



London Borough of Merton

Draft Air Quality Supplementary Planning Document (SPD) November 2020

Abbreviations

AQA	Air Quality Assessment
AQAP	Air Quality Action Plan
AQDMP	Air Quality and Dust Management Plan
AQAF	Air Quality Action Fund
AQFA	Air Quality Focus Area
AQDRA	Air Quality and Dust Risk Assessment
AQMA	Air Quality Management Area
BEB	Buildings Emission Benchmark
CAZ	Clean Air Zone
CEMP	Construction Environmental Management Plan
CCHP	Combined cooling, heat and power
CHP	Combined heat and power
CIL	Community Infrastructure Levy
CLP	Construction Logistics Plan
EPUK	Environmental Protection UK (United Kingdom)
GLA	Greater London Authority
IAQM	Institute of Air Quality Management
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LEN	Low Emission Neighbourhood
LLAQM	London Local Air Quality Management
NO₂	Nitrogen dioxide
NO_x	Nitrogen oxides
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
NRMM	Non-Road Mobile Machinery
PM	Particulate matter
PM₁₀	Particulate matter less than 10 microns in diameter
PM_{2.5}	Particulate matter less than 2.5 micron in diameter
SPD	Supplementary Planning Document
SPG	Supplementary Planning Guidance
TEB	Transport Emissions Benchmark
ULEZ	Ultra Low Emission Zone

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Appendix A: glossary

Appendix B: London Atmosphere emission inventory for Merton

Appendix C: Location of Air Quality Focus Areas

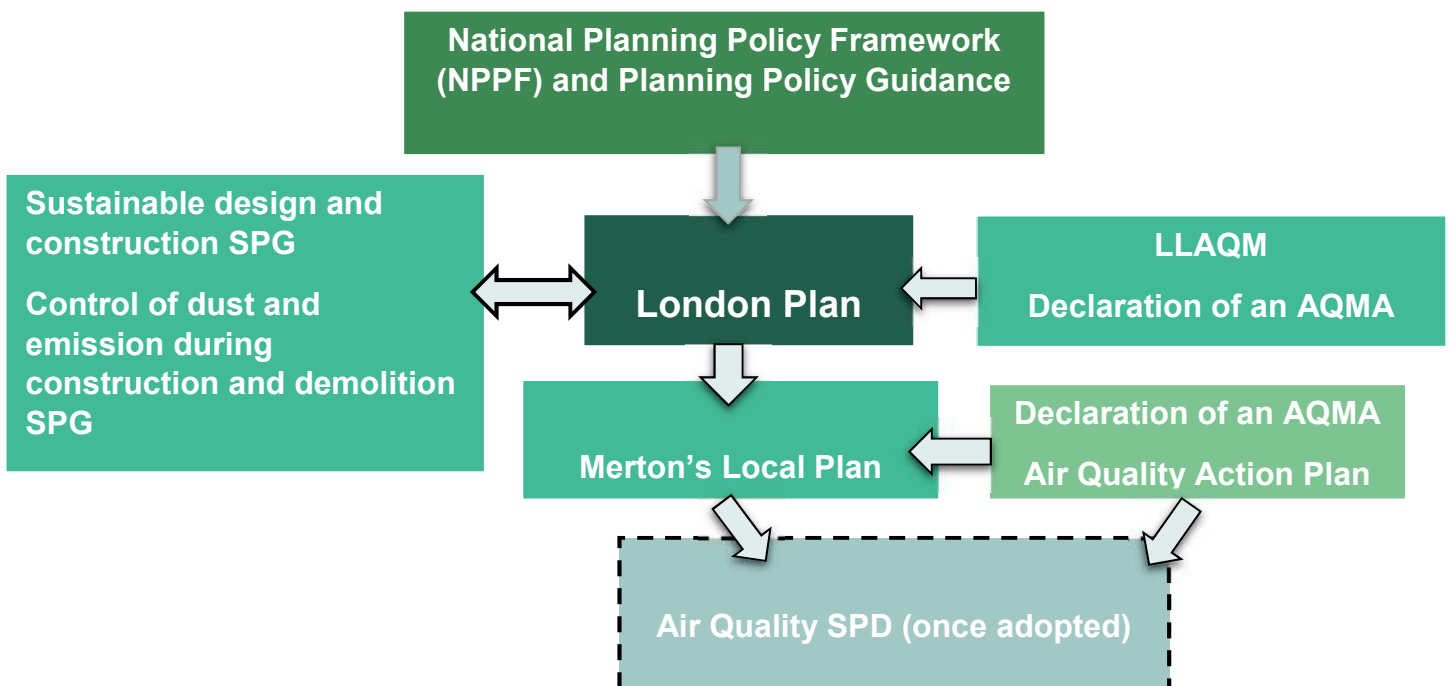
Appendix D: EPUK/IAQM Air Quality Assessment Screening Criteria

Appendix E: Model Conditions

1. Introduction

- 1.1 This Supplementary Planning Document (SPD) has been produced by the London Borough of Merton to address the health issue of air quality and to provide a consistent approach for development proposals in the borough. This SPD is a material planning consideration when determining development proposals submitted for planning permission.
- 1.2 The purpose of this SPD is to help developers, decision makers, agents, residents and other interested parties to identify issues to be addressed in any development proposal application in which air quality will be an important. The SPD relationship with other planning policies (national, regional and local) is illustrated in figure 1 below.
- 1.3 It should be read in conjunction with and within the context of the relevant policies in Merton's Local Plan, other development plan documents and other relevant SPD's and Merton's air quality documents and plans, where applicable.
- 1.4 This SPD covers a range of topics (such as design, transport, sustainability and planning obligations) and all sections should be read in conjunction with and within the context of, other planning documents.

Figure 1: The role of this SPD and its relationship to national, regional and local policy and guidance and the AQAP (Air Quality Action Plan):



- 1.5 The term 'air pollution' refers to both those air pollutants such as odour and dust can influence human health and the natural environment which can influence the quality of life for those living or working near source

- 1.6 This SPD applies to developments that may have an impact on air quality:
- All major development
 - Any development (including conversions) that introduces new exposure into areas of poor air quality; and
 - Smaller development that may emit odours, dust, smoke, and other fumes, for example, commercial kitchens and construction of basement developments
- 1.7 Major Development includes any one or more of the following:
- a) Working of minerals or the use of land for mineral-working deposits.
 - b) Waste development.
 - c) The provision of dwelling houses where:
 - i. the number of dwelling houses to be provided is 10 or more; or
 - ii. the development is to be carried out on a site having an area of 0.5 hectares or more and it is not known whether the development falls within sub-paragraph (c)(i);
 - d) The provision of a building or buildings where the floor space to be created by the development is 1,000 square metres or more: or
 - e) Development carried out on a site having an area of 1 hectare or more.
- 1.8 It is strongly recommended that applicants always check whether there are any additional requirements regarding air quality and planning in a specific area within Merton such as, Air Quality Focus Areas (AQFAs), Merton's AQFA can be found in Appendix c. Clean Air Zones (CAZs) and Low Emission Neighbourhoods (LENs) or similar are all considered to be areas of special importance for air quality, where additional requirements apply.

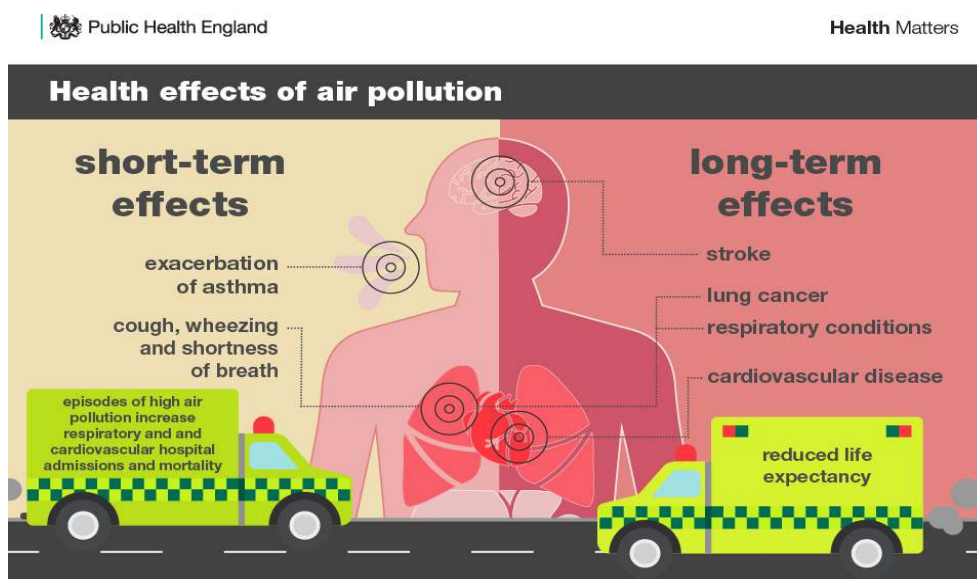
Air quality in Merton

- 1.9 Pollution in Merton comes from a variety of sources. This includes pollution from sources outside of the borough and in the case of particulate matter; a sizeable proportion of this comes from outside London and beyond the UK (United Kingdom). Of the pollution that originates in the borough the main sources of NO₂ are transport (57.1%), domestic gas boilers (18.8%) and static non-road mobile machinery (11.6%).
- 1.10 The main sources of particulate matter are road transport (50.4%), re-suspended dust from roads and surfaces (19.9%) and static non-road mobile machinery (10.3%). In respect of the transport sources apportionment data for the borough shows that diesel vehicles contribute approximately 90% of the NO_x emissions and 80% of the PM₁₀ emissions (based on 2013 modelled data). This supports the evidence from the dispersion modelling (Appendix B) which shows that the highest concentrations of both NO₂ and PM₁₀ are most strongly associated with the main traffic routes and road junctions within the borough.

2. Understanding air quality

2.1 Air pollution can adversely affect human health and has been linked to cancer, asthma, stroke and heart disease¹, diabetes, obesity, and possibly dementia. A 2018 study² carried out by The Royal College of Physicians, showed a link between the dementia and exposure to nitrogen dioxide (NO₂) and toxic air particles. Patients living within the M25 in areas with the highest NO₂ levels were 40% more likely to develop dementia than those in areas with lowest levels, researchers said. Although, the Alzheimer's Research UK said the results should be treated with caution and further research is needed.

Figure 2: Health effects of air pollution



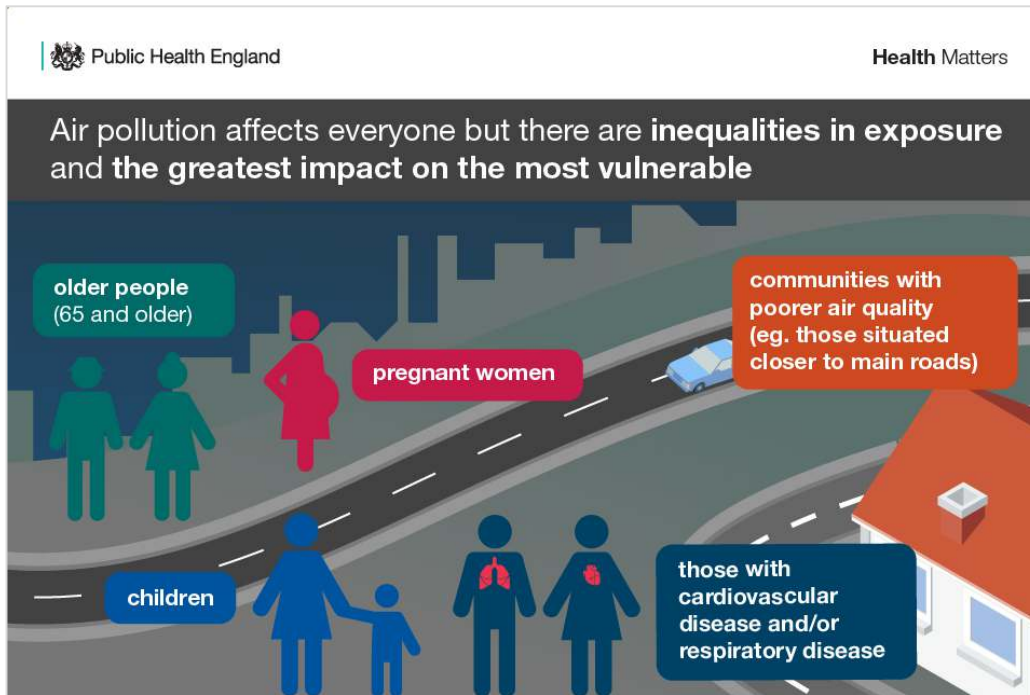
2.2 A study carried out by Kings College for London for Transport for London (TfL), found that long term exposure, is estimated to result in 9,400 premature deaths in 2010 in the capital: with added impacts due to short term pollution episodes.

2.3 Air quality tends to be worst close to major roads, but emissions over a wide area contribute to the background pollution levels. Health effects can potentially occur below widely accepted international standards and goals. For some pollutants, such as particulate matter (PM), there is no known threshold below which health effects do not occur. Therefore, there is a need to reduce background levels as well as emissions from road traffic to protect human health.

¹ British Heart Foundation: https://www.bhf.org.uk/toxicair?qclid=EA1aIQobChMI9008nlSk5wIVSbDiCh0A3AymEAAYASAAEgLYC_D_BwE&gclid=aw.ds

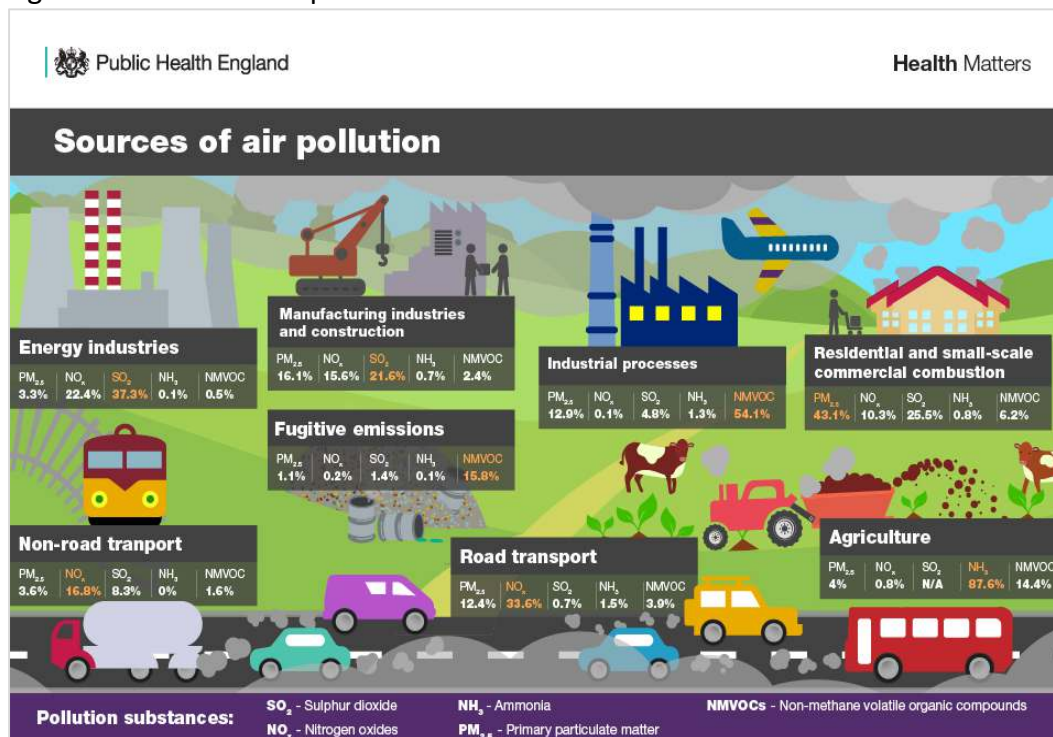
² Are noise and air pollution related to the incidence of dementia? A cohort study in London, England <https://bmjopen.bmj.com/content/8/9/e022404>
The Royal College of Physicians, 2016, Every breath we take: The lifelong impact of air pollution. London. <https://www.rcplondon.ac.uk/projects/outputs/everybreath-we-take-lifelong-impact-air-pollution>

Figure 3: Air pollution and inequalities



2.4 Air pollution is a worldwide issue that affects everyone, but always the most socioeconomically disadvantaged suffer most from the health effects of pollution. Other groups disproportionately affected include older people, children, pregnant women, individuals with existing medical conditions, and communities in areas of higher pollution levels.

Figure 4: Sources of air pollution



2.5 Between 2017 and 2025, the total cost of PM_{2.5} and NO₂ combined is estimated to be £1.6 billion in models used in PHE's cost of air pollution project. The Environment Audit Committee has estimated that total health costs because of air pollution range between £8.5 billion and £20.2 billion a year. Poor air quality can also have an economic impact by reducing productivity among people of working age. Department for Environment, Food and Rural Affairs (Defra) estimated that in 2012, poor air quality cost the UK economy £2.7 billion through productivity loss. As with the evidence of harm the exact figures should be seen as estimates; what they demonstrate is that there are potentially significant economic benefits as well as health benefits to set against costs.

What is particulate matter (PM)?

2.6 PM is a generic term used to describe a complex mixture of solid and liquid particles of varying size, shape, and composition. Some particles are emitted directly (primary PM); others are formed in the atmosphere through complex chemical reactions (secondary PM). The composition of PM varies greatly and depends on many factors, such as geographical location, emission sources and weather.

2.7 The main sources of manufactured PM are the combustion of fuels (by vehicles, industry and domestic properties) and other physical processes such as tyre and brake wear. Natural sources include windblown soil and dust, sea spray particles and fires involving burning vegetation.

2.8 PM is often classified according to by aerodynamic³ size and referred to as:

- coarse particles (PM₁₀; particles that are less than 10 microns (µm) in diameter)
- fine particles (PM_{2.5}; particles that are less than 2.5 µm in diameter)
- ultrafine particles (PM_{0.1}; particles that are less than 0.1 µm in diameter)

2.9 The size of particles and the duration of exposure are key determinants of potential adverse health effects. Particles larger than 10 µm are mainly deposited in the nose or throat, while particles smaller than 10 µm pose the greatest risk because they can be drawn deeper into the lung. The strongest evidence for effects on health is associated with fine particles (PM_{2.5}).

What is nitrogen dioxide (NO₂)?

2.10 NO₂ is a gas that is produced along with nitric oxide (NO) by combustion processes. Together they are often referred to as oxides of nitrogen (NO_x). Defra estimates that 80% of NO_x emissions in areas where the UK is exceeding NO₂ limits are due to transport, with the largest source being emissions from diesel light duty vehicles (cars and vans). Other sources include power generation, industrial processes, and domestic heating.

³ The aerodynamic diameter of a particle is defined as that of a sphere, whose density is 1 g cm⁻³ (cf. density of water), which settles in still air at the same velocity as the particle in question. This diameter is obtained from aerodynamic classifiers such as cascade impactors.

3. Air quality legislation

Clean Air Strategy 2019

- 3.1 The strategy sets out comprehensive actions required across all parts of government and society to improve air quality. The strategy sets out how the government will:
- protect the nation's health
 - protect the environment
 - secure clean growth and innovation
 - reduce emissions from transport, homes, farming and industry
 - monitor our progress
- 3.2 The strategy is a key part of delivering the government's 25 Year Environment Plan.

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland

- 3.3 [The Air Quality Strategy](#) sets out air quality aims and policy options to improve air quality in the UK. The objectives are policy targets often expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedances, within a specified period.
- 3.4 Local authorities have a legal duty to work towards achieving these air quality objectives. These objectives were set in the 1990s, since when there has been significant new evidence on the health effects. In addition, in setting the objectives the Government took account of several factors, such as economic efficiency, practicality, technical feasibility and timescale of achieving them. For these reasons public health can be affected below these levels.

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- 3.7 [A Clean Air Zone Framework](#) was published by the Government in May 2017 and replaces the 2015 Air Quality Plan, which reiterated the need for London to improve air quality.

London air quality plans and strategies

- 3.8 The Mayor of London has introduced a package of measures to achieve the statutory NO₂ limit values in London in the shortest possible time. This includes the [Ultra-Low Emission Zone \(ULEZ\)](#) introduced in 2019 in central London and its extension in 2021 to the area within the North and South Circular roads in 2021. This ULEZ is equivalent to a Class D charging CAZ (Clean Air Zones) in the Clean Air Zone Framework.

- 3.9 All London boroughs are also planning to introduce charging CAZs. Merton Council supports the Mayor Clean Air Zones and is explore introducing CAZs in the borough.
- 3.10 [The Mayor's London Environment Strategy 2018](#) contains a list of measures to improve air quality. The aim is *“for London to have the best air quality of any major world city by 2050, going beyond legal requirements to protect human health and minimise inequalities”*.
- 3.11 The strategy includes setting new targets for PM2.5 with the aim of meeting World Health Organization (WHO) guidelines by 2030, the establishment of zero emission zones from 2020, the introduction of an air quality positive development, the phasing out the use of fossil fuels to heat, cool and maintain London’s buildings and the introduction of a low emission zone for non-road mobile machinery (NRMM).
- 3.12 The statutory framework for local air quality management is the National Air Quality Regulations and Part IV of the [Environment Act 1995](#). This remains in place and applies to all London boroughs. However, it was agreed with Department for Environment, Food and Rural Affairs (Defra) that, the relevant Local Air Quality Management guidance (LAQM) for London should differ from the rest of the UK in recognition of the particular challenges the capital faces.
- 3.13 Therefore, the Mayor of London (“the Mayor”) in May 2016, launched a bespoke system for the capital - London Local Air Quality Management (LLAQM). The LLAQM is the statutory process by which London boroughs are required to review air quality in their boroughs. It has two main purpose:
- To encourage close working to help address this vital issue.
 - To decide if air quality objectives set within the Air Quality Regulations 2000 and the Air Quality (Amendment) Regulations 2010 are likely to be met in a certain area. The LLAQM, also drives improvements to achieve those objectives.
- 3.14 The key LLAQM requirements for boroughs are:
- To continue to monitor and assess air pollution in their areas.
 - To ensure an Air Quality Management Area (AQMA) is declared and in place for any locations that are exceeding air quality objectives and EU (European Union) Limit Values.
 - To ensure that a current and relevant Air Quality Action Plan is in place for all AQMAs (Air Quality Management Area). The Action Plan should be updated every five years at a minimum, and progress against this should be reported annually.
 - To complete the annual monitoring and Action Plan update reports.

Merton’s Local Area Quality Management plan and other air quality documents and plans can be viewed on Council’s website: [Air quality plans and reports](#)

- 3.15 To help the boroughs undertaken their LLAQM duties the Mayor has identified several areas where there are both high concentrations of air pollution and high public exposure. These are known as Air Quality Focus Areas (AQFAs).

Low Emission Neighbourhoods

- 3.16 The Mayor of London has introduced Low Emission Neighbourhoods (LENs) which are area-based schemes that includes a package of measures focused on reducing emissions and promoting sustainable living more generally. A LEN is delivered by a borough with support from TfL, the Greater London Authority (GLA) and the local community. LENs are focused on areas of high exposure to high pollution which can be reduced through local measures, and locations with high trip generation and the potential to reduce emissions in the wider road network.

4. Planning policy context

- 4.1 In assessing planning applications that may affect air quality in Merton or give rise to new exposure to poor air quality, the Council will have regard to policies in our Local Development Plan including this SPD, Merton's Air Quality Action Plan (AQAP), the London Plan, national planning policies and associated documents such as Supplementary Planning Guidance (SPG) and national planning guidance. The most recent version of plans and guidance documents, or equivalent, must be followed.

Local planning policies

- 4.2 Merton Council Local Plan looks to ensure that local environmental impacts of all new development proposals do not lead to detrimental effects on the health, safety and the amenity of existing and new users or occupiers of the development site, or the surrounding land. The Local Plan policy: *Improving air quality and minimising pollution*.
- 4.3 [Merton's Local Plan](#) promotes active travel, efforts to minimise single occupancy vehicle journeys, encouraging more electric vehicles use and supporting landscaping and planting. The Local Plan air quality policy focuses on the requirements for assessing air quality at the planning application stage. Furthermore, the policy states that, where necessary the council will set planning conditions to reduce local environmental impacts and protect amenity on adjacent land uses to acceptable levels.
- 4.4 [Merton's Supplementary Planning Documents](#): Merton Council has produced several SPDs, each giving further guidance on planning policies within our Local Plan. All our SPDs draw upon relevant national, regional and local authority requirements and expectations for sustainable development and good practice. Merton's SPDs cover a range of topic such as basement development, sustainable drainage, housing and design. It is advisable to read and have regard to these Merton's SPDs depending on the nature and type of development proposal.
- 4.5 [Merton's Third Local Implementation Plan \(LIP3\)](#) is the council's main transport strategy and sits alongside the council's Local Plan and other future strategies. The [Mayor's Transport Strategy \(MTS\)](#) requires London boroughs to produce a Local Implementation plan setting out how they will deliver the Mayor's transport objectives and MTS goals.
- 4.6 The LIP3 has an overview of the challenges and opportunities in delivering the Mayors' Transport Strategy within Merton. It sets how the Council will of Merton's transport objectives; a short- and longer-term delivery plan and a series of targets set by Transport for London (TfL), that we are working towards achieving. The LIP3 shows how Merton Council will work towards achieving the MTS (Mayor of London Transport Strategy) goals of:

- Healthy Streets and healthy people
- A good public transport experience
- New homes and jobs

Mayor of London strategies and Supplementary Planning Guidance (SPG)

London Plan

- 4.7 The overarching plan for London is the Mayor’s London Plan. It is the statutory Spatial Development Strategy for Greater London prepared by the Mayor of London (“the Mayor”) in accordance with the [Greater London Authority Act 1999 \(as amended\)](#) (“the GLA Act”) and associated regulations. In December 2019 following an Examination in Public the Mayor considered the Planning Inspectors recommendations and issued to the Secretary of State his intension to publish the London Plan (a clean and tracked version) of the Intend to Publish London Plan. This London Plan is expected to be adopted in spring 2020⁴.
- 4.8 The Mayor of London is obliged to produce [Mayoral Strategies](#) which, support the London Plan, covering topics such as housing, health inequalities, economy, skills and training, transport and culture. It is advisable to have regard all the Mayoral Strategies when submitting development proposals. The following paragraphs provides a highlight of the Mayoral Strategies *-it is does not provide a full account of each strategy nor is the list exhaustive.*

Environment Strategy

- 4.9 This is the first strategy to bring together approaches to every aspect of London’s environment, integrating the following areas:
- air quality
 - green infrastructure
 - climate change mitigation and energy
 - waste
 - adapting to climate change
 - ambient noise
 - low carbon circular economy
- 4.10 The overarching aim of the [Environment Strategy](#) is to reduce air pollution in London so that the health of all Londoners is improved. The strategy states that all new major development must be Air Quality Neutral (AQN). Development that meets or is better than the AQN benchmarks are considered to avoid any increase in NOx (nitrogen oxides) and PM emissions across London and are therefore “Air Quality Neutral.” This influences the background air pollution in London.
- 4.11 Larger developments have the potential to go further and improve local air quality by effective design. For example, by the provision of low or zero emission heating. This is considered to be Air Quality Positive development and the Mayor is committed to providing guidance for developers and others on the most effective approach to take to ensure a development is Air Quality Positive. This approach is consistent with the London Plan (2020), Policy SI 1 *Improving air quality*.

⁴ This is subject to change

Health Inequalities Strategy

4.12 The London [Health Inequalities Strategy](#) sets out the Mayor's ambitions to improve Londoners' health and reduce health inequalities across the city. The strategy has 6 aims:

- Healthy children
- Healthy minds
- Healthy Places
- Healthy communities
- Health living

4.13 All the above aims highlight the important of tackle London air pollution and reducing the causes of poor air.

The transport Strategy

4.14 The [Transport Strategy](#) says that transport does not only shape our daily lives and how we get around London – it can create new opportunities for Londoners and shape the character of our city. It points out that car dependency has contributed to an increase in poor public health across our city. Streets can often be polluted, congested and dangerous – unwelcoming places to walk or cycle. More sustainable modes such as the tube, rail and bus can be overcrowded, sometimes unreliable and indirect; meaning there is no appealing alternative to car use for many. The strategy details how the Mayor aims to change the transport mix across London, providing practical and attractive alternatives that will allow Londoners to reduce their dependence on cars. The Strategy as its golden thread has a Healthy Streets Approach focusing on:

- Healthy Streets and healthy people
- A good public transport experience
- New homes and jobs

The London Food Strategy

4.15 The [Food Strategy](#) recognises and emphasis that the way the food system works has a major influence on London's air quality. Our food supply depends on many sources and processes. As the London Environment Strategy highlights, for every two tonnes of food eaten in the UK, another tonne is wasted. Most of this ends up in landfill or is incinerated.

4.16 The whole food supply chain impacts the environment from production to transportation to packaging and the unused food that is thrown away. The food system is also a major determinant of London's air quality.

Economic Development Strategy

4.17 The [Economic Development Strategy](#), acknowledges that growth must not come at the expense of poorer air quality, higher greenhouse gas emissions, increased noise levels, unfair employment practices or greater inequality.

Mayoral Supplementary Guidance's (SPGs)

In relation to air quality there are two that all development proposal must have regard to Sustainable Design and Construction and The Control of Dust and Emissions during Construction and Demolition SPGs (Supplementary Planning Guidance).

- 4.18 [Sustainable Design and Construction SPG](#): includes guidance on preparing air quality assessments, minimising emissions, addressing exposure to air pollution, air quality neutral requirements and emissions standards for combustion plant.
- 4.19 *On-site Combustion Plant*: The Sustainable Design and Construction SPG sets emission limits for certain combustion plant and requires the use of ultra-low nitrogen oxides (NOx) boilers. These limits for individual boilers must always be met. In addition, stack discharge velocities should be above the recommended minimum and be at right heights above nearby buildings. The emissions from any centralised onsite energy plant must form part of an Air Quality Assessment (AQA).
- 4.20 [The Control of Dust and Emissions during Construction and Demolition SPG](#), describes requirements for dust assessments, pollutant monitoring and standards. All Non-Road Mobile Machinery (NRMM) used during the course of the development that is within the scope of the GLA 'Control of Dust and Emissions during Construction and Demolition' Supplementary Planning Guidance (SPG) dated July 2014, or any successor document, shall comply with the emissions requirements there. The SPG requires developers to produce an Air Quality and Dust Risk Assessment (AQDRA) and sets out minimum emission requirements for non-road mobile machinery (NRMM).
- 4.21 Furthermore, the Council has a Local Code of Practice for Construction and Demolition Sites, this provides simple advice to developers on environmental controls required by the borough.
- 4.22 **Air Quality Neutral**: Calculation of emissions compared to the Air Quality Neutral (AQN) benchmarks must be carried out as part of the assessment of air quality impacts (see Section x). If the AQN benchmarks cannot be met planning consent will be refused. Following the publication of the Government's Housing Standards Review in March 2015, the Air Quality Neutral benchmarks, and the on-site energy generation emission limits referenced below, cannot be required for developments that are residential only.
- 4.23 However, the Mayor of London and national government have legal obligations on compliance with the EU (European Union) limits for ambient air quality. To address those obligations, with respect to nitrogen dioxide (NO₂), residential developers are strongly encouraged to ensure that emissions meet the AQN benchmarks.
- 4.24 **Air Quality Positive (AQP)**: at the time of writing this SPD the Mayor of London had not produced guidance on Air Quality Positive development. Once one has been produced it must be used to inform the design and layout of large developments in Merton.

National planning policy and associated guidance

- 4.25 [The National Planning Policy Framework \(NPPF\)](#) requires that planning policies and decisions contribute to and enhance the natural and local environment by ensuring that new development proposals do not contribute to or have an adverse impact on the levels of air pollution. In addition, secure a good standard of amenity for all existing and future occupants of land and buildings. The national [Planning Practice Guidance \(PPG\)](#) provides general advice on the assessment of air quality.

Other planning considerations

- 4.26 [Building Regulations](#): covers the construction and extension of buildings. It is advisable to check if approval is needed before constructing or changing buildings in certain ways.
- 4.27 **Planning condition**: planning permission can be granted subject to planning conditions.

Conditions are a necessary tool to enhance the quality of a development and to mitigate adverse impacts that might otherwise arise. They can only be imposed where they are necessary, relevant to planning and the development, and are enforceable, precise and reasonable in all other respects.

- 4.28 Conditions relating to the air quality impact of a development will meet these requirements. A planning obligation (under Section 106 of the Town and Country Planning Act 1990 (as amended) may also be used as a site-specific mitigation mechanism. The NPPF states that *“Planning obligations must only be sought where they meet all of the following tests:*
- a) Necessary to make the development acceptable in planning terms.*
 - b) Directly related to the development; and*
 - c) Fairly and reasonably related in scale and kind to the development.”*

Community Infrastructure Levy

- 4.29 CIL (Community Infrastructure Levy) is a charge on new development that is used to help fund the provision of infrastructure necessary to support development in Merton. The CIL operates through a charging schedule and from 31st December 2020 is supported by an annual Infrastructure Funding Statement which outlines the broad types of infrastructure that will be funded. The amount of CIL received and spent is monitored and reported on an annual basis. Further information on Merton’s CIL can be found on the [CIL webpage](#).
- 4.30 Most developments where there is an increase in floorspace of at least 100m² will be required to pay the CIL (Community Infrastructure Levy). There is no specific air quality component to the CIL in Merton, but Infrastructure Funding Statements will identify a range of infrastructure investment which could mitigate the impacts of airborne pollution in Merton for example through the provision and improvement of open spaces, reduce the potential for emissions for example through decentralised energy facilities or transport and public realm improvements leading to a reduction in vehicular traffic in specific areas.

Planning obligations

- 4.31 Planning Obligation (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. Merton’s [Planning Obligation SPD](#) explains how obligations are used.

5. Air Quality Assessments (AQA)

AQA Scoping

- 5.1 In line with Merton’s Local Plan the Council requires all new developments to be at least ‘air quality neutral.’ Preferably developments should be ‘air quality positive’ and if necessary, to be accompanied by an air quality assessment. This is designed to manage and prevent further deterioration of existing poor air quality across the borough. The requirements for the assessment of air quality impacts on new developments are set out in the following paragraphs.

Scoping the need for assessment

- major developments will need an Air Quality and Dust Risk Assessment (AQDRA) of the construction impacts.
- major developments that could have a significant negative impact on air quality during its operation will need an AQA (incorporating the AQDRA); and
- any development that will introduce new exposure to poor air quality will require an AQA

Air Quality Assessments (AQA)

5.2 The aim of an AQA is to find any significant impact on local air quality and/or disamenity due to dust and/or odour and/ or whether new development will introduce new exposure in an area of poor air quality. The contents of the AQA will depend on the nature of the proposed development.

5.3 An air quality assessment (AQA) must accompany planning applications as follows:

- major developments will need an air quality and dust risk assessment (AQDRA) of the construction impacts.
- major developments that could have a significant negative impact on air quality during its operation will need an AQA (incorporating the AQDRA); and
- any development that will introduce new exposure to poor air quality will

5.4 In deciding whether an AQA is needed developers should use the following criteria:

- A development that introduces new exposure to unacceptable levels of air pollution. For example, residential development in an area where an air quality objective or World Health Organization (WHO) guideline value may be exceeded or where there is a known odour issue. This applies to developments of all sizes including single houses and conversion of existing buildings. The poor air quality may be due to:
 - a) Emissions from adjacent roads.
 - b) Emissions from a nearby industrial process or large boiler; or
 - c) The proposed development creating a street canyon or other similar effect which reduces the dispersion of emissions.
- Any major development that meets the criteria for an AQA in the most recent Environmental Protection UK and Institute of Air Quality Management Guidance (“EPUK/IAQM Guidance”). Further details can be found in Appendix D.
- All mineral and waste developments requiring planning consent; and
- Development regulated under the Environmental Permitting (England and Wales) Regulation.

5.5 [The Institute of Air Quality Management](#) have produce several guidance to enhancing the understanding and development of the science behind air quality by promoting knowledge and understanding of best working practices. They have produced guidance air quality impacts on nature sites Guides covering:

- Impacts on designated nature conservation sites
- Vicinity of demolition and construction sites
- Assessing odour for planning
- Assessing mineral dust impact for planning

5.6 The relevant IAQM (Institute of Air Quality Management) guidance document (or any updates) should be followed for developments that are likely to emit odours, new development that might be affected by existing odours, and mineral developments.

Chapter 6 of EPUK/ IAQM's guidance on Land Use Planning and Development Control: Planning for Air Quality provides advice on undertaking an AQA. Developers required to produce an AQA for air pollutants, other than odour and dust, are recommended to instruct their consultants to follow this guidance (or future updates).

- 5.7 The relevant IAQM guidance document (or any updates) should be followed for developments that are likely to emit odours, new development that might be affected by existing odours, and mineral developments. 139. Chapter 6 of EPUK/ IAQM's guidance on Land-Use Planning & Development Control: Planning for Air Quality provides advice on undertaking an AQA. Developers required to produce an AQA for air pollutants, other than odour and dust, are recommended to instruct their consultants to follow this guidance (or future updates)
- 5.8 When modelling the impact of road Appendices transport, it is important that realistic forecasts of future emissions are used. The Emissions Factor Toolkit (EFT) produced by Defra for LLAQM has tended to be optimistic and resulted in an underestimation of future NO₂ concentrations. All AQAs (Air Quality Impact Assessments) of traffic impacts must discuss the uncertainty of predictions of future concentrations (which relates to both the assumed rate of fleet turnover and the emissions from future vehicles which may not exist and therefore the on-road performance is not known) and use professional judgement to determine the likely significant effects, taking into account the need for a conservative approach.
- 5.9 Where a centralised boiler/combined heat and power/ combined cooling, heating and power plant is included in a development, the AQA should model the impacts using a proper dispersion model and provide technical data on:
- fuel type.
 - emission characteristics including temperature at the flue exit, efflux velocity or volumetric flow rate, and concentration or emission rate (at standard conditions. if actual data provided state conditions).
 - stack location and dimensions.
 - building(s) location, dimensions and orientation to north.
 - assumed operating hours.
 - the maintenance regime; and
 - the cumulative impact of traffic and energy plant emissions at receptors
- 5.10 The Council may impose a planning condition restricting the operation of the plant to the hours of operation assumed in the AQA. The EPUK/IAQM criteria should be used to assess the significance of the impact on air quality at individual receptors using the WHO guideline values, not the air quality objectives as the air quality assessment levels.
- 5.11 To determine the overall significance of the effect on public health the range of local circumstances and the uncertainty of the predicted concentrations should be considered. These include, but are not limited to:
- The existing and future air quality in the absence of the development.
 - The extent of current and future population exposure to the impacts; and
 - The influence and validity of any assumptions adopted when undertaking
 - The prediction of impacts

Merton's Air Quality Assessments (AQA) requirements

5.12

The AQA should include the following:

- Site location and brief description of the proposed development as it relates to air quality, including any mitigation measures designed into the development.
- A description of all nearby sources of pollution likely to impact on the development, including emissions from nearby centralised boilers/CHP/CCHP.
- Outline of the relevant planning and air quality policy (include odour and dust when appropriate).
- Description of the assessment method with data presented.
- Location and description of all receptors used in the assessment. This should include any particularly sensitive receptors²⁶ and may include ecological receptors.
- Assessment of the current air quality/ dust/odour in the vicinity of the proposed development.
- Prediction of the impact of the proposed development - for road traffic impacts this needs to include the future air quality both with and without the proposed development.
- An assessment of the impacts at individual receptors; description and quantification of further mitigation measures required to make the development acceptable in air quality terms.
- An assessment of the significance of the impacts after mitigation.
- An assessment of the cumulative impacts with other development during construction and operation.
- A statement as to whether the development is or is not consistent with the Borough's Air Quality Action Plan; and
- Conclusion of the assessment.

5.13

Where applicable, assessments should be carried out using a worst-case approach. For example, if certain parameters are unknown, reasonable worst-case assumptions should be used to ensure that the assessment results are conservative in nature. All AQA must be carried out by qualified air quality specialist in the case of, development that may be near or next to nature and open space the AQA must have input from a qualified ecologist. It is recommended that developers and/ or their air quality consultants agree with the Council's Air Quality Officer the method and data to be used in the AQA prior to beginning the assessment.

Cumulative impact

5.14

Developers must assess the cumulative impact of multiple air pollution sources from the new development e.g. the combined impact of traffic and energy plant. The developer must also assess the cumulative impact of the construction and operation of the proposed development with all consented developments nearby. Consideration of proposed but not yet consented developments may be required and developers should check with the Council's Air Quality Officer before beginning their assessment.

6. Development and building design principles

- 6.1 Merton Council requires the sustainable design principles as set out in the Local Plan to be incorporated with in all development proposals. In addition, the Sustainable Construction Checklist and the London Sustainable Design and Construction SPG should be built into the design of all proposed development. Design should ensure that:
- Emissions associated with the development are minimised.
 - Existing occupants are not exposed to increased levels of air pollution; and
 - Occupants of new developments will not be exposed to poor air quality.

Development Principles

- 6.2 The following broad principles will be applied when considering development proposals for development that may have the potential to impact on air quality, result in an increase in the number of people exposed to poor air quality or cause disamenity. The development principles are:
- avoid during construction and operation of new development impacts on air quality to protect the health of people living and working in the borough
 - avoid during construction and operation of new development adverse effects on local amenity of people living and working in the borough
 - reduce to a minimum emission from new development, including from the associated road traffic, to improve air quality across the borough
 - prevent development which is unacceptable in terms of air quality, odour, dust or other air emissions
 - employ good air quality design

Development Design

- 6.3 All new development should be designed to minimise air quality impacts:
- The layout and design of all sites must consider the impact of poor air quality on existing and new receptors. The layout should set buildings as far from main roads as possible, avoid windows and habitable rooms fronting main roads and where possible use buildings as a screen against poor air quality.
 - Non habitable room and corridors in residential developments and communal halls, canteens, changing rooms etc in commercial or community developments such as schools and hospitals should be located front facing the main road.
 - The impact of existing sources of air pollution, including road traffic and exhaust from energy plants in adjacent building may affect air quality within a new development. This must be considered at the earliest stage of the design development and process.

Construction Phase

- 6.4 The construction phase of major development can result in emission of air pollutants that adversely affects human health as well as dust that may lead to nuisance or disamenity. To ensure that emissions are well controlled all planning consents for major development will include relevant planning conditions to reduce such impacts. A contribution to any additional resourcing required by the Council to fulfil added regulatory duties associated with the development may be required.

Odour

- 6.5 Development Proposals for major development that is likely to give rise to odour will need to include satisfactory evidence that there will not be an adverse impact on neighbouring land uses. In addition, any sensitive development proposed close to an existing odour source will also need to show that there will be no adverse impact on future users.
- 6.6 In the case of small-scale developments (e.g. commercial kitchens), evidence must be submitted to demonstrate that odour emissions will be controlled to prevent significant loss of amenity to neighbouring sensitive land uses. Typically, this will be by submission of a detailed ventilation scheme incorporating high level discharge and odour abatement. There should be no low-level discharge. Larger sources of odour must submit an odour assessment undertaken by a competent and qualified person. This must show that the proposed development is acceptable and will not intentionally affect the amenity of neighbouring land.
- 6.7 Where a development is proposed close to an existing source of odour the assessment must show that the users of the development will not be adversely affected by the development.

Building Ventilation

- 6.8 Merton Council requires the impact of outdoor air pollution on indoor air quality in new developments be considered at the earliest stages of building and layout design process. 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.
 - Air conditioning systems can be fitted with filters which filter particulates and NO₂; the appropriate standard filter should be maintained following installation.

Biomass or Biofuel Boilers and Combined Heat and Power

- 6.9 When sited and specified appropriately following 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 Sustainable Design and Construction SPG are not exceeded. The Sustainable Design and Construction SPG does not currently provide guidance where plant is <50kWth input. The Council would expect such plant to meet a NO_x emission limit of <50mgNm³ at 5% (dry gas) as a minimum
- 6.10 When considering how to achieve, or work towards the achievement of, the renewable energy targets, the Council would prefer developers not to consider installing a biomass burner due to Merton's status as an Air Quality Management Area for fine particles and nitrogen dioxide.
- 6.11 Research shows that the widespread use of these appliances has the potential to increase particulate levels in London to an unacceptable level. 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.

6.12 Where CHP, biomass or biofuel boilers are proposed, plant emissions must be evaluated as part of a detailed Air Quality Impact Assessment. 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

6.13 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 permission:

- The results of an emissions test proving compliance with the emission and efflux velocity requirements of the Mayor Sustainable Design and Construction SPG.
- An equipment maintenance schedule demonstrating that the emission standard would always be met.

Generators

6.14 Diesel generators have high emissions of NOx 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 to avoid the use of diesel generators on site.

6.15 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, placement and use of the generator should be carefully considered at the planning stage in relation to up to date guidance.

6.16 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. Generator hierarchy overview:

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

Combustion Flues and Efflux Velocity

6.17 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 end 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 Council. Regarding this requirement, consideration needs to be paid to the location of outside amenity space associated within the development and its neighbours.

- 6.18 The [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. Regarding CHP and biomass boilers, discharge velocity requirements are provided in Appendix 7 of Sustainable Design and Construction SPG, or any updates thereof.

7. Green infrastructure

- 7.1 Green infrastructure will play a significant role in reducing exposure for many years to come as our transport system evolves. Whilst pollution from road transport is forecast to decrease significantly, an important source of ultrafine PM (the smallest particles) from road transport is the non-exhaust emissions associated with brake, tyre and road wear. In the long term, a reduction in traffic volume will be required to address these non-exhaust emissions.
- 7.2 The Mayor's Transport Strategy includes the ambitious target that 80% of trips in London are made on foot, by cycle or using public transport by 2041. Green infrastructure can help reliably reduce exposure to ultrafine PM emissions and their impacts on public health.
- 7.3 There are two key processes that explain how green infrastructure can protect people from pollution, dispersion and deposition.
- 7.4 *Dispersion:* Urban vegetation can reduce the amount of emissions people are exposed to. It does this by changing the speed and distance pollutants travel before they reach people. The further the distance the more the pollution is diluted with cleaner air – this process is known as dispersion.
- 7.5 *Deposition:* Urban vegetation typically removes a few per cent of emissions by a process called deposition. This refers to when pollution lands on the surface of the leaf and is removed from the air. This process is less important for reducing exposure to air pollutants in the urban environment than dispersion. When planning and designing, new development it is recommended must have regard to the Mayor of London guidance, [Using green infrastructure to protect people from air pollution](#). The guidance is divided into two parts:
- Street canyons: street with buildings on both sides
 - Open roads: road with buildings only on one side, flanked by detached, single story buildings that are widely spaced and/or setback by a considerable distance

Figure 5: The right green infrastructure

Street canyons		Open roads	
Where air quality at street level is better than above surrounding buildings: street canyons with little or no traffic	Where air quality at street level is worse than above surrounding buildings: street canyons with moderate or heavy traffic	Where priority is to protect people immediately at the roadside (e.g. pedestrians and cyclists)	Where priority is to protect people further away (e.g. children in a school playground bordering the street)
	All street canyons with moderate or heavy traffic	Canyons of this sort with height/width ratio < 2	A combination of hedge and dense line of trees can provide a taller vegetation barrier, offering protection over a greater distance downwind
A dense avenue of trees can provide effective protection from polluted air above and create a clean 'green corridor' for active travel	Addition of green open space to one side (opening the street canyon) is always beneficial	A hedge or green wall between vehicles and people can reduce exposure in their immediate wake	

Source: Using green infrastructure to protect people from air pollution.

Green Roofs, Walls and Planting

7.6 As well as increasing biodiversity, plants can play a role in trapping fine particles (PM10 and PM2.5) found in the air we breathe. Research shows 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. To help improve air quality, developers are encouraged to source trees and plants which have these characteristics to include in open spaces, on green walls and roofs. The choice of species should also have regard to future climate conditions.

Outdoor Private and Communal Space

7.7 Roof gardens and terraces are becoming a common feature in London 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 right 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.

Public Realm

7.8 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.

8. Construction

Industrial and Commercial Premises

- 8.1 The assessments on the impacts of industrial emissions will depend on the type of process and, may include the impact of the traffic associated with the development as well as the emissions from the process itself. All potentially significant impacts from major development on air quality must be assessed, typically using a dispersion model.
- 8.2 For smaller operations that may give rise to odours, dust, smoke, dust or other air emissions, including commercial operations such as nail bars and commercial kitchens, information on the pollution control systems may be sufficient. Development proposals that have air emissions will be required to provide evidence of the:
- Pollution control system.
 - Maintenance schedule; and
 - Management systems to mitigate the impact

- 8.3 For developments not subject to the pollution control regime, planning consent will include a planning condition requiring the servicing and maintenance of the pollution control system.

Non-Road Mobile Machinery (NRMM)

- 8.4 All Non-Road Mobile Machinery (NRMM) used during the development that is within the scope of the Mayor's Control of Dust and Emissions during Construction and Demolition SPG or, any subsequent amendment or guidance, shall comply with the emission requirements there.

Transporting Waste and Construction Materials

- 8.5 To avoid congestion on the local road network, an outline [Construction Logistics Plan \(CLP\)](#) will be required with the planning application. Advice on the preparation of a CLP is provided by Merton Council Traffic and Highway team.
- 8.6 Deliveries at sensitive locations, for example close to schools, will need to avoid peak hours on grounds of both air quality and safety. Planning Consents for major developments will include a condition requiring the submission of a detailed CLP to be submitted for approval by the local planning authority. This will commit the developer to implement the plan for the duration of the construction works.
- 8.7 For development sites in and close to AQFAs, LENs and CAZs the Construction Logistic Plan should include
- Consideration of alternative transport measures including transporting waste and construction materials to and from development sites by train or water
 - delivering materials over the 'last mile' by electric vehicles, or at times to be agreed by the local planning authority; and
 - Restrictions on the use of certain types of vehicles e.g. exceptionally large vehicles if they may add to local congestion, restrictions based on vehicle emission standards and/or other restrictions considered appropriate by the Council.

Operational Phase

- 8.8 Merton Council requires the design principles as set out in the Local Plan and the Mayor's Sustainable Design and Construction SPG to be built into the design of all proposed developments. Design should also ensure that existing occupants are not exposed to increased levels of pollution and that occupants of new developments will not be exposed to poor air quality.
- 8.9 The London Plan requires all major developments to be air quality neutral and large developments to be air quality positive. Developers should look to mitigate the air quality impacts, preferably through on-site measures, but where this is not possible, through off-site measures. Developers will need to contribute to the Borough's Air Quality Fund to mitigate any residual impacts. Planning consents for major developments will include one or more conditions requiring mitigation measures to make development acceptable in air quality terms. Developers may also be asked to submit a Delivery and Service Plan where applicable.

9. Transport

Traffic reduction

- 9.1 Emissions from road traffic are the dominant source of elevated pollutant concentrations in London. Merton Council promotes modes of transport with low impacts on air quality in the Local Plan and LIP3 such as cycling and walking. The Council will require development proposals to incorporate transport measures that will contribute to minimising poor air quality such as:
- Public transport infrastructure and/ or additional public transport services, including financial contributions for public transport improvements (in addition to those required to mitigate transport impacts).
 - All major development must have a travel plan. The travel plan must demonstrate how it will be maintained and how it will encourage all members of the development, residents, occupants, staff and visitors to travel sustainably. It must quantify emission reductions and air quality benefits.
 - Developments should provide cycle parking in accordance with the standards set out in the London Plan as a minimum. Development proposals should demonstrate how cycle parking facilities will cater for larger cycles, those catering for the carriage of children and cycles adapted for disabled people.
 - Car club parking bays should be provided in all residential developments of 25 or more dwellings, at a rate of 1 per 25 dwellings, unless acceptable grounds can be given for alternative numbers.
 - Dedicated car parking area(s) should be located near the site entrance where practical. Individual parking spaces next to houses will be discouraged.

Electric vehicles

- 9.2 To improve air quality in Merton, the number of low emission vehicles usage needs to increase substantially. At the time of this SPD, a government consultation on changings to the Building Reg. The plan is to transpose EU legislation under the EU Energy Performance of Building Directive (EPBD) to set minimum requirements for electric vehicles charging infrastructure in new and existing non-residential buildings. The changes would mean that every new residential building with an associated car parking space and every non-residential with more than 10 spaces will need to have at least one changing point and cable router for electric vehicle charging for on in five spaces.

9.3 Car parking should be provided with active and passive electric vehicle charging facilities consistent with the Local Plan and London Plan. Policy T6 Car parking ([London Plan 2020](#)) states that:

*Where car parking is provided in new developments, provision should be made for infrastructure for electric or other Ultra-Low Emission vehicles in line with **Policy T6.1 Residential parking, Policy T6.2 Office parking, Policy T6.3 Retail parking, and Policy T6.4 Hotel and leisure uses parking**. All operational parking should make this provision, including offering rapid charging. New or re-provided petrol filling stations should provide rapid charging hubs and/or hydrogen refuelling facilities*

Air Quality Focus Areas (AQFAs), Low Emission Neighbourhoods (LENs) and Clean Air Zones (CAZs)

9.4 AQFAs, LENs and CAZs have been designated in locations where there is unacceptable air pollution and for AQFA and LENs high exposure, which needs to be reduced as quickly as possible to protect human health. Introducing new emission sources into these areas, or areas bordering and having an adverse effect on them.

9.5 All developments proposed in or next to these areas must play their part in ensuring that air quality in these areas does not worsen and must contribute towards an overall improvement in air quality. Therefore, development within these areas need to robustly demonstrate that the impact of both direct and indirect emissions can be fully mitigated. Combustion plants should be avoided in these areas. Buildings are expected to use electric space and water heating, preferably generated using renewable energy sources, such as solar power and heat pumps.

9.6 All development in these areas should be car-free, apart from dedicated spaces for disabled parking and use by a car club as well as appropriate servicing arrangements (see below). No parking permit shall be issued in neighbouring CPZs (Controlled Parking Zone) (Controlled Parking Zone). All development in AQFAs, CAZs and LENs should be Air Quality Positive. Where this is not possible, additional contributions to the AQAF will be required

9.7 In addition, development for use by groups of the population that are particularly sensitive to the health effects of air pollution should not be located within these areas to reduce the number of vulnerable people exposed to poor air quality and improve public health. These include, but are not limited to:

- Schools,
- day care and pre-school facilities,
- GP surgeries,
- nursing homes,
- care homes and sheltered accommodation and
- National Health Service facilities including hospitals and playgrounds; and community centres.

9.8 Residential development in these areas will need to show that proven mitigation measures will be implemented to reduce the exposure of future residents to acceptable levels. If there is uncertainty about future air quality, mitigation measures must enable annual mean concentrations to be reduced to at least 75% of the air quality objective or lower. Proposals should not incorporate STOR plant in these areas.

Appendices

Appendix A. Glossary

Air pollution	The presence of substances in the atmosphere that may cause harm to humans, and the natural or built environment. This includes nitrogen dioxide, odour and dust (including the smaller particles often referred to as particulate matter or PM).
Air Quality	A generic term referring to the level of pollution in the air.
Air Quality Assessment (AQA)	An assessment of the impact of a development on the levels of certain pollutants in the local area.
Air Quality Focus Areas	Air Quality Focus Areas as defined by the Greater London Authority in 2014, and any future designations.
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.
Exceedance	Concentrations of a specified air pollutant greater than the appropriate Air Quality Objective.
LLAQM.TG.16	London Local Air Quality Management Technical Guidance (2019). This document provides advice on how London local authorities should assess air quality.
Limit Values/EU limit values	The maximum pollutant levels set out in the EU Directives on Ambient Air Quality. In some cases, the limit value is the same as the national air quality objective but may allow a longer period for achieving it.
Major development	Development involving any one or more of the following: <ul style="list-style-type: none"> (a) the winning and working of minerals or the use of land for mineral-working deposits. (b) waste development. (c) the provision of dwelling houses where: <ul style="list-style-type: none"> (i) the number of dwelling houses to be provided is 10 or more; or (ii) the development is to be carried out on a site having an area of 0.5 hectares or more and it is not known whether the development falls within sub-paragraph (c)(i). (d) the provision of a building or buildings where the floor space to be created by the development is 1,000 square metres or more: or (e) development carried out on a site having an area of 1 hectare or more.

Mitigation	Mitigation measures will minimise, but not necessarily remove, the air quality impact of 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 published in July 2007, with a supplement published in May 2018.
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 is 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 area. This might be for example by funding more general measures in the Borough's air quality action plan.
Part A1, A2 and B Processes	Types of industrial processes which are regulated under the Environmental Permitting Regulations.
PM ₁₀	Particulate matter with a diameter of less than 10 microns.
PM _{2.5}	Fine particulate matter with a diameter of less than 2.5 microns.
Receptor	A location where members of the public might be exposed to air pollution. Typically depends on the averaging period of the air quality objective as illustrated in Box 1.1 in LLAQM Technical Guidance (known as LLAQM.TG.16).
Sensitive receptor	A receptor where particularly vulnerable groups of the population spend significant time. These include children's nurseries, schools, playgroups, hospitals, GP surgeries/health centres/nursing homes and care homes.
Street canyon	A road with buildings either side which restrict the dispersion and dilution of the emissions.
Vulnerable groups of the population	Generally considered to be children, the elderly and those with pre-existing respiratory and cardiovascular diseases. During demolition of buildings patients with diseases that suppress their immune system may be vulnerable groups due to the emission of fungal spores.

Appendix B: London Atmospheric Emissions Inventory for Merton

Figure 6: CO2 emissions by source type

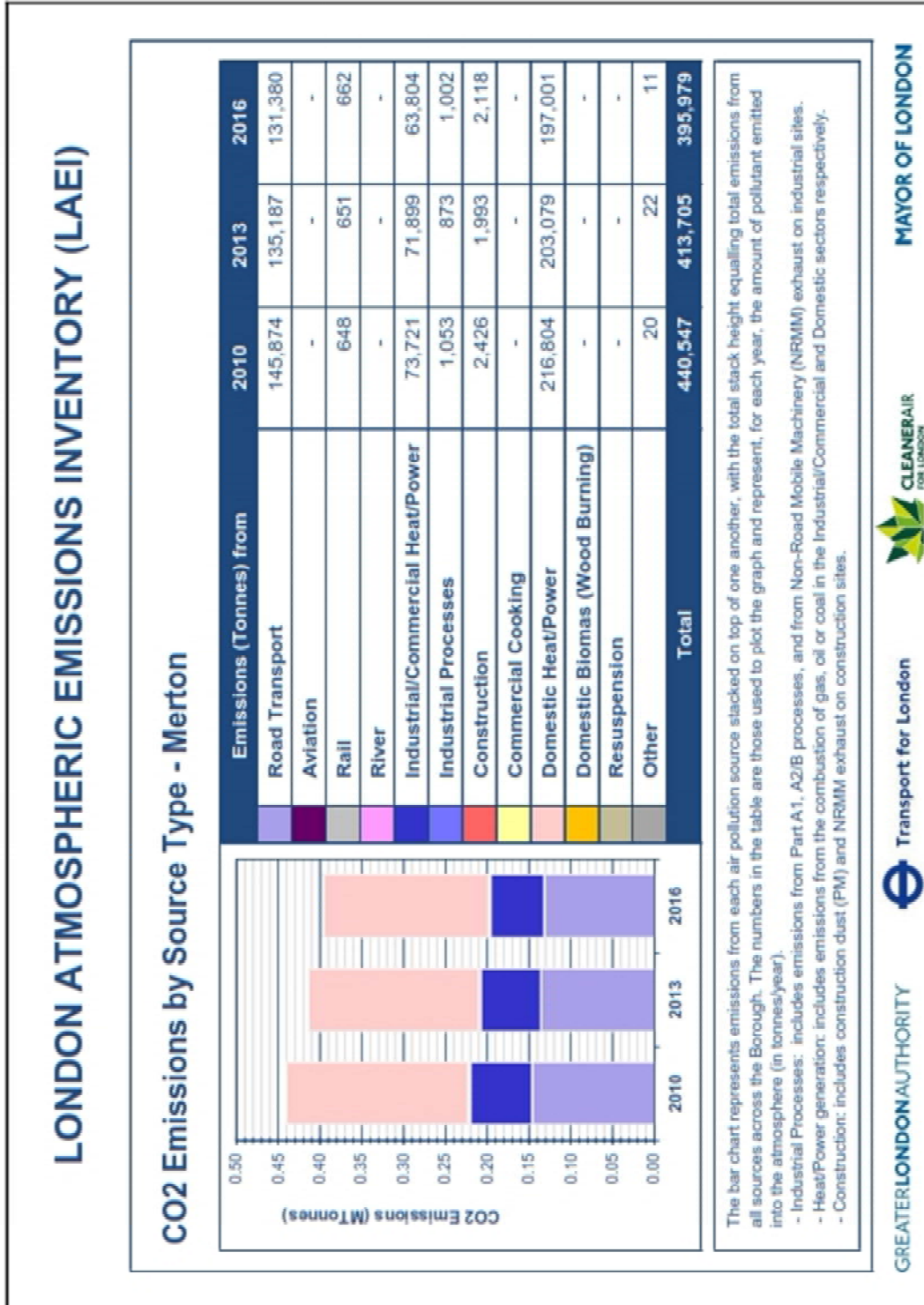


Figure 7: NO_x emissions by source

LONDON ATMOSPHERIC EMISSIONS INVENTORY (LAEI)

NOx Emissions by Source Type - Merton



The bar chart represents emissions from each air pollution source stacked on top of one another, with the total stack height equalling total emissions from all sources across the Borough. The numbers in the table are those used to plot the graph and represent, for each year, the amount of pollutant emitted into the atmosphere (in tonnes/year).

- Industrial Processes: includes emissions from Part A1, A2/B processes, and from Non-Road Mobile Machinery (NRMM) exhaust on industrial sites.
- Heat/Power generation: includes emissions from the combustion of gas, oil or coal in the Industrial/Commercial and Domestic sectors respectively.
- Construction: includes construction dust (PM) and NRMM exhaust on construction sites.

Figure 8: PM10 emissions by source

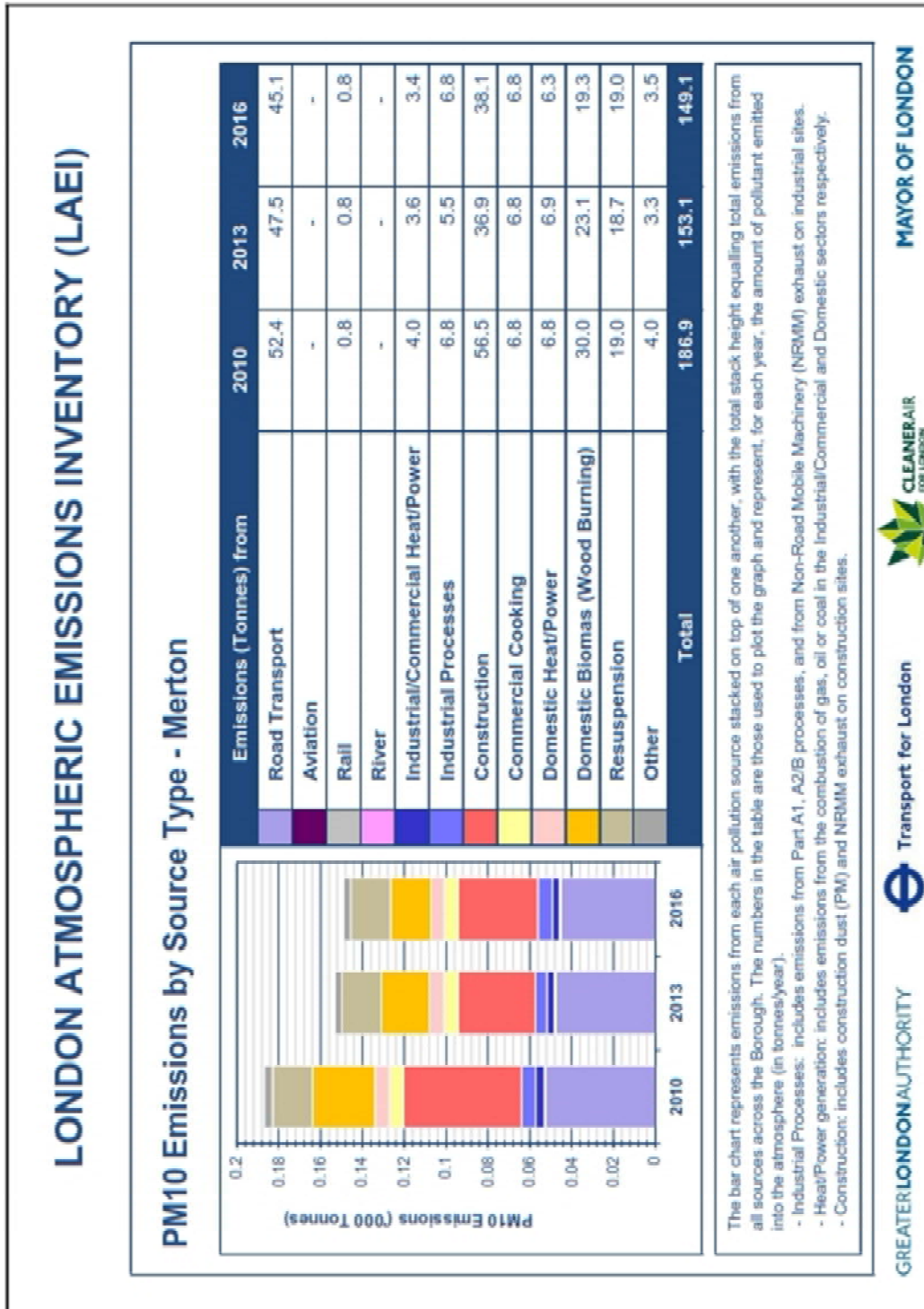
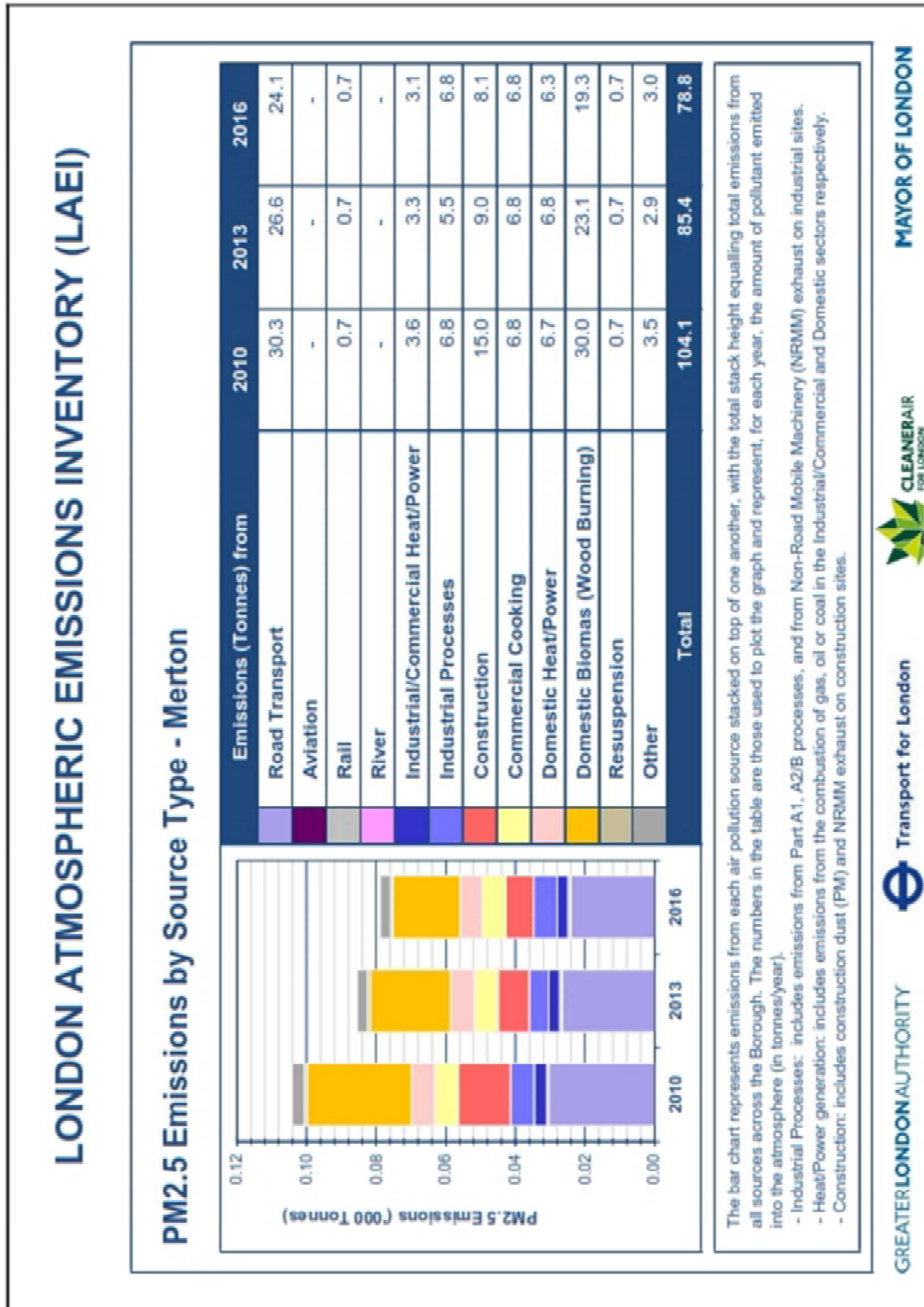


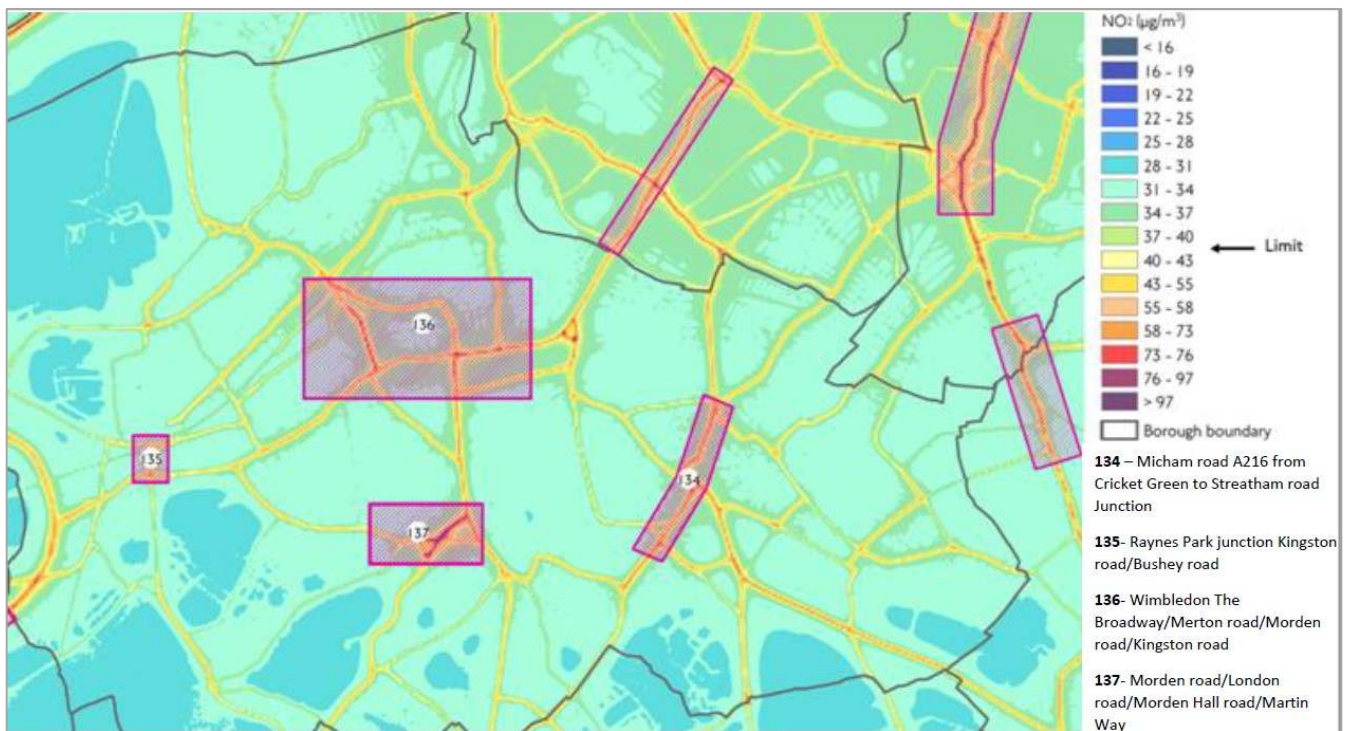
Figure 9: PM2.5 emissions by source



Appendix C: Location of Air Quality Focus Areas

The Greater London Authority (GLA) identified Air Quality Focus Areas in 2014. These are locations that not only exceed the EU annual mean limit value for NO₂ but are also locations with high human exposure. The Focus Areas were defined to address concerns raised by boroughs within the Local Air Quality Management process and forecasted air pollution trends. This is not an exhaustive list of London's hotspot locations, but where the GLA believe the problem to be most acute.

Figure 10: AQFAs in Merton



Appendix D: EPUK/IAQM Air Quality Assessment Screening Criteria

This appendix provides the EPUK/IAQM screening criteria for an air quality assessment as published in January 2017. This guidance is periodically updated, and the most recent version should be used. In the case of an assessment of the impacts of a development in the local area, a two-stage approach is suggested.

The first stage is intended to screen out smaller development and/or developments where impacts can be considered to have insignificant effects⁵.

The second stage relates to specific details about the proposed development and the likelihood of air quality impacts. Stage 1 requires any of the criteria under (A) coupled with any of the criteria under (B) in figure 11 below, to apply before it is considered appropriate to proceed to Stage 2.

If none of the criteria are met, then there should be no requirement to carry out an air quality assessment for the impact of the proposed development on the local area, and the impacts can be considered to have insignificant effects. Figure 12 below, sets out the Stage 1 criteria designed to remove the need to assess impacts arising from small developments.

Figure 11: Criteria to proceed to stage 2.

Criteria to Proceed to Stage 2
A. If any of the following apply: 10 or more residential units or a site area of more than 0.5ha; or more than 1,000 m ² of floor space for all other uses or a site area greater than 1ha
B. Coupled with either of the following: the development has more than 10 parking spaces the development will have a centralised energy facility or other centralised combustion process.

* Note: Consideration should still be given to the potential impacts of neighbouring sources on the site, even if an assessment of impacts of the development on the surrounding area is screened out.

The criteria in figure 12 below, provide more specific guidance as to when an air quality assessment is likely to be needed to assess the impacts of the proposed development on the local area. The criteria are more stringent where the traffic impacts may arise on roads where concentrations are close to the objective.

The presence of an AQMA (Air Quality Management Area) is taken to indicate the possibility of being close to the objective, but where whole authority AQMAs are present and it is known that the affected roads have concentrations below 90% of the objective, the less stringent criteria is likely to be more appropriate. Where an air quality assessment is found as being needed, then this may take the form of either a Simple Assessment or a Detailed Assessment.

In other words, passing a screening criterion in figure 12 does not automatically lead to the requirement for a Detailed Assessment. If none of the criteria are met, then there should be no requirement to carry out an air quality assessment for the impact of the development on

⁵ Taking account of criteria published in a) The Town and Country Planning (Development Management Procedure) (England) Order 2010 – 2010 No. 2184 [(Wales) Order 2012, No 801(W11)] (HMSO), b) The GLA's Supplementary Planning Guidance (SPG) on Sustainable Design and Construction (2014) and c) The Sussex Air Quality Partnership's Air Quality and Emissions Mitigation Guidance for Sussex Authorities (2013) v January 2014. The latter still requires a calculation of emissions even if an assessment is not required.

the local area, and the impacts can be insignificant. This should be agreed with the local planning authority.

Figure 12: Indicative Criteria for Requiring an Air Quality Assessment

The development will:	Indicative Criteria to Proceed to an Air Quality Assessment
Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors. (LDV = cars and small vans)	A change of LDV flows of: <ul style="list-style-type: none"> • more than 100 AADT within or next to an AQMA • more than 500 AADT elsewhere
Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors. (HDV = goods vehicles + buses >3.5t gross vehicle weight)	A change of HDV flows of: <ul style="list-style-type: none"> • more than 25 AADT within or next to an AQMA • more than 100 AADT elsewhere
Realign roads, i.e. changing the proximity of receptors to traffic lanes	Where the change is 5m or more and the road is within an AQMA.
Introduce a new junction or remove an existing junction around relevant receptors.	Applies to junctions that cause traffic to significantly change [how] vehicle[s] accelerate/decelerate, e.g. traffic lights, or roundabouts.
Introduce of change a bus station.	Where bus flows will change by: <ul style="list-style-type: none"> • more than 25 AADT within or next to an AQMA • more than 100 AADT elsewhere
Have an underground car park with extraction system.	The ventilation extract for the car park will be within 20 m of a relevant receptor, coupled with the car park having more than 100 movements per day (total in and out)
Have one or more substantial combustion processes <i>*This includes combustion plant associated with standby emergency generators (typically associated with centralised energy centre) and shipping</i>	Typically, any combustion plant where the single or combined NOx emission rate is less than 5 mg/sec ²⁸ is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion. In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates. Conversely, where existing nitrogen dioxide concentrations are low and where the dispersion conditions are favourable, a much higher emission rate may be acceptable.

Appendix E: Model Conditions

This appendix provides examples of standard conditions that may be included in planning consents for prior commencement of development and prior to occupation.

Prior to commencement of development

Demolition and Construction Environmental Management Plan

1. Prior to the commencement of development, including demolition, a Demolition and Construction Environmental Management Plan (DCEMP) shall be submitted to and approved in writing by the Local Planning Authority. The DCEMP shall include:
 - a) An Air quality management plan that identifies the steps and procedures that will be implemented to minimise the creation and impact of dust and other air emissions resulting from the site preparation, demolition, and groundwork and construction phases of the development.
 - b) Construction environmental management plan that identifies the steps and procedures that will be implemented to minimise the creation and impact of noise, vibration, dust and other air emissions resulting from the site preparation, demolition, and groundwork and construction phases of the development.
 - c) Construction Logistics Plan that identifies the steps that will be taken to minimise the impacts of deliveries and waste transport.
2. The above plans shall not be written other than in accordance with TfL (Transport for London) Construction Logistics Plan Guidance and London Borough of Merton SPD 'Air Quality' and any later adopted guidance and policy.
3. The development shall not be implemented other than following the approved scheme, unless previously agreed in writing by the Local Planning Authority.

Reason: To ensure the development does not raise local environment impacts and pollution.

NRMM

All Non-Road Mobile Machinery (NRMM) used during the development that is within the scope of the GLA 'Control of Dust and Emissions during Construction and Demolition' Supplementary Planning Guidance (SPG) dated July 2014, or any successor document, shall comply with the emissions requirements there.

Reason: To ensure the development does not raise local environment impacts and pollution

Electric Vehicle (EV) Parking

Prior to the commencement of development, details and implementation programme of the electric vehicle parking spaces shall be submitted to and approved in writing by the Local Planning Authority. The development shall not be implemented other and following the approved scheme; shall be fully installed prior to occupation and thereafter kept as approved.

Reason: To accord with the terms of the application and requirements of current policy and to minimise the impact of car travel on the environment.

Cycle Parking

No building/dwelling/part of the development shall be occupied until cycling parking facilities have been provided following detailed drawings to be submitted to and approved in writing by the Local Planning Authority, such drawings to show the position, design, materials and finishes thereof.

Reason: To accord with terms of the application and to demonstrate that it is compliant with the current London Plan.

Ventilation system

Prior to the commencement of development, a ventilation scheme shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall:

- Identify measures to protect future users from external air pollution.
- Detail a maintenance scheme -The development shall not be implemented other and in accordance with the approved scheme; shall be fully installed prior to occupation and thereafter maintained in

Detail a maintenance scheme. The development shall not be implemented other and following the approved scheme; shall be fully installed prior to occupation and thereafter maintained in accordance with the approved scheme.

Reason: To promote good air quality design and to protect occupiers of the development from existing sources

Prior to occupation

Air Quality – Combustion Plant

Unless otherwise agreed in writing with the Local Planning Authority, no boiler or Combined Heat and Power (CHP) shall be installed within the development hereby approved, other than one that incorporates and has installed abatement technology to reduce emissions to below 0.04 gNO_x/kWh. 2. All systems shall be maintained in accordance with the manufacturer's instructions.

Reason: To minimise the NO_x emission.

Emissions Control Scheme

Prior to the occupation of any part of the development hereby approved, an emission control scheme shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall provide details of measures to be implemented to minimise the direct and indirect emissions of air pollutants resulting from the development. The development shall not be occupied other than in accordance with the approved scheme.

Reason: To mitigate the impact of the development upon air quality.

Delivery and Service Plan

Prior to the occupation of any part of the development hereby approved, a comprehensive delivery and service plan, to manage, co-ordinate and minimise all deliveries and services, including waste services, to all parts of the development, shall be submitted to and approved in writing by the Local Planning Authority. Where developers are encouraged to

consolidate Delivery and Service Plans with other neighbouring premises servicing neighbouring properties. The scheme shall provide details of measures to be implemented and maintained to minimise and manage all deliveries and services to all parts of the development to. Central pick-up locations must be agreed, and personal deliveries discouraged. The development shall not be occupied other than in accordance with the approved scheme.

Reason: To reduce the number of vehicles and emissions from vehicles for deliveries and services and to mitigate the impact of the development upon local air quality.