



Cambridge City Council & South Cambridgeshire District Council

Greater Cambridge Air Quality Strategy

2024-2029

Non Technical Summary

Air quality in Greater Cambridge has been improving in recent years however, it is widely accepted that there is no safe level of air pollution.

Greater Cambridge is a major growth area with large scale development and population increase coming forward in the next 10-20 years. This Strategy seeks to strike a balance in supporting the productivity, economy and prosperity of Greater Cambridge whilst continuing to deliver improvements in air quality and the positive health outcomes that improved air quality will deliver for both residents and visitors to the Greater Cambridge area.

To help drive these improvements both Cambridge City Council (Cambridge City) and South Cambridgeshire District Council (SCDC) have agreed to work towards World Health Organization (WHO) Air Quality Guidelines with interim targets for delivery within the lifetime of the Strategy (5 years).

Air pollution can impact human health, the economy, and the environment. Whilst Local Authorities have the responsibility for monitoring air quality within their district, it is acknowledged that many of the changes needed to deliver improved air quality are managed and implemented by wider partner organisations.

The Greater Cambridge Air Quality Strategy outlines how improvements to air quality will continue to be delivered across Greater Cambridge. The Strategy focuses on sources of pollution that can be influenced locally by all partner organisations, working across a range of disciplines which all either directly or indirectly offer improved air quality. The primary objectives of the Strategy are:

- Continue to meet and deliver all legislative and policy requirements associated with air quality
- Continue to improve air quality across Greater Cambridge enhancing the health of those living, working and visiting Greater Cambridge
- Work towards World Health Organization Air Quality Guideline annual averages as longer term targets with interim targets for delivery within the lifetime of the Strategy (5 years)

The objectives of the Strategy across Greater Cambridge will be delivered under four key priority areas; Policy & Development Control, Infrastructure Improvements, Community Engagement & Promotion and Monitoring. The Strategy includes an Action Plan of measures for delivering air quality improvements for delivery within the lifetime of the Strategy. The lifetime of the Strategy is 5 years, 2024 – 2029 inclusive.

Both Cambridge City and SCDC have an extensive network of monitoring across their districts. Monitoring will continue throughout the lifetime of the Strategy and will reflect how successful the measures in the Action Plan have been. Progress of the Strategy and Action Plan will be reported quarterly at Steering Group meetings and annually within the Annual Status Report which all local authorities are required to submit to DEFRA.

1. Background

Local Authorities have a statutory requirement under Local Air Quality Management (LAQM) to monitor air quality within their districts against national objective levels for key pollutants (Nitrogen Dioxide, Particulate Matter (PM₁₀) and Sulphur Dioxide). Airborne Particulate Matter is made up of a collection of solid and / or liquid materials of various sizes. For PM₁₀, particles are less than 10 micrometres in diameter.

Air quality within both the Cambridge City Council (Cambridge City) and South Cambridgeshire District Council (SCDC) areas; referenced for the purpose of this document as 'Greater Cambridge', has continued to improve with objective levels for all key pollutants being achieved in recent years. This is because of active measures implemented by both councils to improve air quality and the modernisation of the transport fleet in accordance with stricter emission standards.

New national legally binding PM_{2.5} targets have been set under the Environmental Target Regulations in 2023. The National Air Quality Strategy (2023)¹ sets out how Local Authorities are expected to contribute to delivering these targets. Whilst it is acknowledged within the National Air Quality Strategy that not all sources of PM_{2.5} originate from within a Local Authority district, the National Air Quality Strategy expects Local Authorities to consider those that are. Levels in Greater Cambridge are around the target annual mean.

For areas where pollutant levels are below objective levels, Local Authorities are expected to have a local Air Quality Strategy. The local Air Quality Strategy should demonstrate the effective use of powers to support improvements in air quality; taking preventative action to ensure air quality continues to improve. Further details on the Legislative and Policy requirements can be found in Appendix A.

It is important that focus now shifts away from LAQM objective levels towards exposure reduction and how we can maintain and continue to improve air quality across Greater Cambridge, whilst sustaining the scale of development coming forward in the next 20 years through the emerging Greater Cambridge Local Plan (2020-2041)²

¹ www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery#summary-of-powers-available-to-local-authorities

² [Greater Cambridge Local Plan \(greatercambridgeplanning.org\)](https://greatercambridgeplanning.org)

including measures in place to meet 58,500 new jobs across all employment sections and 44,400 new homes.

It is widely accepted that there is no safe level of air pollution³. Any improvements in air quality will have positive health benefits. Improvements to air quality also offer co-benefit for other interventions targeting health such as active travel and increased physical activity⁴.

The Strategy will outline practical measures to enable the continued improvement in air quality across Greater Cambridge working towards World Health Organization (WHO) target levels (2021). The WHO Air Quality Guidelines are target levels which protect public health and are lower than LAQM objective levels and PM_{2.5} targets.

Given that not all sources of air pollution originate from within Greater Cambridge it is acknowledged that achieving these levels for all key pollutants may be challenging in some cases. Interim targets have been produced to help drive improvements, focussing efforts on sources that we have the power to influence working alongside partner organisations.

A Greater Cambridge Air Quality Strategy aligns with delivery under the emerging Greater Cambridge Local Plan and shared planning service and given the transboundary nature of air pollution enables a joined-up approach to improving air quality. The Greater Cambridge Air Quality Strategy also aligns with Cambridge City and SCDC carbon emission targets.

This Strategy fulfils the requirements under the LAQM Framework and ensures compliance with the Environment Act 1995 as amended under Environment Act 2021; taking into account responsibilities of local authorities under the National Air Quality Strategy (2023). It details why and how improvements to air quality should be achieved across Greater Cambridge in response to continued growth in the area.

The lifetime of the Strategy is 5 years, 2024 – 2029 inclusive.

2. Sources of air pollution and where people are exposed

Greater Cambridge is a highly populated, diverse area with a mix of both urban and rural areas. Within the urban and more populated areas road transport is the main source of pollution. There are considerable differences in emissions between different vehicles and fuels. In general, diesel exhaust contains up to 30 times more particulate matter than petrol, but all vehicles even electric generate additional particulate matter

³ www.gov.uk/government/collections/comeap-reports

⁴ [Air Quality - A guide for directors of public health \(local.gov.uk\)](#)

from friction of brakes and tyres and through re-suspension of dust from road surfaces⁵.

Construction sites and non-road mobile machinery (NRMM) can also be a significant source of localised pollutants with solid fuel burning (wood and coal) a significant source of particulate matter.

Combustion from heating (both residential and commercial), farming activities and certain industrial processes also contribute to air pollution, but these tend to be more dilute contributing to background levels of air pollution.

Within urban areas the accumulation of pollutants from both road transport and solid fuel burning is important as emissions are often co-located with exposed pedestrians, residential properties, hospitals, schools, shops and other places where people congregate.

Exposure by residents and visitors will vary greatly as air pollution varies substantially over small distances and the local situation. It is typically highest near to the source e.g. busy road but declines rapidly as you move further away. Small changes in distance from the road, street layouts and physical barriers can make a big difference to exposure. Tall buildings along narrow streets can lead to the 'canyon effect' where pollution is trapped along the street or busy junctions can create localised 'pollution hotspots'.

Weather also influences exposure. Anyone 'downwind' of a source will be exposed, however windy conditions disperse pollutants and conversely some weather patterns will lead to an accumulation of pollutants that can build up over hours or days to cause an air pollution 'episode'.

The highly localised distribution of air pollution leads to highly unequal patterns of exposure to different individuals resulting from their day-to-day behaviour. For example someone that has to walk along a busy road to reach their place of work will be exposed to higher levels of pollutants compared to someone who uses an alternative quieter street to reach that same destination. People within a passively ventilated building will be exposed to much higher levels of pollution compared to an air-conditioned building, even if both are at the same distance downwind of the same source.

During the COVID 19 Pandemic the national lockdowns and subsequent reduction in vehicle movements and shift in behaviour, saw a significant reduction in nitrogen dioxide emissions but limited impact on particulate levels. This has helped inform our

⁵ [Air Quality - A guide for directors of public health \(local.gov.uk\)](https://www.local.gov.uk)

priority areas for the local Strategy and when local authority intervention can have maximum impact⁶

The National Atmospheric Emissions Inventory (NAEI), provided by DEFRA sets out the emission sources for each Local Authority and how these contribute to the different pollutants.

2.1 Cambridge City

Nitrogen Dioxide (NO₂)

Data from the NAEI shows that traffic is the main contributor to NO₂ emissions, with 1-25 tonnes per 1km² of NO₂ mainly from road transport, with minor roads and cold starts contributing the most in the City. Other sources of NO₂ in the City come from non-industrial combustion plants, combustion in manufacturing, and other mobile machinery (rail and other off road).

A source apportionment study undertaken by Cambridge City Council in 2019 supports these findings with traffic the main contributor to NO₂ emissions in the City. The study found the primary vehicle type contributing to NO₂ emissions varied based on location and road type with buses the main contributor in the centre of Cambridge; cars on the outer ring roads and on the outskirts of Cambridge on the major roads such as the A14 & M11, HGVs.

Particulates (PM₁₀ and PM_{2.5})

The NAEI has found that there is a change in sources of particulate emissions over the past 10 years, with a decrease in particulates from industry and energy generation as the switch to gas has occurred⁷. This has been offset by an increase in domestic burning.

The NAEI estimates that on average across Cambridge 1-4 tonnes per 1km² of PM₁₀ are from non-industrial combustion plant (such as domestic burning) with 0.2-1 tonnes per 1km² from road transport (brake and tyre wear).

This is again supported by the findings of the Cambridge City Council source apportionment study which found that the majority of the sources of particulates was from background sources rather than road traffic sources.

⁶https://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiF4Yviu9WDAxX_gv0HHQ8LDqoQFnoECA8QAQ&url=https%3A%2F%2Femaq.ricardo.com%2Fmod%2Fresource%2Fview.php%3Fid%3D503&usg=AOvVaw3nF2V9nuHZIR1espaUSChm&opi=89978449

⁷ NAEI Report 2022 – Data for 2005-2020

The NAEI attributes 75% of the source of PM_{2.5} in Cambridge to background sources. The majority of which are classed as non-industrial combustion plant (domestic wood / domestic other). The remaining 25% of the source of PM_{2.5} is attributable to non-exhaust emissions of tyre and brake wear associated with road transport.

It should be remembered that PM_{2.5} is also not just generated as a primary particle but is also generated as a secondary particle due to chemical interactions of other pollutants.

2.2 South Cambridgeshire

Nitrogen Dioxide (NO₂)

The main contributor to NO₂ emissions in South Cambridgeshire is from road transport, with major roads adding up to 25 tonnes per 1km². This includes emissions from the regionally important strategic roads of the M11, A14 and A11. There are eight significant point sources of NO₂ listed within the National Atmospheric Emissions Inventory within South Cambridgeshire which predominantly relate to manufacturing and waste sites, but also includes the Cambridge Crematorium which SCDC regulate through a part B environmental permit.

Particulates (PM₁₀ & PM_{2.5})

The main contributor to PM₁₀ emissions in South Cambridgeshire is from non-industrial plant (up to 4 tonnes per 1km²), this includes domestic burning and is distributed within centres of population in the district. Road transport contributes a smaller amount to emissions with emissions coming from road abrasion, brake and tyre wear (non-exhaust and emissions) and exhaust emissions (up to 2 tonnes per 1km²).

For PM_{2.5} the picture is similar to that of PM₁₀ with the major source of emissions being non-industrial plant, with the majority coming from domestic wood and other solid fuel burning. For roads in the district emissions are associated with non-exhaust emissions (up to 1 tonne per 1km²) and exhaust emissions (up to 1 tonne per 1km²).

3. Improving Air Quality in Greater Cambridge

3.1 Objectives

It is widely accepted that there is no safe level of air pollution;⁸ and whilst the LAQM objective levels and PM_{2.5} targets are either achieved or are close to annual mean across Greater Cambridge it is important that focus shifts away from these target levels towards exposure reduction. The challenge is how pollutant levels can be

⁸ www.gov.uk/government/collections/comeap-reports

maintained and further reduced whilst sustaining the scale of development and population increase coming forward in the next 10 – 20 years; supporting economic growth whilst continuing to improve air quality and deliver the health benefits that improved air quality brings. The primary objectives of the Strategy are:

- Continue to meet and deliver all legislative and policy requirements associated with air quality
- Continue to improve air quality across Greater Cambridge enhancing the health of those living, working and visiting Greater Cambridge
- Work towards World Health Organization Air Quality Guideline annual averages as longer term targets.

The World Health Organization (WHO) produced updated Air Quality Guidelines in 2021. These levels are based on the evidence linking concentrations of pollutants in ambient air with adverse effects on health and are levels that are proven to offer significant health benefits. The Committee on Medical Effects of Air pollution (COMEAP) considers these WHO 2021 guidelines as suitable long-term targets⁹. It is worth noting that they are set without reference to achievability. The WHO 2021 guidelines are lower than LAQM objective levels and PM_{2.5} targets. Greater Cambridge exceeds the WHO 2021 guideline levels.

Table 1 compares the LAQM objective levels and national targets for key pollutants against the WHO 2021 guideline levels.

Pollutant	Averaging Period	Concentration	
		Current UK Limit	WHO 2021
AQ (England) Regulations 2000 (Apply to LAQM)			
PM ₁₀ µg/m ³	Annual Mean	40 µg/m ³	15 µg/m ³
	24 Hour Mean	50 µg/m ³	45 µg/m ³
NO ₂ µg/m ³	Annual Mean	40 µg/m ³	10 µg/m ³
	24 Hour Mean	200 µg/m ³	N/A
Environmental Targets (PM) Regulations 2023 (apply to national government to be achieved by 2040)			
PM _{2.5} µg/m ³	Annual Mean	10 µg/m ³	5 µg/m ³
	Exposure Targets	35% Reduction compared to a 2018 baseline	N/A

Table 1: Air quality Objective Levels and Pollutant Targets

⁹ COMEAP statement: response to publication of the World Health Organization Air quality guidelines 2021 - GOV.UK (www.gov.uk)

It is acknowledged that not all sources of air pollution impacting Greater Cambridge originate from within Greater Cambridge. For some pollutants achieving these levels will require policy intervention not only locally but nationally and internationally. For example, up to a third of PM_{2.5} within England originates from other countries. This means that setting timelines for achieving these levels may not be attainable at this time. However, commitment to work towards these levels will help drive continued improvements to air quality; enhancing the health of those living, working and visiting the Greater Cambridge area. The Strategy focuses on sources that can be influenced locally. We have developed local interim targets for delivery within the lifetime of the Strategy (5 years, 2024 to 2029 inclusive) based on the interim targets set by WHO:

Pollutant	Interim Target Level*	WHO 2021
PM ₁₀ µg/m ³	20 µg/m ³	15 µg/m ³
NO ₂ µg/m ³	20 µg/m ³	10 µg/m ³
PM _{2.5} µg/m ³	10 µg/m ³	5 µg/m ³

Table 2: Interim Annual Mean Target Levels

*to be achieved by 2029

3.2 Delivering Air Quality Improvements across Greater Cambridge – Key Priorities

Continued improvements in air quality to meet the objectives of the Strategy across Greater Cambridge will be delivered under four key priority areas. Appendix B details measures to be implemented to deliver these priorities in the form of an Action Plan.

Key Priority 1: Policy & Development Control

Policies both national and local affect how air quality is prioritised by Local Authorities and their partners. We will continue to engage with national government and our partners to ensure that air quality is a key priority when setting out new policies. Local policy should be regularly updated in response to evolving national policy and updated evidence from public health.

At the strategic level, spatial planning can provide for more sustainable transport links between the home, workplace, educational, retail and leisure facilities, and identify appropriate locations for potentially polluting industrial development¹⁰. As such, land-use planning can play a critical role in improving local air quality.

Emissions from development may be associated with both the construction phase and from transport or combustion processes providing heat and power during the operational phase when the development is occupied / in use.

Some of the actions which can be taken include:

¹⁰ IAQM & UKEP Land-Use Planning & Development Control: Planning For Air Quality (Jan 2017)

- Ensure regional and local policies seek to improve air quality and respond to evolving national policy and health based evidence
- Ensure developments of all sizes and type design out air quality impacts during both construction and operation phases working towards air quality neutral development¹¹
- Ensure developments and policies are helping to meet LAQM Air Quality Objectives, PM_{2.5} Targets and work towards WHO 2021 guideline levels by reducing emissions.
- Align with other policies aimed at increasing sustainability and reducing greenhouse gas emissions

Air quality is a material consideration under planning. Within the adopted Local Plans air quality is considered under Policy 36 (Air quality, Odour & Dust) of the Cambridge Local Plan (2018) and Policy SC/12 (Air Quality) of the South Cambridgeshire Local Plan (2018). The emerging Greater Cambridge Local Plan will consider air quality for both districts under a single policy.¹²

Air quality is further underpinned by the Greater Cambridge Sustainable Design and Construction Supplementary Planning Documents (SPD) (2020) and the adoption of this Great Cambridge Air Quality Strategy. These documents provide detail on measures that developers should consider at the design stage to minimise impact of development on air quality across Greater Cambridge.

It is important that council policies should drive air quality improvements across Greater Cambridge and not operate in isolation from other relevant policies e.g. Climate Change Strategy, Health Impact Assessments, Parking Strategy.

Key Priority 2: Infrastructure Improvements

To enable the shift to more sustainable transport solutions, infrastructure improvements are required. Working with partners, Cambridge City and SCDC will ensure infrastructure improvements are planned and implemented to facilitate the increased uptake of public transport and active travel options. This will work alongside Key Priority 1, where planning and development control can have a major impact on infrastructure provision in Greater Cambridge.

Some of the actions which can be taken include:

- Support public transport options available to the public and publicise these
- Freight consolidation / last mile deliveries
- Road hierarchy
- Off road cycle / walking paths
- Improvements to cycling and walking infrastructure

¹¹ www.london.gov.uk/programmes-strategies/planning/implementing-london-plan/london-plan-guidance/air-quality-neutral-aqn-guidance#:~:text=The%20Air%20Quality%20Neutral%20LPG,worsen%20air%20quality%20in%20London.

¹² www.greatercambridgeplanning.org/emerging-plans-and-guidance/greater-cambridge-local-plan/

- Facilitate infrastructure improvements to electric vehicle charging

Key Priority 3: Community Engagement & Promotion

Our communities should be considered in all opportunities to benefit from improved air quality. This could be achieved through a range of actions big or small, such as provision of significant infrastructure to facilitate the uptake of low emission vehicles, to daily practical measures which in turn lead to protected and improved air quality. In parallel to measures to reduce resident and visitor exposure to pollutants we need to actively promote and engage with residents and visitors of Greater Cambridge enabling access to alternatives to the more polluting activities. The following are some examples to consider for public engagement (but are not exhaustive):

- Improved public engagement through accessibility of air quality data and promoting awareness on air quality
- Working closely with UK Health Security Agency, Public Health and the NHS to deliver clear messages on the link between air quality and health
- National and regional campaigns such as Clean Air Day and Clean Air Night
- Work closely with partners to disseminate information county wide to maximise potential benefits within the area
- Promotion of a non-idling policy during collection and drop off near schools
- Promotion to reduce the use of solid fuel stoves and open fires
- Close partnership with local businesses to reduce emissions
- Work with Businesses to help reduce operational impacts on air quality
- Smart technologies – Help reduce the barriers to adopting more sustainable transport methods and active travel by enabling faster and more efficient journeys through smart technologies.
- Engage with the farming community to highlight the link between ammonia and particulate matter pollution.

Key Priority 4: Monitoring

Future growth across Greater Cambridge is largely residential and whilst planning policy is increasingly working towards reducing reliance on road based transport; in the short to medium term this is likely to remain a primary source of pollution across Greater Cambridge with commuting to Cambridge, London and the surrounding area. It is important to continue to monitor against LAQM objective levels focussing on historical areas with high levels of pollutants (AQMA areas) and focussing on major growth areas e.g. growth sites on the edge of Cambridge (West Cambridge, Eddington, Darwin Green, North East Cambridge, Marleigh, Land North of Cherry Hinton, etc), and also the new town growth in SCDC (Waterbeach, Northstowe, Bourne and Cambourne).

Given the scale of the future developments and the potential to introduce new hotspots where air quality could be at risk, the need for a robust and up to date monitoring network across the district is a priority. Therefore, the monitoring network should:

- Be subject to regular review and update to reflect the growth across Greater Cambridge
- Be compliant with the requirements under the LAQM framework
- Enable Local Authorities to monitor trends across their districts and identify 'hotspots' but also improvements in response to policy measures or interventions introduced.
- Consider and include new technologies and alternatives to traditional monitors enabling the Council to conduct short term monitoring in the areas of concern

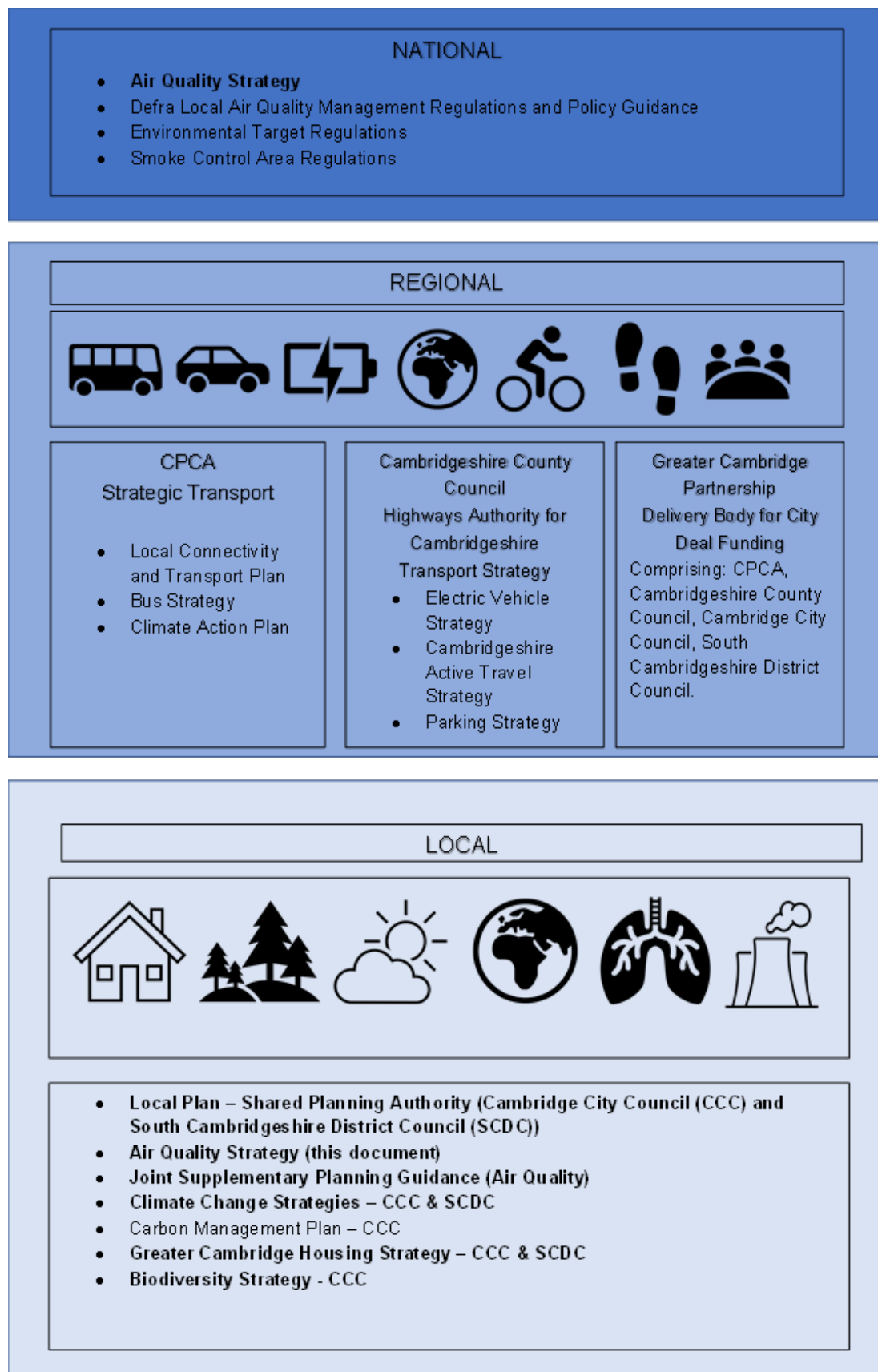
4. Co-Benefits Delivered by Air Quality Improvements

4.1 How the Air Quality Strategy aligns with other key policies

Air pollution can impact human health, the economy, and the environment. Whilst Local Authorities have the responsibility for monitoring air quality within their district, it is acknowledged that many of the changes needed are managed and implemented by wider partner organisations. Improved air quality indirectly overlaps and offers co-benefits across a wide range of agendas. Measures identified in the Greater Cambridge Air Quality Strategy to improve air quality can offer wider benefits and help deliver other local and regional agendas for example active travel, health inequalities and sustainability. It is important that air quality is not considered in isolation and that complimentary strategies and policies align where possible. Appendix C details complimentary and regional strategies which help deliver the wider air quality agenda.

The layers of local, regional and national policy and initiatives relevant to the Air Quality Strategy are presented in Figure 1.

Figure 1 – Layers of Policy relevant to Air Quality Strategy



4.2 Air Quality & Health

Air Pollution is a public health issue¹³. It is considered the largest environmental risk to the public's health contributing to cardiovascular disease, lung cancer and respiratory diseases. It is recognised as a contributing factor in the onset of heart disease and cancer.

Air Pollution increases the chances of hospital admissions, visits to Emergency Departments and respiratory and cardiovascular symptoms which interfere with everyday life, especially for people who are already vulnerable. Bad air quality affects everyone and it has a disproportionate impact on the young and old, the sick and the poor^{14,15}.

Research undertaken by COMEAP concluded in 2019 that there is no safe level of particulates. Further work undertaken by COMEAP in 2022 concluded that, even low concentrations of pollutants are likely to be associated with adverse effects on health. Therefore, continued reductions, even where concentrations are below the air quality guidelines, are also likely to be beneficial to health.¹⁶ The Public Health Outcomes Framework includes an indicator on mortality attributed to particulate matter.

The mortality burden of air pollution within the UK is equivalent to 29,000 to 343,000 deaths at typical ages¹⁷, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017¹⁸.

Public Health data¹⁹ indicates that in 2020, 48 deaths in Cambridge and 66 in South Cambridgeshire could be attributed to Particulate Air Pollution. This figure is calculated based on the number of deaths in Cambridge in 2020 and the Public Health Outcomes Framework Fraction mortality due to particulate air pollution. At this time PM_{2.5} is considered the most suitable metric for evaluating health impacts.

Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas.^{20,21} There is clear evidence that PM_{2.5} has a significant impact on human health, including premature mortality, cognitive decline, allergic reactions, and cardiovascular diseases. The WHO labelled air pollution as a risk factor for non-communicable diseases such as ischaemic heart disease, stroke, chronic obstructive pulmonary disease, asthma, cancer and the economic toll these diseases take. Air

¹³ www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution

¹⁴ Royal College of Physicians. Every breath we take: the lifelong impact of air pollution. Report of a working party. London: RCP, 2016.

¹⁵ [Air Quality - A guide for directors of public health \(local.gov.uk\)](https://www.local.gov.uk/air-quality)

¹⁶ [Committee on the Medical Effects of Air Pollutants \(COMEAP\): 2022 Annual Report \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/111111/COMEAP-2022-Annual-Report.pdf)

¹⁷ Defra. Air quality appraisal: damage cost guidance, January 2023

¹⁸ Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

¹⁹ [Public Health Outcomes Framework - Data - OHID \(phe.org.uk\)](https://www.phe.org.uk/public-health-outcomes-framework-data)

²⁰ Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

²¹ Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

Pollution affects different aspects of health even at low concentrations²². COMEAP provided a statement in response to the WHO 2021 guidelines which regards them as suitable long-term targets²³ and that more recent evidence indicated that PM_{2.5} had harmful effects on people's health at lower concentrations than had been studied previously.

4.3 Air Quality & Economic Growth

Poor air quality harms productivity by making people less healthy, increasing costs to society through medical and social care. There is growing evidence that air pollution is a significant contributor to preventable ill health and early death. These health impacts impose a cost on the UK economy that has been estimated to run into billions.

Reducing poor air quality has direct, proven economic benefits, in many cases even when the up-front cost over intervention is high. It is estimated that reducing PM_{2.5} concentrations by 1µg/m³ increases GDP by 0.8% on average in Europe²⁴

Poor air quality can have a disproportionate impact on the young and old, the sick and the poor. Deprived communities are more likely to be situated near polluted busy roads and are more likely to experience adverse health impacts. Analysis of environmental quality and social deprivation carried out for the Environment Agency (2003) looked at the social distribution of the wards with the highest pollutant concentrations and concluded that more than half of the most exposed 5% of the population (2.5 million people) were resident in the 20% most deprived wards²⁵. Part of the monitoring across Cambridge City considers pollutant levels within more deprived Wards with the potential to link in with objective 5- Improving health outcomes for people on low incomes of the Cambridge Anti Poverty Strategy.²⁶

Greater Cambridge is a major growth area with significant growth in employment, housing and infrastructure planned for the next 10 years. Whilst supporting economic growth we need to manage where possible any wider impacts on the environment including air quality.

4.4 Air Quality & Net Zero

In 2019, the UK became the first major economy in the world to legislate to end our domestic contribution to man-made climate change. Both Cambridge City Council and South Cambridgeshire District Council declared a Climate Emergency in 2019 and are taking a wide range of actions, with partners, which will contribute to reducing

²² WHO AQG 2021

²³ [COMEAP statement: response to publication of the World Health Organization Air quality guidelines 2021 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/comeap-statement-response-to-publication-of-the-world-health-organization-air-quality-guidelines-2021)

²⁴ [The economic cost of air pollution: Evidence from Europe](https://www.oecd.org/transport/air-quality/2019/09/2019-09-04-the-economic-cost-of-air-pollution-evidence-from-europe), Organisation for Economic Co-operation and Development (OECD)

²⁵ www.gov.uk/government/publications/environmental-quality-and-social-deprivation

²⁶ www.cambridge.gov.uk/anti-poverty-strategy

emissions and adapting to climate change both on their own estates, and in the wider district.

Cambridge City Council shared a vision for Cambridge to be net zero carbon by 2030 as set out in its Climate Change Strategy 2021-2026²⁷ which also set a target to reduce its own carbon emissions to net zero by 2030²⁸. South Cambridgeshire District Council's Zero Carbon Strategy outlines how SCDC are supporting the District to halve carbon emissions by 2030 and reduce them to zero by 2050, including delivering a reduction in their own carbon footprint of at least 45% by 2025 (on a 2019 baseline) and at least 75% by 2030²⁹ from a 2018/19 baseline.

Many sources of greenhouse gases, like transport and combustion emissions, also contribute to poor air quality. Actions which both reduce emissions and improve air quality will contribute towards this Air Quality Strategy as well as the Zero Carbon Strategy, such co-benefits should be recognised where possible to maximise their impacts. However, some measures to reduce greenhouse gas emissions are in tension with improving air quality; for example the use of solid fuel and biomass burning can lead to reduction in carbon emissions but lead to increases in particulates.

5 Conclusion

This document sets out the approach for the Greater Cambridge Air Quality Strategy for maintaining and improving air quality across Greater Cambridge. It has three key objectives delivered through four key priority areas: Policy & Development Control, Infrastructure Improvements, Community Engagement & Promotion and Monitoring. Measures for delivering the individual priorities is included in Appendix B in the form of an Action Plan. Reporting on the delivery of these key priorities will be via quarterly steering group meetings and within the individual Council's Air Quality Annual Status Report each year, which is available on council websites.

Appendix A - Legislative and Policy Background

Statutory Requirements under Local Air Quality Management (LAQM)

Local Authorities have a statutory duty under the requirements of the Local Air Quality Management (LAQM) Framework as set out in Part IV of the Environment Act (1995) and as amended by the Environment Act 2021, to review and assess local air quality within their areas, against a set of air quality objectives and to determine whether or not these are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air

²⁷ [Climate Change Strategy - Cambridge City Council](#)

²⁸ [Carbon management plan - Cambridge City Council](#)

²⁹ [Zero carbon strategy - South Cambs District Council \(scambs.gov.uk\)](#)

Quality Action Plan (AQAP) setting out the remedial measures it intends to put in place in pursuit of these objectives. Table 1 below details the statutory air quality objectives applicable to LAQM in England.

Pollutant	Air Quality Objective: Concentration³⁰	Air Quality Objective: Measured as
Nitrogen Dioxide (NO ₂)	200µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO ₂)	40µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM ₁₀)	40µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO ₂)	125µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO ₂)	266µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

Table 1: Air Quality Objectives in England³¹

Cambridge City established an AQMA around the central core of the city in 2004 and SCDC along the A14 between Bar Hill (to the north-west of Cambridge) and Milton interchange (to the north-east) in 2008, both due to exceedances in NO₂. SCDC has recently revoked its AQMA and Cambridge City is in the process of revoking theirs as objective levels of NO₂ have been achieved.

Local Authorities are required to submit an Annual Status Report (ASR). This details the results of any monitoring undertaken across the district, conclusions derived from the results, amendments made to the network in response to changing pollutant trends and actions being undertaken to improve air quality and any progress that has been made on these.

³⁰ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

³¹ PG22 LAQM page 78

Amendments to the LAQM framework under the Environment Act 2021 require Local Authorities to have an Air Quality Strategy where objective levels of key pollutants are achieved. The Strategy should set out steps the Local Authority will take to continue to improve local air quality. The purpose of the Air Quality Strategy is to take preventative action to improve local air quality and reduce the long term health impacts and should be developed in consultation with the Director of Public Health. In addition given the transboundary nature of air pollution Local Authorities are required to work collaboratively with neighbouring authorities to tackle pollution sources outside the Local Authorities area.

Air Quality Strategy: Framework for Local Authority Delivery (2023) – Local Action to reduce PM_{2.5}

The revised National Air Quality Strategy (2023) sets out a framework to enable Local Authorities to deliver long term air quality improvements and meet long term air quality goals. This includes two new legally-binding long-term targets to reduce concentrations of fine particulate matter less than 2.5 microns in diameter (PM_{2.5}) as set out in the Environmental Targets Regulations 2023.

- 10 µg/m³ annual mean concentration PM_{2.5} nationwide by 2040, with an interim target of 12 µg/m³ by January 2028
- 35% reduction in average population exposure by 2040, with an interim target of a 22% reduction by January 2028, both compared to a 2018 baseline

These targets will help drive reductions in the worst PM_{2.5} hotspots across the country, whilst ensuring nationwide action to improve air quality for everyone. Whilst not currently included as part of the LAQM framework all Local Authorities are expected to effectively use their powers to reduce PM_{2.5} emissions from sources which are within their control. Whilst it is acknowledged many sources of PM_{2.5} originate from outside the Local Authority boundary there are some sources of PM_{2.5} over which Local Authorities do have control.

World Health Organization (WHO) Air Quality Guidelines (2021)

In September 2021 WHO published updated Air Quality Guidelines (AQG) for common pollutants including interim targets to promote a gradual shift from high to lower concentrations to help countries achieve air quality that protects public health.

The WHO Air Quality Guidelines are based on the evidence linking concentrations of pollutants in ambient air with adverse effects on health. They are set without reference to achievability.

Pollutant	Averaging Time	Interim Target	AQG Level
PM _{2.5} µg/m ³	Annual	10	5
	24 Hour	25	15
PM ₁₀ µg/m ³	Annual	20	15
	24 Hour	50	45
NO ₂ µg/m ³	Annual	40	10
	24 Hour	-	25
SO ₂ µg/m ³	24 Hour		40

Table 2: Recommended WHO 2021 AQG levels and interim targets

Appendix B: Action Plan - Measures for delivering key priorities

Separate Document

Appendix C: District, County and regional strategies which help deliver Air Quality objectives within Greater Cambridge

Strategy	Details	Information / Link
Greater Cambridge Sustainable Design and Construction SPD (2020)	Details requirements relating to sustainability for new developments across Greater Cambridge including air quality	www.cambridge.gov.uk/greater-cambridge-sustainable-design-and-construction-spd or www.scams.gov.uk › media › final-greater-cambridge-sus-dc-spd
Cambridge Local Plan (2018)	Within the City air quality is considered under Policy 36 (Air quality, Odour & Dust)	www.cambridge.gov.uk › media › local-plan-2018
South Cambridgeshire Local plan (2018)	Within SCDC air quality is considered under Policy SC/12 (Air Quality)	www.scams.gov.uk/planning/local-plan-and-neighbourhood-planning/the-adopted-development-plan/south-cambridgeshire-local-plan-2018/
Cambridgeshire and Peterborough Local Transport and Connectivity Plan	The LTCP is the CPCA's long-term strategy to make transport in Cambridgeshire and Peterborough better faster, greener, and more accessible for everyone. The LTCP is a statutory document and any transport project must fit in with its vision, strategy and policies.	CPCA-LTCP-Strategic-Document.pdf cambridgeshirepeterborough-ca.gov.uk

Strategy	Details	Information / Link
(LTCP)(CPCA 2023)	<p>It sets the context for investing in a joined-up, net zero carbon transport system, which is high quality, reliable, convenient, affordable, safe, and accessible to everyone.</p> <p>Better, cleaner public transport will reduce private car use, and more cycling and walking will support both healthier lives and a greener region. Comprehensive connectivity, including digital improvements, will support a sustainable future for our region’s nationally important and innovative economy.</p> <p>As well as an overall strategy for Cambridgeshire and Peterborough, the LTCP includes a section setting out a local strategy for Greater Cambridge, as well as making provision for a more detailed Greater Cambridge Transport Strategy to be produced in due course.</p> <p>The LTCP sets a target of a 15% reduction in vehicle kilometres by 2030.</p> <p>To deliver the LTCP’s overarching vision, Combined Authority will use existing measures and develop new ones that align with the following three principles: Avoid (unnecessary travel); Shift (to more sustainable modes); Improve (operational efficiency and journey experience).</p>	
Cambridgeshire and	This strategy sets out the main principles to achieve bus ambitions, including to more than double bus patronage	

Strategy	Details	Information / Link
Peterborough Bus Strategy (CPCA 2023)	by 2030. More details of how this will be delivered and funded are set out in the Bus Service Improvement Plan (BSIP). The Strategy and BSIP will be regularly reviewed to reflect changing circumstances and to push continuous improvement.	
East Anglian Alternative Fuel Strategy (Combined Authority 2023) and Draft Electric Vehicle Implementation Plan (CPCA 2023)	Electric Vehicle Implementation Strategy to be finalised in 2024 £88,560 from the Local Electric Vehicle Infrastructure (LEVI) Capability Fund is supporting Cambridgeshire County Council activity. CPCA bid for indicative £5.4m of LEVI capital funding and additional capability funding was successful – in 2024 the business case will be developed to drawdown this funding.	
CPCA – Alternative Vehicles Strategy	East Anglian Alternative Fuels Strategy approved by CPCA March 2023. As a part of the Local Transport and Connectivity a Draft EV Implementation Plan was also agreed March 2023. Currently, the EV strategy focuses on five key areas for delivery including: Charging Infrastructure, Charge Point Accessibility, Communication, Advocacy and Outreach, Public and Shared Transport and Planning, Regulation, and Guidance.	

Strategy	Details	Information / Link
Climate Action Plan (CPCA 2022)	The Combined Authority's Climate Action Plan sets out actions that will be beneficial to air quality. This includes the key action to reduce overall vehicle mileage by 15% by 2030, subsequently incorporated into the LTCP. Other actions that are relevant include supporting waste collection and disposal to be more sustainable. Specific funding has been allocated to enable the redevelopment of Waterbeach depot to generate renewable energy to charge an electric waste collection fleet	
Climate Change Strategies	<p>The Cambridge & Peterborough Climate Action Plan sets out actions to reduce emissions. This includes for businesses, buildings, transport, waste and energy use.</p> <p>Link to actions in this strategy such as waste vehicles being zero emission</p> <p>County Climate Change and Environment Strategy (2022)</p> <p>Cambridge City Council Climate Change Strategy (2021-2026)</p> <p>South Cambridgeshire District Council Zero Carbon Strategy (2020) - This sets out the need to halve net carbon emissions in the district by at least 2030</p>	<p>CPCA Climate Action Plan: cambridgeshirepeterborough-ca.gov.uk/what-we-deliver/environment/</p> <p>Cambridgeshire County Council: www.cambridgeshire.gov.uk/residents/climate-change-energy-and-environment/climate-change-and-environment-strategy</p> <p>Cambridge City council: www.cambridge.gov.uk/climate-change-strategy</p> <p>South Cambridgeshire District Council: www.scamb.gov.uk/climate-emergency-and-nature/policy-and-strategies/zero-carbon-strategy</p>

Strategy	Details	Information / Link
Cambridgeshire & Peterborough Integrated Care System Strategy	Priority 2 references the need to 'Create an environment to give people the opportunity to be as healthy as they can be' including clean air	www.cpics.org.uk/our-priorities

Appendix D: Glossary of Terms

Abbreviation	Description
Ambient	Existing conditions in the area
AQAP	Air Quality Action Plan
AQG	Air Quality Guidelines
AQMA	Air Quality Management Area
ASR	Annual Status Report
Background sources of air pollution	These include regional and national sources such as transboundary pollution, natural sources such as sea salt

Abbreviation	Description
	spray and secondary pollution associated with chemical reactions in the atmosphere.
CCC	Cambridge City Council
COMEAP	Committee on Medical Effects of Air Pollution
DEFRA	Department for Environment, Food and Rural Affairs
GCP	Greater Cambridge Partnership
GDP	Gross Domestic Product
HGV's	Heavy Duty Vehicles such as lorries
EU	European Union
LAQM	Local Air Quality Management
NAEI	National Atmospheric Emissions Inventory
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less

Abbreviation	Description
SCDC	South Cambridgeshire District Council
SO ₂	Sulphur Dioxide
SPD	Supplementary Planning Document
WHO	World Health Organisation
ug/m ³	Unit of measurement - Micrograms per cubic metre
1km ²	Unit of Measurement - One kilometre by one kilometre