public spaces should be located in areas where there are already low pollutant concentrations; or where the development will create the conditions for low pollutant concentrations.
- 3.2.7 Well-considered use of green infrastructure may also form part of Air Quality Positive proposals, and should be considered in line with [Using Green Infrastructure to Protect People from Air Pollution](#) guidance, the [Urban Greening Factor LPG](#), and London Plan [Policy G5 Urban Greening – Part \(C\)](#).

## Land uses

- 3.2.8 Applicants must consider the layout of land uses in relation to one another. Potential off-site sources of emissions may include roads and railways; neighbouring energy centres; industry (light or heavy); and energy from waste facilities, as well as direct emissions from the heating and energy systems of nearby buildings. The location of these elements within or near the development site or masterplan can have a significant impact on the dispersion or accumulation of pollutants. This includes, for instance, the height of exhaust flues, and their relationship to host or surrounding buildings.
- 3.2.9 These issues of land use should normally be considered holistically, alongside other key design considerations such as density. Failure to consider the layout of land uses at an early stage may create issues that are difficult to address once the design and layout is fixed. For outline applications, mechanisms will also need to be put in place to ensure that subsequent detailed designs do not undermine or reduce the expected outcome. For example, changes in detailed designs could include the re-orientation or relocation of buildings, roads or emission sources in a way that increases exposure, which must be avoided (see section 2.2).

## 3.3 Building emissions

- 3.3.1 Building emissions primarily arise from heat demand. The policy framework for energy infrastructure is set out in [London Plan Policy SI 3](#). To achieve Air Quality Positive, developments for which an energy masterplan is in place or is being produced, or where there is an existing heat network, should seek to reduce or eliminate energy centre emissions by:
- undertaking measures to ensure that energy systems will achieve low or zero-emissions of air pollutants
  - seeking opportunities to provide low or zero-emission heat to surrounding areas beyond the site boundary, both where there are

existing housing, commercial or other uses, or where new developments are planned

- future-proofing heating and energy systems to ensure there is a plan in place to manage growth and new connections without creating additional emissions.
- 3.3.2 Where the initial energy strategy includes combustion-based heat, future-proofing should include the possibility to transition to a zero-emission heating system in the future. Where combustion appliances are unavoidable, consideration should be given to instituting a programme of emission testing to ensure that the installed system functions as expected. The Environment Agency has developed [simplified standards for monitoring emissions from medium combustion plant](#), which should be used as a point of reference.
- 3.3.3 Opportunities to eliminate or reduce emissions of PM<sub>2.5</sub> from sources outside of heating and energy sources should also be considered – such as those produced from commercial cooking – in order to help achieve World Health Organization targets for particulate matter (see [London Plan paragraph 9.1.2](#)).

### 3.4 Transport emissions

- 3.4.1 Applicants should examine how their developments can positively influence travel behaviour in the surrounding area. Consideration should be given to the character and connectivity of the area around the clock, as well as existing and proposed land uses, and how these affect travel patterns. Car-free schemes should become the norm where appropriate. Furthermore, safe and convenient access to, and use of, the site by walking and cycling, both day and night, should be prioritised, so that they become the preferred option for access to and around the site.
- 3.4.2 Adopting smarter delivery practices (such as [consolidation services](#) and micro-consolidation services, or scheduling deliveries at quieter times of day or night) and measures to encourage clean transport (such as cargo cycles and zero-emission vehicles) should be used to reduce emissions from freight, deliveries and servicing. Electric-vehicle (EV) charging infrastructure should be provided.
- 3.4.3 The Air Quality Positive approach to transport can be secured through travel plans, legal agreements (including section 278 agreements); planning conditions; and evidence of integration into wider approaches, such as the Healthy Streets indicators. The key elements of travel plans needed to secure Air Quality Positive should be identified (including the ways in which their successful implementation can be objectively measured) and secured through conditions or legal agreements.

### **3.5 Innovation and futureproofing**

- 3.5.1 This guidance is not designed to represent an exhaustive list of measures to support an Air Quality Positive approach. The Mayor seeks to encourage new and innovative solutions to improve air quality. As well as exploiting new and emerging low and zero-emission technologies, innovation can include enhancing and extending best practice from elsewhere, or using a wider range of analysis techniques to improve understanding of the air pollution environment. AQP Statements should consider and explore new and emerging approaches and technologies.
- 3.5.2 Where innovative approaches are being considered, it will be beneficial to consult on these in detail with the local planning authority at an early stage. As experience with Air Quality Positive developments grows, the Mayor will publish case studies highlighting innovative approaches that can be used elsewhere.

## 4 Air Quality Positive Statement

### 4.1 Purposes of the statement

- 4.1.1 The AQP Statement must demonstrate how all aspects of a development – including the buildings, public spaces, landscaping and infrastructure – will lead to beneficial outcomes for air quality. Compiling the statement should be a continuous process throughout the design of the development.
- 4.1.2 The AQP Statement should be submitted as part of an EIA, alongside or as an appendix to the Environmental Statement. It should not duplicate information already contained in other documents, such as that contained in the air quality assessment or Environmental Statement. It should instead act as:
- a guide to understanding how air quality has influenced the decision-making
  - a document of reference indicating where to find the supporting information in the wider application or evidence pack
  - a list of the measures that need to be taken to secure the expected outcomes.

### 4.2 Minimum requirements

- 4.2.1 The AQP Statement will vary considerably between schemes, but, in general, an AQP Statement will be deemed compliant with [London Plan Policy SI 1](#) if it demonstrates how the proposal will maximise benefits to air quality and mitigate exposure to air pollution using the following criteria:
- it meets all the minimum content requirements outlined in Table 4.1
  - there is evidence that air quality considerations have informed the design of the development
  - the reasons for undertaking each measure are justified and appropriate to deliver benefits to air quality and/or a reduction in exposure to air pollution
  - the expected benefits to air quality are backed up by reasonable evidence
  - justification and evidence to support circumstances where measures have not been implemented, but could reasonably be expected

- there is suitable evidence that measures are incorporated into the development application, i.e. evidence of assessment and/or reporting
- there is a realistic mechanism to ensure the measures will be secured
- there is a suitable implementation and monitoring plan for longer-term targets.

### 4.3 Structure of the statement

4.3.1 The statement should contain all the elements detailed in Table 4.1, below.

**Table 4.1 AQP Statement structure**

Statement section	What to include
Introduction	<ul style="list-style-type: none"> <li>• Description of the development</li> <li>• Method statement</li> </ul>
Constraints and opportunities	<ul style="list-style-type: none"> <li>• Summary of site air quality constraints and opportunities</li> <li>• Map of constraints and opportunities</li> </ul>
Measures adopted	<ul style="list-style-type: none"> <li>• Matrix of adopted measures that will benefit air quality and minimise exposure to poor air quality on the site</li> <li>• Rationale for adoption/non-adoption of measures</li> <li>• Glossary of technical evaluations and assessments that have informed the adopted measures</li> </ul>
Implementation and monitoring	<ul style="list-style-type: none"> <li>• Consultation</li> <li>• Implementation plan covering how measures will be secured, e.g. against variation in the future, and actions to be taken if the predicted outcomes are not achieved</li> <li>• Monitoring plan</li> </ul>

## Introduction

### 4.3.2 The introduction should provide:

- the planning description of the proposal
- any information on phasing, such as whether the development is part of a larger masterplan or phased development; or whether further phases will come forward – and if so, when
- the method statement, providing a summary of the design process and how an Air Quality Positive approach has influenced the development; this can include:
  - details on meetings and workshops
  - how preliminary work has informed the final proposals
- references to any supporting technical documents (such as the energy statement or transport assessment) and where these can be found in the application pack
- where preliminary assessment has identified potential problems arising from existing or planned nearby developments, developers should apply the ‘agent of change’ principle and may wish to seek cooperative offsite approaches to mitigation.

## Constraints and opportunities

### 4.3.3 This section should provide evidence of how the air quality context of the site has informed the design process, including:

- a map of the site
- a summary of its air quality constraints and opportunities
- relevant designations (Air Quality Management Areas, Air Quality Focus Areas, etc.)
- major off-site sources of air pollution (roads, railways, industrial sources, energy centres, incinerators/energy from waste, etc.)
- a general overview of off-site sensitive receptors (proximity to residential, schools, hospitals)
- proximity to energy networks
- transport infrastructure opportunities (rail/tube stations, cycle routes, etc.)

- site permeability and access (in terms of pedestrian, cyclist and vehicular, both day and night).
- 4.3.4 Qualitative tools can be useful for understanding the constraints and opportunities of a site. The [Mayor's School Air Quality Audits toolkit](#) provides one possible method for applying a rigorous qualitative approach (see Appendix A3.4).
- 4.3.5 The GLA has recently published an updated [Air Quality Guide for Public Health Professionals](#) to be shared with public health officers in the London boroughs. These contain borough-specific information on air pollution levels, including around priority sites such as schools, hospitals and care homes. This will enable effective local responses through setting out knowledge, recommendations or approaches for action. The documents have been tailored to support and enhance collaboration and public health leadership to address air pollution.
- 4.3.6 Early discussions with an Environmental Health Officer may also be helpful for identifying specific local pollution sources to be considered during the design stages.

### **Measures adopted**

- 4.3.7 The range of measures adopted and the reason for adoption should be summarised in a matrix, using the template below.

**Table 4.2 Air Quality Positive matrix template**

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment methods <sup>2</sup>	Quantitative reporting	Qualitative reporting	How this measure will be secured
<b>Better design and reducing exposure</b>							
<b>Building emissions</b>							
<b>Transport emissions</b>							
<b>Innovation and future-proofing</b>							

4.3.8 An example matrix is provided in Appendix 2, and should be used as a benchmark for the level of detail that is expected to be provided. The matrix

<sup>2</sup> Describe how the measure was assessed and determined to be effective quantitatively and/or qualitatively.

should break down measures by the four key themes listed in paragraph 1.2.3.

- 4.3.9 This should consider as many measures as possible, based on the constraints and opportunities at the site. If measures are not being implemented where they could reasonably be expected, the applicant should provide a rationale for not adopting these. Where the air quality benefits of a particular measure or approach are not evident in the supporting documentation alone, further description should also be provided. In addition to the matrix, free text description is also encouraged, should this be deemed necessary.

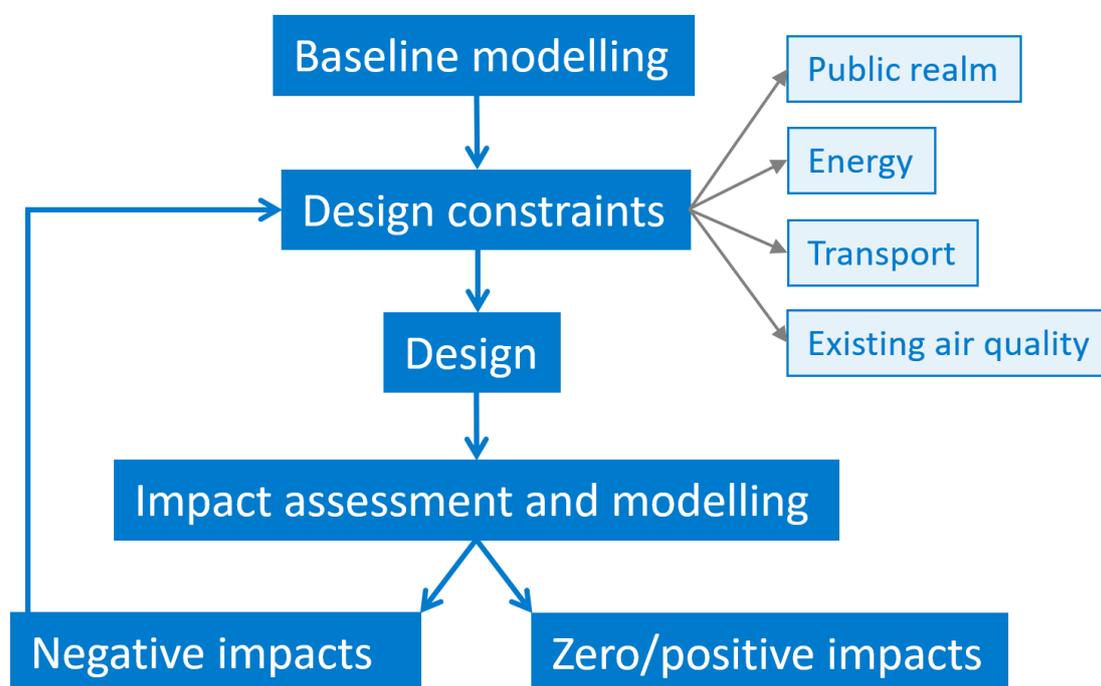
### **Implementation and monitoring**

- 4.3.10 This section should detail any consultation with the local planning authority, the GLA, Transport for London (TfL) and other stakeholders that has informed the Air Quality Positive approach. This will include consultation on how measures are to be secured and implemented.
- 4.3.11 While the matrix will identify how specific, individual measures will be implemented, an implementation and monitoring plan should go into greater depth. It should outline tangible, specific and measurable targets and commitments, and describe how often these will be monitored and reported. Applicants should be able to answer, 'Who, what, when and how?' in the implementation and monitoring plan.
- 4.3.12 For outline developments, the implementation plan should include an explanation of how the Air Quality Positive approach will be secured at the detailed design and application stage.
- 4.3.13 This section must also detail the monitoring and reporting requirements that will ensure the measures are implemented as stated – for example, frequency of reporting, achievement of targets, fulfilment of section 106 agreements, etc.

## **4.4 Technical assessments**

- 4.4.1 Applicants and their consultants are encouraged to use a variety of assessment tools in designing an Air Quality Positive development. These tools both provide evidence for an Air Quality Positive approach, and advance understanding of how the development is affected by the design process. An example approach has been illustrated in Figure 4.1.

**Figure 4.1 Schematic approach to best practice for technical air quality assessments<sup>3</sup>**



4.4.2 More detailed information on the range of technical assessment methods available is provided in Appendix 3.

---

<sup>3</sup> The list of design constraints are examples of conditions that may impact the opportunities to improve air quality or reduce exposure across the development as a whole; and that may need addressing under any of the Air Quality Positive themes. The list is not exhaustive, and each site may present a different range of opportunities.

## Appendix 1 Mayor of London Order (2008)

A1.1.1 In this London Plan Guidance, 'large-scale development' refers to planning applications that are referable to the Mayor under the following categories of The Town and Country Planning (Mayor of London) Order 2008 and subject to an EIA:

**Table A1.1 Applicable Categories of The Town and Country Planning (Mayor of London) Order 2008**

Category	Description
Category 1A	Development which comprises or includes the provision of more than 150 houses, flats, or houses and flats.
Category 1B	Development (other than development which only comprises the provision of houses, flats, or houses and flats) which comprises or includes the erection of a building or buildings: <ul style="list-style-type: none"> <li>(a) in the City of London and with a total floorspace of more than 100,000 m<sup>2</sup></li> <li>(b) in Central London<sup>4</sup> (other than the City of London) and with a total floorspace of more than 20,000 square metres; or</li> </ul> outside Central London and with a total floorspace of more than 15,000 m <sup>2</sup> .
Category 2C: Paragraph 1, parts (a) to (f)	Development to provide: <ul style="list-style-type: none"> <li>(a) an aircraft runway</li> <li>(b) a heliport (including a floating heliport or a helipad on a building)</li> <li>(c) an air passenger terminal at an airport</li> <li>(d) a railway station or a tram station</li> <li>(e) a tramway, an underground, surface or elevated railway, or a cable car</li> <li>(f) a bus or coach station.</li> </ul>

<sup>4</sup> 'Central London' is defined in the Mayor of London Order.

Category	Description
Category 2C: Paragraph 2	Development to alter an air passenger terminal to increase its capacity by more than 500,000 passengers per year.
Category 2C: Paragraph 3	<p>Development for a use which includes the keeping or storage of buses or coaches where:</p> <p>(a) it is proposed to store 70 or more buses or coaches or buses and coaches; or</p> <p>(b) the part of the development that is to be used for keeping or storing buses or coaches or buses and coaches occupies more than 0.7 hectares.</p>
Category 2D	<p>Waste development which does not accord with one or more provisions of the development plan in force in the area in which the application site is situated and which falls into one or more of these sub-categories:</p> <p>(a) it occupies more than 0.5 hectares;</p> <p>(b) it is development to provide an installation with a capacity for a throughput of more than:</p> <ul style="list-style-type: none"> <li>(i) 2,000 tonnes per annum of hazardous waste; or</li> <li>(ii) 20,000 tonnes per annum of waste.</li> </ul>

## Appendix 2 Air Quality Positive matrix

An example matrix of Air Quality Positive measures is provided in Table A2.1, which aims to provide a starting point for how to summarise and report on the measures employed in order to achieve an Air Quality Positive-compliant development. This example demonstrates the level of detail required for each measure, but the number of measures included can vary.

**Table A2.1 Example measures in an Air Quality Positive matrix**

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment Methods <sup>5</sup>	Quantitative reporting	Qualitative reporting	How this measure will be secured
<b>Better design and reducing exposure</b>							
Localised low traffic	The proposed development will close Elderfield Street <sup>6</sup> to	Elderfield Street suffers from excessive through-traffic and conflict with	Elderfield Street will be quieter, and more	Air quality and transport assessments carried	Y	Y	Secured through the section 106,

<sup>5</sup> All references to other documents in this column should be accompanied by an appropriate citation or direction.

<sup>6</sup> This is a fictional street, included for the purpose of illustrating this guidance.

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment Methods <sup>5</sup>	Reporting		How this measure will be secured
					Quantitative reporting	Qualitative reporting	
neighbourhood	through traffic, except for pedestrians, cyclists and local buses.	pedestrians and cyclists. It is a narrow road with more appropriate through-routes nearby.	accessible and attractive to active travel modes, with air quality benefits for new residential dwellings adjacent to the roadside.	out, including surrounding roads. Consultation with TfL on diverted bus route along Elderfield Street. Bus journey times reviewed two years after implementation.			agreement and in agreement with the local highways authority and TfL.
Road realignment	The proposed development will require road realignment to accommodate a new junction. An air quality	The realignment was necessary to accommodate the development. Consideration has been given to the optimum	Lower concentrations of pollutants at sensitive receptors.	Air quality assessment carried out.	N	Y	Secured through the section 106 agreements, and in agreement

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment Methods <sup>5</sup>	Quantitative reporting	Qualitative reporting	How this measure will be secured
	assessment was carried out to inform the design and improve air quality for existing and proposed receptors.	design of the revised junction.					with the highway authority.
Building design	The proposed development has been designed to avoid creating a street canyon on High Street, <sup>7</sup> and to include	Reduce the potential to increase pollutant concentrations on High Street.	Reduced exposure to high levels of pollutants for new and existing residents of High Street.	CFD modelling carried out to assess the effect on High St showed a 10 per cent reduction in pollutant concentrations.	Y	Y	Secured through approved plans.

<sup>7</sup> This is a fictional street, included for the purpose of illustrating this guidance.

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment Methods <sup>5</sup>	Reporting		How this measure will be secured
					Quantitative reporting	Qualitative reporting	
	building forms that aid dispersion.			The design is described in the design and access statement.			
Ventilation strategy	Passive ventilation strategy on all habitable rooms following re-siting of buildings away from roadside.	Acceptable air quality is provided to future residents without requirement for mechanical ventilation (cooling hierarchy).	Future residents will experience acceptable air quality without recourse to energy-intensive ventilation systems.	Air quality assessment shows air quality acceptable for future residents. Ventilation strategy report. Design informed by preliminary air quality assessment and explained in DAS.	N	Y	Secured through approved plans.

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment Methods <sup>5</sup>	Quantitative reporting	Qualitative reporting	How this measure will be secured
Further measures	<i>(Complete if necessary)</i>						
<b>Building emissions</b>							
Energy Strategy	The heat demand for the scheme will be met using communal air source heat pumps in combination with peak gas boilers; and will include a heat exchanger for future connection to the nearby district heat network.	The Energy Strategy sets out the rationale for the measure and quantifies the impact on NOx emissions compared with other options such as combined heat and power (CHP).	The selected option will meet the carbon-emission targets but will also deliver a 95 per cent reduction in on-site NOx emissions, as compared to connection to a	Energy strategy.	N	Y	Delivery is subject to conditions and/or section 106 agreement.

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment Methods <sup>5</sup>	Quantitative reporting	Qualitative reporting	How this measure will be secured
			standalone energy centre with CHP/boilers.				
Further measures	<i>(Complete if necessary)</i>						
<b>Transport emissions</b>							
Rapid EV charging hub	A rapid charging hub for 10 vehicles will be fully funded and installed prior to the opening of Phase 2 (retail and commercial) of the development.	Additional rapid EV charging capacity will improve local access to rapid charging infrastructure, and increase accessibility of EV use. The hub will be	Increased availability of suitable charging infrastructure will incentivise EV use which will help to reduce	EV charging hub is designed into approved plans.	Y	N	Delivery is subject to section 106 agreement.

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment Methods <sup>5</sup>	Reporting		How this measure will be secured
					Quantitative reporting	Qualitative reporting	
	This will take account of best-practice design principles.	delivered to coincide with the opening of the retail element where short-term parking is more likely.	tailpipe emissions from road traffic in the future.				
Sustainable transport strategy	A sustainable or Healthy Streets transport strategy has been carried out on on-site and off-site routes covering different times of day and night across the week.	Report against the TfL Healthy Streets indicators to increase the attractiveness of walking and cycling.	Reduced emissions associated with increased walking and cycling for short journeys.	Transport Assessment.	Y	N	Cycling and walking infrastructure secured by approved plans or conditions.

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment Methods <sup>5</sup>	Quantitative reporting	Qualitative reporting	How this measure will be secured
Car park leasing	100 per cent of on-site parking spaces will be leased only to owners of low or zero-emission vehicles.	Encourage the uptake of low or zero-emission vehicles, and reduce emissions associated with private vehicle use.	Reduced emissions associated with private vehicle trips, and increased uptake of low-emission vehicles.	Travel Plan.	Y	N	Car park leasing plan to be secured by section 106 agreement.
Further measures	<i>(Complete if necessary)</i>						

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment Methods <sup>5</sup>	Quantitative reporting	Qualitative reporting	How this measure will be secured
<b>Innovation and future-proofing</b>							
Zero-emission generators	Emergency life-safety generators will use zero-emission gensets.	Diesel generators are high NOx and particulate matter emitters, and contribute to background pollutant concentrations; alternatives are now available.	Reduced contribution of the building to background pollution and pollution hotspots.	Air quality assessment showed impact of diesel generator.	Y	Y	Secured by condition.
Further measures	<i>(Complete if necessary)</i>						

## **Appendix 3 Technical assessments**

### **A3.1 Overview**

- A3.1.1 The fundamental determinants of exposure to poor air quality are easily understood. How much pollution is there? Where is the pollution likely to concentrate, and where are people expected to be? However, the relationships between these determinants are complex; understanding how the development contributes and responds to each of them will usually require a variety of technical assessments.
- A3.1.2 The traditional approach, where a development is tested against specific pollution thresholds after the major design work is complete, is unlikely to be sufficient for many Air Quality Positive developments.
- A3.1.3 Developers and their consultants are encouraged to use a variety of assessment tools to understand the air quality impact of the development throughout the iterative and detailed phases of design.

### **A3.2 Dispersion modelling**

- A3.2.1 Dispersion models, such as the Atmospheric Dispersion Modelling System and the American Meteorological Society/Environmental Protection Agency Regulatory Model, are widely used for air quality assessments in support of planning applications. These modelling packages are continuously being developed; consultants working on these should keep their knowledge up to date, and ensure that they are able to use advanced features that may provide additional information relevant to a development's design.
- A3.2.2 Dispersion models can also be used early in the design process to help describe the existing air quality environment within and around the development site, informing the discussion of constraints and opportunities.
- A3.2.3 During the design process, dispersion models can be used to understand the air quality impacts of different design options. This can inform decisions on how to progress to more detailed stages of design.

### **A3.3 Advanced analysis tools**

- A3.3.1 A limitation of the most common dispersion models is that they can struggle to describe how complex built environments interact with very local effects on pollutant concentrations.
- A3.3.2 More advanced air quality models are in development, and these may be used where appropriate. Alternatively, computational fluid dynamics models and wind tunnel or microclimate models can be used to aid understanding and describe how the built environment may affect pollutant

dispersion and accumulation. This is especially applicable in the case of larger, complex developments, or tall buildings, which can have major impacts on the local microclimate.

- A3.3.3 Air quality professionals should ensure they are aware of how best to use these tools to supplement and enhance understanding gained through dispersion modelling.

### **A3.4 Qualitative tools**

- A3.4.1 It is not always possible to fully quantify the impact of a development on air quality, nor to numerically describe likely patterns or determinants of exposure. Nor is it realistic to expect every possible design iteration to be subject to detailed air quality modelling.

- A3.4.2 The [Mayor's Schools Air Quality Audit programme](#) pioneered innovative approaches to robust qualitative analysis of air quality at the local scale. Although not fully transferable to development planning, the toolkit produced contains a number of key themes and ideas that can be applied to qualitative assessment, interpretation and the identification of measures.

- A3.4.3 Air quality professionals are encouraged to maintain a working knowledge of qualitative methods and how to combine them with quantitative analyses.

### **A3.5 Measuring and monitoring**

- A3.5.1 Concentrations of air pollutants in the real world can be measured with a variety of instruments depending on the density, level of accuracy and purpose of the monitoring campaign. Direct air quality monitoring is not, however, an alternative to action and should not be used as a “mitigation” for avoidable impacts.

- A3.5.2 For development management purposes, monitoring is likely to be most useful as a way of either: testing assumptions or models of local air quality at the baselining stage; or monitoring and promoting the success of the scheme. Monitoring should happen at different times of the day, week and month to ensure it accurately reflects how air quality changes during these different times. Use of low-cost indicative monitoring could enable access to high-resolution data; support boroughs in air pollution monitoring; and demonstrate a willingness to be transparent about a development's impact on local air quality.

- A3.5.3 Measures proposed as part of the Air Quality Positive approach are expected to be tangible, specific and measurable. Wherever possible, the AQP Statement should set out how success will be measured, but this will not always be in terms of direct ambient pollution monitoring. For instance, a proposal to incentivise cycle ownership and reduce reliance on private

cars is more directly measured by counting how often the incentive is accessed than by measuring ambient air quality.

### **A3.6 Other assessments**

- A3.6.1 EIA developments and masterplans are often subject to a variety of analyses that may contribute to understanding how the proposals affect local air pollution. For example, wind comfort assessments can provide important information about air flows; and, where significant changes to traffic flows are expected, detailed traffic modelling can provide information about congestion and queueing.
- A3.6.2 The outcomes of these analyses are unlikely to yield quantitative information about air quality. Air quality professionals should consider how best to interpret them qualitatively.
- A3.6.3 EIA developments are likely to contain a variety of information useful to understanding how the development interacts with air pollution. In particular, the “cumulative impacts” section of an EIA can indicate where there are specific issues that need to be dealt with in terms of air quality.

