

**MAYOR OF LONDON**

# London Plan Guidance

## **Air Quality Positive**

**Consultation draft**

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**London Plan Policy**

[Policy SI1 Improving Air Quality – Part \(C\)](#)

**Local 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](#)<sup>1</sup>. An Air Quality Positive (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 Environmental Impact Assessment (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 which are detailed in Appendix 1:

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

An Air Quality Positive Statement should be submitted as part of the EIA outlining the Air Quality Positive approach taken. For reserved matters this guidance is relevant if the outline application was subject to the Air Quality Positive approach. 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 this guidance 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 delivered using an Air Quality Positive approach. Planning authorities should use this guidance when reviewing an Air Quality Positive Statement submitted as part of an EIA.

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<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 'Air Quality Positive'?**

1.1.1 The Air Quality Positive approach maximises the benefits to local air quality in and around a development site or masterplan area and minimises exposure to existing sources of poor air quality. It requires planners, designers, architects and air quality experts to show what measures have been taken during the design stages to achieve the best possible outcomes for air quality. This approach goes beyond compliance with both the Air Quality Neutral benchmarks and the minimum requirements of an air quality assessment and sets out the measures taken to benefit local air quality and reduce exposure to poor air quality.

### **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. Air Quality Positive does not use a threshold in the assessment, and 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 Air Quality Positive**

### **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.
- 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 Air Quality Positive Statement should be produced to form part of an evidence base for any such plan (see Section 4).

### **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. Measures required to achieve Air Quality Positive are expected to be secured through conditions or legal agreements (see London Plan paragraph 9.1.15 and Section 2.2.3 and 2.2.4 below).

#### **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 Air Quality Positive Statement, which should be submitted as part of the EIA at the planning application stage (see Section 4).
- 2.2.3 Air Quality Positive measures that are fundamental to the design of a development are expected to be secured through conditions or legal agreements and enforced where necessary. The use of planning conditions can secure the implementation of measures where they are not inherent to the design or are likely to change. For example, these may involve 'provision of details', or additional monitoring.

2.2.4 Section 106 and Section 278 agreements can be used to secure 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 Air Quality Positive Statement which details how measures will be secured in subsequent reserved matters.

### **Where an Air Quality Positive Statement has already been produced**

2.2.6 Where an application is made for a site that already has an Air Quality Positive Statement approved (for example for an adopted site brief, adopted masterplan or granted outline permission), a new Air Quality Positive Statement should be produced. The 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.

2.2.7 If the application is in accordance with the original Air Quality Positive 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.

2.2.8 Where full or reserved matter applications deviate significantly from those at the earlier stage, it will be necessary to submit an updated Air Quality Positive 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 changes do not prejudice the ability of subsequent phases to implement an Air Quality Positive approach.

### **3 Identifying measures and approaches**

#### **3.1 Rationale for measures**

3.1.1 The measures and approaches set out in this section explain how the requirements in paragraph 9.1.13 of the London Plan can be met.

#### **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.

##### **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 to 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; this may include higher levels of taller buildings where sites are constrained by roadside air pollution.
- 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.

##### **Transport modes and connectivity**

3.2.3 The design of highway and public space, site layout, parking and entrances and transport links can both have an impact on emission sources from transport and provide an opportunity to deliver a 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 by cycle that are more convenient than using a private vehicle.
- Segregated cycle provision which 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 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.
- Facilities for cargo cycles and micro-consolidation services to encourage smarter delivery practices and reduce emissions from freight and servicing.

3.2.4 Development proposals and masterplans should adopt the [Healthy Streets Approach](#) and consider both the location and 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, 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 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

3.2.5 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.

3.2.6 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.

### Land uses

3.2.7 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.

- 3.2.8 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 re-location of buildings, roads or emission sources in a way that increases exposure (refer to Section 2.2), which must be avoided.

### **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 that 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.
- 3.3.3 The Air Quality Positive approach can be secured in a variety of ways, including binding agreements or conditions to ensure that the predicted outcomes are achieved in the installed system.

### **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, 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 by walking and cycling should be prioritised, so that they become the preferred option for access to and around the site.
- 3.4.2 Adopting smarter delivery practices like consolidation services and out of hours or micro-consolidation services, and encouraging the use of clean transport such as cargo cycles and zero-emission vehicles, should be used to reduce emissions from freight, deliveries and servicing. Electric vehicle 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, or 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 their successful implementation can be objectively measured, and these should be 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. Air Quality Positive 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 grows with Air Quality Positive developments, 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 Air Quality Positive 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 development design.

4.1.2 The Air Quality Positive Statement should be submitted as part of an EIA, alongside 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 Air Quality Positive Statement will vary considerably between schemes, and therefore there is a degree of flexibility in what a statement that is 'compliant' with this guidance and London Plan policy might contain. However, in general, an Air Quality Positive Statement will be deemed compliant 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 has been given 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 outlined in Table 4.1, which are explained in more detail below.

**Table 4.1 Air Quality Positive Statement structure**

Statement section	What to include
Introduction	Description of the development Method statement
Constraints and opportunities	Summary of site air quality constraints and opportunities Map of constraints and opportunities
Measures adopted	Matrix of adopted measures that will benefit air quality and minimise exposure to poor air quality on the site Rationale for adoption/non-adoption of measures Glossary of technical evaluations and assessments that have informed the measures adopted
Implementation and monitoring	Consultation 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. Monitoring plan

## 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 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.

## 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 [AQMAs], 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).

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).

## Measures adopted

4.3.5 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 and reporting			How will this measure be secured
				Methods	Quantitative	Qualitative	
<b>Better design and reducing exposure</b>							
<b>Building emissions</b>							
<b>Transport emissions</b>							
<b>Innovation and future-proofing</b>							

- 4.3.6 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 should break down measures by the four key themes listed in Paragraph 1.2.3.
- 4.3.7 This should consider as many measures as possible, based on the constraints and opportunities at the site. Where 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.

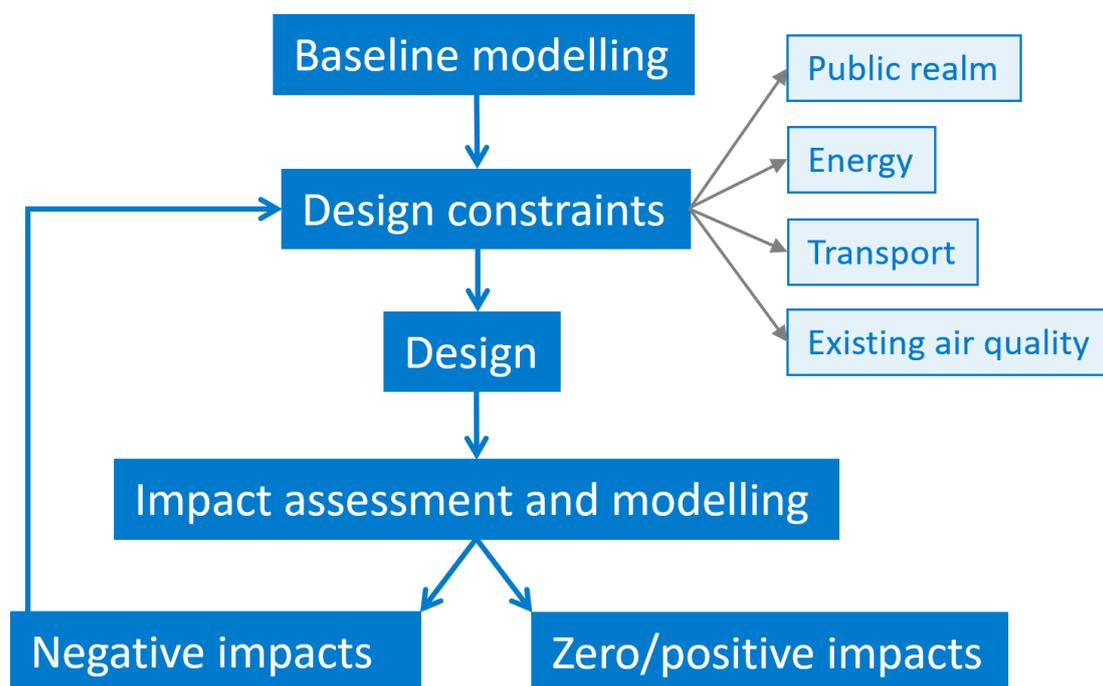
### **Implementation and monitoring**

- 4.3.8 Detail any consultation with the local planning authority, Greater London Authority (GLA), Transport for London (TfL) and other stakeholders which have informed the Air Quality Positive approach. This will include consultation on how measures are to be secured and implemented.
- 4.3.9 The matrix will identify how specific, individual measures will be implemented. An implementation and monitoring plan will go into greater depth and outline tangible, specific and measurable targets and commitments, describing 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.
- 4.3.10 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.
- 4.3.11 This section should also detail the monitoring and reporting requirements that will ensure that 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 provide both 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 assessment for an Air Quality Positive development**



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

## 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 Environmental Impact Assessment:

**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 square metres;</li> <li>(b) in Central London<sup>2</sup> (other than the City of London) and with a total floorspace of more than 20,000 square metres; or</li> <li>(c) outside Central London and with a total floorspace of more than 15,000 square metres.</li> </ul>
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>2</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 and reporting			How will this measure be secured
				Methods <sup>3</sup>	Quantitative	Qualitative	
Better design and reducing exposure							
Localised low traffic neighbourhood	The proposed development will close Elderfield Street <sup>4</sup> to through traffic, except	Elderfield Street suffers from excessive through traffic and conflict with pedestrians	Elderfield Street will be quieter and more accessible and attractive by active travel	Air quality and transport assessments carried out, including surrounding roads. Consultation with TfL on	Y	Y	Secured through the s106 agreement and in agreement

<sup>3</sup> All references to other documents in this column should be accompanied by an appropriate citation or direction.

<sup>4</sup> This is a fictional street for the purpose of illustrating this guidance.

Air Quality Positive LPG

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment and reporting			How will this measure be secured
				Methods <sup>3</sup>	Quantitative	Qualitative	
	for pedestrians, cyclists and local buses.	and cyclists. It is a narrow road with more appropriate through routes nearby.	modes, with air quality benefits for new residential dwellings adjacent to the roadside.	diverted bus route along Elderfield St. Bus journey times reviewed two years after implementation.			with the local highways authority and TfL.
Road realignment	The proposed development will require road realignment to accommodate a new junction. An air quality assessment was carried out to inform the design and improve air quality for existing and proposed receptors.	The realignment was necessary to accommodate the development. Consideration has been given to the optimum design of the revised junction.	Lower concentrations of pollutants at sensitive receptors.	Air quality assessment carried out.	N	Y	Secured through the s106 agreements and in agreement with the highway authority
Building design	The proposed development has been designed to avoid	Reduce the potential to increase pollutant	Reduced exposure to high levels of pollutants for new	CFD modelling carried out to assess the effect on High St showed a	Y	Y	Secured through

Air Quality Positive LPG

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment and reporting			How will this measure be secured
				Methods <sup>3</sup>	Quantitative	Qualitative	
	creating a street canyon on High St and to include building forms that aid dispersion.	concentrations on High St.	and existing residents of High St.	10% reduction in pollutant concentrations. The design is described in the DAS.			approved plans
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
Further measures	<i>(Complete if necessary)</i>						

Air Quality Positive LPG

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment and reporting			How will this measure be secured
				Methods <sup>3</sup>	Quantitative	Qualitative	
Building emissions							
Energy Strategy	The heat demand for the scheme will be met using Communal Air Source Heat Pumps in combination with peak gas boilers and 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 CHP.	The selected option will meet the carbon emission targets but will also deliver a 95% reduction in on-site NOx emissions as compared to connection to a standalone energy centre with CHP/boilers.	Energy strategy.	N	Y	Delivery is subject to conditions and/or s106 agreement.
Further measures	<i>(Complete if necessary)</i>						

Air Quality Positive LPG

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment and reporting			How will this measure be secured
				Methods <sup>3</sup>	Quantitative	Qualitative	
Transport emissions							
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. This will take account of best practice design principles.	Additional rapid EV charging capacity will address existing shortage of rapid charging infrastructure and increase accessibility of EV use. The hub will be delivered to coincide with the opening of the retail element where short-term parking is more likely.	Increased availability of suitable charging infrastructure will incentivise EV use which will help to reduce tailpipe emissions from road traffic in the future.	EV charging hub is designed into approved plans.	Y	N	Delivery is subject to s106 agreement.

Air Quality Positive LPG

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment and reporting			How will this measure be secured
				Methods <sup>3</sup>	Quantitative	Qualitative	
Healthy streets	A Healthy Streets transport assessment has been carried out on on-site and off-site routes.	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.	Healthy Streets Transport Assessment.	Y	N	Cycling and walking infrastructure secured by approved plans or conditions
Car park leasing	100% of on-site parking spaces will be leased only to owners of low emission vehicles.	Encourage the uptake of low emissions 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 s106 agreement.
Further measures	<i>(Complete if necessary)</i>						

## Air Quality Positive LPG

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment and reporting			How will this measure be secured
				Methods <sup>3</sup>	Quantitative	Qualitative	
Innovation and future-proofing							
Zero-emission generators	Emergency life safety generators will use zero-emission gensets from either lithium-ion battery technology.	Diesel generators are high NOx and PM emitters and contribute to background pollutant concentrations, and 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? In reality, however, these relationships are complex and understanding how the development contributes and responds to each of these determinants 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 Atmospheric Dispersion Modelling System (ADMS) and American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD), are widely used for air quality assessments in support of planning applications. These modelling packages are continuously being developed, and consultants working on these should keep their knowledge up to date and ensure that they are able to use advanced features which 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 that 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, or 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 either: as a way of testing assumptions or models of local air quality at the baselining stage; or as a way of monitoring and promoting the success of the scheme. Participation in a programme such as [Breathe London](#), for example, would enable access to reliable 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 Air Quality Positive 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 which 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 and 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.

