



# 2020 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the  
Environment Act 1995  
Local Air Quality Management

June, 2020



Cambridge's busiest junction at the afternoon rush-hour during the COVID-19 lockdown

## Cambridge City Council

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## Executive Summary: Air Quality in Our Area

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Air pollution causes diseases of the heart and lungs, contributes to poor public health and shortens life. Additionally, air pollution particularly affects the most vulnerable in society: children and older people. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas<sup>1,2</sup>. Air pollution is harmful for human health at all levels, including below the legal limits, so it is important to do what we can to continue to improve air quality. Public Health data indicates that in 2017, 47 deaths in Cambridge (5.6%) could be attributed to Particulate Air Pollution<sup>3</sup>.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion<sup>4</sup>.

NOTE: This report is based on air pollution data in 2019 and reflects the activities up to the end of March 2020. It does not include any information or discussion on air quality relating to the COVID-19 lockdown; this will be reported in next year's Annual Status Report<sup>5</sup>. Levels of nitrogen dioxide have fallen by more than 50% in the city centre of Cambridge during lockdown; details are being updated monthly. The Air Quality Action Plan team are now drawing up and implementing plans with the intention of maintaining some air quality improvements.

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<sup>1</sup> Environmental equity, air quality, socioeconomic status and respiratory health, 2010

<sup>2</sup> Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

<sup>3</sup> <https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/1/gid/1000043/pat/6/par/E12000006/ati/101/are/E07000008/cid/4>

<sup>4</sup> Defra. Abatement cost guidance for valuing changes in air quality, May 2013

<sup>5</sup> Interim information is available at <https://www.cambridge.gov.uk/air-pollution-during-the-coronavirus-lockdown>

## Air Quality in Cambridge

### What is the air quality like in Cambridge?

This is a question that we are often asked and the answer is that “it varies”. Air quality tends to be better in the suburbs and away from busy roads than in the busy, narrow city centre streets and along the inner ring roads, and on roads with high traffic levels. The centre of Cambridge has been within an Air Quality Management Area since 2004.

Air quality has been improving, slowly, in most parts of Cambridge in recent years, but there are parts of the city, including the busy central streets, where levels of nitrogen dioxide (NO<sub>2</sub>) continue to be high. The main source of nitrogen dioxide in Cambridge is from vehicle emissions, so the Air Quality Action Plan focuses on ways to reduce these emissions, as well as reducing other sources of air pollution. There are also legal limits for small particles, known as PM<sub>10</sub><sup>6</sup>. The levels of PM<sub>10</sub> in Cambridge are below the legal limits.

### Air Quality in 2019

The trends noted from the recorded levels of air pollution in 2019 indicate that levels of nitrogen dioxide in 2019 were, overall, slightly lower than in 2018. This is in agreement with the national trend<sup>7</sup>.

On the other hand, recorded levels of particulate matter in 2019 have remained the same. This is also in agreement with the national trend which has recorded stable concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> in recent years.

Levels of all measured pollutants are currently below their respective national air quality objectives levels. However, we know that air pollution is harmful for human health at all levels so Cambridge City Council continues to work towards lower levels.

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<sup>6</sup> PM<sub>10</sub> denotes particulate matter of diameter less than or equal to 10 micrometers (microns)

<sup>7</sup> <https://www.gov.uk/government/statistics/air-quality-statistics>

## Actions to Improve Air Quality

Working to improve air quality involves several councils and partners, and departments within those councils as different authorities are responsible for different areas of activity.

Cambridge City Council is the local authority with the legal responsibility to improve air quality in Cambridge city. Cambridgeshire County Council has been responsible for traffic management, highways, public transport and improving public health and so has had a legal responsibility to be involved in making air quality improvements. Both councils have worked together for more than 10 years to bring in measures to improve the city's air quality. The Greater Cambridge Partnership is the local delivery body for a City Deal with central Government, bringing powers and investment worth up to £1 billion over 15 years to deliver vital improvements in infrastructure and support the creation of new jobs, new homes and apprenticeships. The GCP aims to develop a sustainable transport network for Greater Cambridge that keeps people, businesses and ideas connected as the area continues to grow; to make it easy to get into, out of, and around Cambridge by public transport, by bike and on foot. The recently formed Combined Authority for Cambridgeshire and Peterborough has adopted the strategic responsibilities for highways, traffic and public transport.

We developed a new Air Quality Action Plan in 2017 with the County Council (Public Health and Transport teams) and the Greater Cambridge Partnership, which sets out how we can reduce polluting emissions in the city, with cleaner air for all residents, visitors and workers in the city.

The new Plan for Cambridge was approved unanimously at the Environment Scrutiny Committee in 2018. This plan sets out the council's priorities, for the next five years, for improving areas of poor air quality, and maintaining areas of good air quality across the city, as Cambridge continues to grow.

The proposed actions fall into three main categories:

**1. Reducing local traffic emissions as quickly as possible to meet national objectives.** Proposals in this area include:

- Lowering emissions from taxis, by increasing the number of ultra-low and zero emission taxis through incentives and installation of more electric vehicle charging points;
- Reducing bus and coach emissions, by working with partners to invest in more low emission vehicles;
- Reducing HGV emissions in the city centre, by promoting 'greener' methods for making deliveries of goods, such as by cycle.

**2. Maintaining levels of pollutants below national objectives**, including by using planning policies to ensure new communities are designed to make it easy for people to use sustainable modes of transport.

**3. Improving public health** - educating people about the health impacts of poor air quality and encouraging them to make changes to their lifestyles, including by shifting to more active modes of transport like walking and cycling.

Key actions completed in 2019 include:

- An air quality baseline study of the Greater Cambridge area to allow the modelling of the proposed GCP interventions to assess their impact on air quality was completed in the summer 2019. The results of these modelling exercises will be used by the GCP when considering decisions to be made on proposed interventions.
- The results of the Clean Air Zone Feasibility Study were included as part of the GCP's 'Choices for Better Journeys' engagement activity undertaken in March 2019, which sought feedback on a vision for public transport and measures that could help to deliver this. Over 5,000 people responded – 82% backed the vision, and 81% chose a traffic-reducing measure as their first choice for both funding public transport and reducing congestion.
- In September and October 2019, the GCP held a Citizens' Assembly looking at the question: how do we reduce congestion, improve air quality, and provide better public transport in Greater Cambridge?

## Citizens' Assembly

The Citizens' Assembly brought together 53 randomly selected residents from across the travel to work area over two weekends to hear evidence about these issues, discuss and deliberate. Participants developed and prioritised a vision for transport, voted on a series of measures to achieve this, identified and prioritised supporting measures, and developed a series of key messages.

Assembly members developed and prioritised their vision for transport in Greater Cambridge, with the following outcomes commanding the highest support:

- Provide affordable public transport
- Provide fast and reliable public transport
- Be environmental and zero carbon
- Restrict the city centre to only clean and electric vehicles
- Be people centred – prioritising pedestrians and cyclist
- Be managed as one coordinated system (e.g. Transport for Cambridge)
- Enable interconnection (e.g. north/south/east/west/urban/rural)

The citizens' assembly voted most strongly in favour of road closures, followed by a series of road charging options (clean air zone, pollution charge and flexible charge).

- The full [report](#) and recommendations were written by Involve, who delivered the Assembly, and can be viewed here<sup>8</sup>. More information about the Citizens' Assembly is published on the GCP [website](#)<sup>9</sup>.

- The results of Choices for Better Journeys and the report from the Citizens' Assembly were put to the GCP Executive Board in February 2020, alongside comprehensive technical work looking at options to tackle congestion and provide better public transport, improve air quality and reduce carbon emissions. The GCP Board has agreed to bring forward options for packages of measures at a meeting later in the year, which may include a type of Clean Air Zone.
- Two fully electric buses have joined the fleet on a trial. The cost of the new buses has been shared between the GCP and the operator Stagecoach.

<sup>8</sup>[https://www.involve.org.uk/sites/default/files/field/attachemnt/GCCA%20on%20Congestion%20Air%20Quality%20and%20Public%20Transport%20-%20Full%20Report%20\\_0.pdf](https://www.involve.org.uk/sites/default/files/field/attachemnt/GCCA%20on%20Congestion%20Air%20Quality%20and%20Public%20Transport%20-%20Full%20Report%20_0.pdf)

<sup>9</sup> <https://www.greatercambridge.org.uk/city-access/greater-cambridge-citizens-assembly>





*Figure 1. One of the new electric buses in Cambridge.*

- An Electric Vehicle and Infrastructure Strategy<sup>10</sup> was prepared to set out the current provision for EV charging in Cambridge and the wider region, identify where provision needs to be better, how this would be achieved and who would be responsible. A comprehensive and over-arching strategy will involve local authority departments such as environmental health, development and strategic planning, fleet management, parking, transport managers, highways, as well as local companies and the DNO (UK Power Networks). Liaison with Office for Low Emission Vehicles as well as EV infrastructure and transport companies will be required. The Strategy was approved in September 2019. It will set out the ambition for a significant improvement in provision for EV charging, identifying priority areas and workstreams.
- The Cambridgeshire and Peterborough Combined Authority (CPCA) is considering putting a tender out for consultants to develop an over-arching EV charging strategy for the wider area, looking at all aspects of EV charging including where and how it could be delivered, depending on the national Government's direction of travel.
- Cambridgeshire County Council's Climate Change and Environment Strategy<sup>11</sup> (2020) incorporates electrification of transport and EV infrastructure provision, will

<sup>10</sup> <https://www.cambridge.gov.uk/media/7988/electric-vehicle-and-infrastructure-strategy.pdf>

<sup>11</sup> DRAFT available here: <https://consultcambs.uk.engagementhq.com/3017/widgets/9927/documents/3606>



build on the work already undertaken by the Energy Investment Unit such as developing Smart Energy Grids at Babraham and St Ives Park & Ride sites.

- A Supplementary Planning Document on Sustainable Design & Construction<sup>12</sup> was completed, consulted on and taken to relevant committees in January 2020. It was welcomed by members from both councils. The SPD includes a section on air quality and development control and includes the measures in the Air Quality Action Plan. Work has begun on a new Local Plan for the greater Cambridge area (Cambridge City and South Cambridgeshire districts).
- Air Quality is an integral part of the new CPCA Local Transport Plan<sup>13</sup>, which was adopted in January 2020. Further engagement with the CPCA has taken place to ensure that the transport authority considers air quality in its plans and contributes measures to improve air quality to the Air Quality Action Plan. The CPCA is now represented on the Air Quality Action Plan steering group.
- The Greater Cambridge Partnership, working with Cambridgeshire County Council has begun work on an extensive programme of cycling and walking infrastructure improvements, some of which have been completed (the five cross-city cycling projects and the Meldreth to Shepreth cycling and walking route).



*Figure 2. Opening of the new cycle routes in Chesterton, East Cambridge*

<sup>12</sup> <https://www.cambridge.gov.uk/greater-cambridge-sustainable-design-and-construction-spd>

<sup>13</sup> <https://cambridgeshirepeterborough-ca.gov.uk/assets/Transport/Draft-LTP.pdf>



*Figure 3. Works in progress on the Chisholm Trail – new bridge for cyclists and pedestrians being installed.*

- Work on the CPCA Bus Reform project commenced in 2019. The aim is to look at different ways in which bus services can be drawn together into a well-functioning integrated transport network – a core network with an integrated feeder network. The Bus Services Delivery Review<sup>14</sup> Vision for Bus (March 2020) set out the CPCA vision for a world class public transport network that gives everybody an integrated travel services with quality information and vehicles. Approval for developing the Outline Business Case was agreed in Spring 2020. The Outline Business Case will differentiate between the four identified options (Deregulated bus services, Advanced Quality Partnership Scheme (AQPS), Enhanced Partnership (EP) and Franchising). The business case will assess the benefits of the alternative operational models and be completed by Spring 2021.
- Work continued on the installation of OLEV-funded rapid charge points for taxis, with a further two Rapid Charge Points for Taxis installed at Castle Hill car park; two more sites (4 more charge points) were due for installation at the end of March but have been delayed because of COVID-19 lockdown. The data provided by Swarco

<sup>14</sup><https://cambridgeshirepeterboroughcagov.cmis.uk.com/Meetings/tabid/70/ctl/ViewMeetingPublic/mid/397/Meeting/1959/Committee/67/SelectedTab/Documents/Default.aspx>

records that usage of the charge points in Cambridge continues to increase. The number of charging sessions increased from 1,609 in 2018/19 to 4,116 in 2019/20, improving air quality and saving carbon.

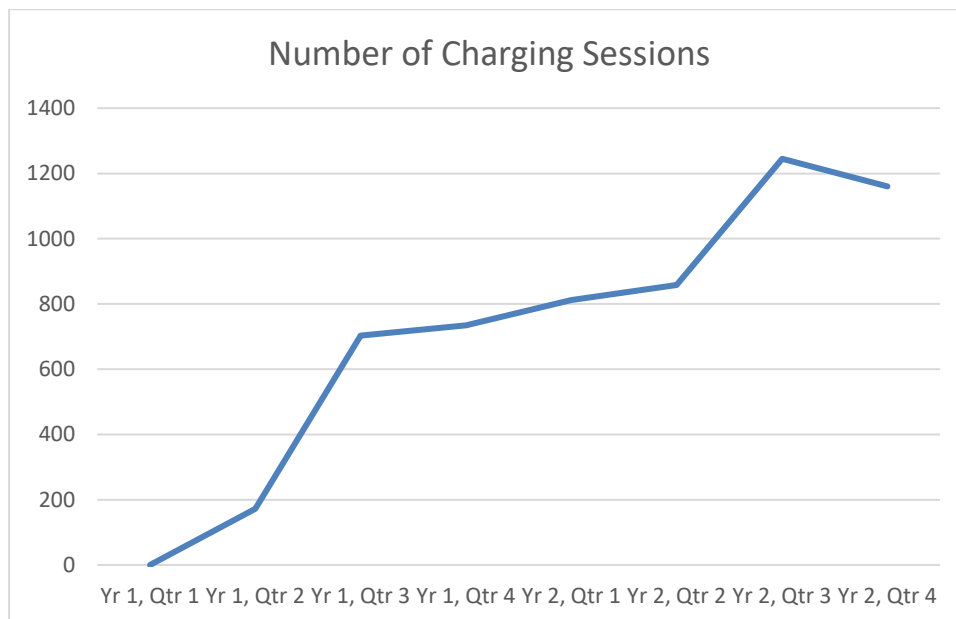


Figure 4. Number of charging sessions at the Cambridge Taxi EVCPs per quarter.

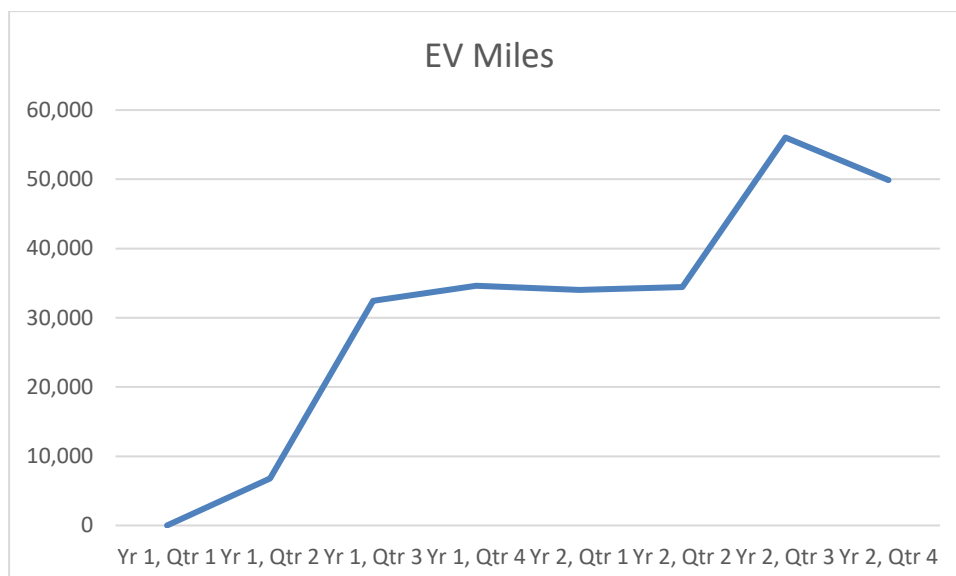


Figure 5. Number of miles driven on an electric charge from the Cambridge EVCP per quarter.

- The joint City and County Council procurement for a new Car Club (car sharing) scheme in the city was finalised in August. There are now 34 vehicles available to hire from both of on and off street locations around the city, 75% of which are ultra-low emission vehicles, and over 90% are hybrids. We have also installed East Anglia's first fully electric Car Club vehicle. Initial performance indicators

have shown new membership take-up rates to be higher than expected, however we are working to increase this further and are working with local community groups and businesses to raise awareness of the Car Club amongst residents and businesses within the city.

- Both Cambridge City Council<sup>15</sup> and Cambridgeshire County Council<sup>16</sup> have declared a Climate Emergency. Plans to achieve a zero carbon emissions by 2050 will also lower emissions of other air pollutants, resulting in improved air quality.

### **The Mill Road Project**

Whilst not a specific measure to improve air quality, the Cambridge City Council Air Quality team was awarded grant funding from Department for Environment, Food and Rural Affairs to purchase new equipment to monitor air quality in and around the Mill Road area, while the bridge on Mill Road was closed to traffic for eight-weeks in Summer 2019.

The Smart Cambridge programme also took the opportunity to gather data before the closure, while there was no vehicle traffic coming over Mill Road Bridge and then after the bridge was re-opened, allowing engineers to see the air quality impact of the closure on surrounding roads.

This was part of a joint project between the City Council, Cambridgeshire County Council, Greater Cambridge Partnership and University of Cambridge to help to build a more comprehensive picture of road usage and its impact on air quality across the city.

The city council's new air quality monitoring equipment provided detailed data throughout the day to identify any emerging trends. It was placed alongside traditional air quality monitoring methods which were used at the same time as a comparison of monitoring methodologies.

The monitoring phase of the project was completed in January 2020. Detailed analysis of the data is being undertaken to assess the effect of the road closure on air quality in the Mill Road area, as well as to trial of the new air quality monitoring equipment. The findings will be used to assist with further monitoring studies and also the planning of proposed infrastructure improvements in and around Cambridge.

The results of the analysis will be available later in 2020.

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<sup>15</sup> <https://www.cambridge.gov.uk/climate-change>

<sup>16</sup> <https://www.mlei.co.uk/climateenvironment>

## Conclusions and Priorities

The trends noted from the recorded levels of air pollution in 2019 indicate that levels of nitrogen dioxide are, overall, continuing to fall slowly. Measured levels of particulate matter have remained the same.

No changes to the Air Quality Management Area are proposed at this time.

### Priorities

- Priority - Our key priority in 2020 is to continue with the measures already underway and start work on new measures in accordance with our Air Quality Action Plan
- Challenge - Future improvements in air quality are dependent on supporting the switch from internal combustion engine use to low emission vehicles for both private and public fleets.
- Challenge - Air quality will continue to remain under pressure because of continued significant population, housing and business growth in and around Cambridge.
- Action - We will continue to take advantage of any opportunities to apply for grants to fund further measures.
- Action - We will continue to work with developers and communities to ensure that new developments minimise harmful impact on air quality.
- Action – We will continue to work with the Greater Cambridge Partnership and the Cambridgeshire and Peterborough Combined Authority to support strategic transport planning and infrastructure investment.
- Action – We will continue to work with Cambridgeshire County Council on matters relating to the highways and public health.

## Local Engagement and How to get Involved

### Local Engagement

Regular articles on air quality are included in the Cambridge City Council magazine, Cambridge Matters, which is delivered free of charge to all residents. Information about air quality is provided on the Cambridge City Council website including data directly from the main monitoring stations<sup>17</sup>; Cambridgeshire County Council includes air quality information on its Cambridgeshire Insight information website<sup>18</sup>.

Cambridge City Council also gets involved with Clean Air Day.

### How everyone can help to improve air quality

Everyone is affected by the quality of the air that we breathe and everyone has a role to play to help to improve air quality in Cambridge. Here are some examples of what you can do:

- Avoid using your car for short trips (under 2 miles) - short trips are very polluting as modern engines need to reach a very high temperature to work efficiently; on short trips it won't reach that temperature.
- Try using public transport, cycling or walking more often.
- Information on [public transport](#) around Cambridge can be found on the Cambridgeshire County Council website.
- My [Bus Trip](#) is a useful app for real-time bus information.
- [MotionMap](#) is a new journey-planning app for travel by bus, train, walking and cycling; it's available from app stores.
- Walking and cycling help you to stay healthy plus save you money in fuel costs. The [Walkit](#) website will help you to find routes around Cambridge.
- When driving, use techniques that help you use less fuel, like driving more slowly and smoothly. You could use 10% less fuel and save money by following the tips on the AA [website](#).

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<sup>17</sup> <https://www.cambridge.gov.uk/air-pollution>

<sup>18</sup> <https://cambridgeshireinsight.org.uk/environment/airquality/>



- Switch it off - turn off your engine if you are caught in a traffic jam or have to wait at level crossings; not only will this reduce your emissions but you will save fuel too.
- Consider using an alternative fuel vehicle - There is a growing market for electric vehicles. There are charging points at some of our car parks and plans are underway to introduce more to meet demand.
- Consider living car free.
- Join a car club. There are two car clubs in Cambridge. [Enterprise](#) has 34 vehicles for short term use in Cambridge and [Zipcar](#) has 12.
- Consider working at home as often as possible, or car sharing if you need to drive to work.
- Use less energy at home – wood, coal, oil and gas burning all contribute to air pollution.

If you would like to know more about air quality in Cambridge, please visit our [air quality pages](#), contact us by phone on 01223 457900 or email [egg@cambridge.gov.uk](mailto:egg@cambridge.gov.uk)



# Table of Contents

<b>Executive Summary: Air Quality in Our Area</b>	<b>i</b>
Air Quality in Cambridge	ii
Actions to Improve Air Quality	iii
Conclusions and Priorities	xi
Local Engagement and How to get Involved	xii
Local Engagement	xii
How everyone can help to improve air quality	xii
<b>1 Local Air Quality Management</b>	<b>1</b>
<b>2 Actions to Improve Air Quality</b>	<b>2</b>
2.1 Air Quality Management Areas	2
2.2 Progress and Impact of Measures to address Air Quality in Cambridge	4
2.3 PM <sub>2.5</sub> – Local Authority Approach to Reducing Emissions and/or Concentrations	24
<b>3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance</b>	<b>26</b>
3.1 Summary of Monitoring Undertaken	26
3.1.1 Automatic Monitoring Sites	26
3.1.2 Non-Automatic Monitoring Sites	26
3.2 Individual Pollutants	27
3.2.1 Nitrogen Dioxide (NO <sub>2</sub> )	27
3.2.2 Particulate Matter (PM <sub>10</sub> )	28
3.2.3 Particulate Matter (PM <sub>2.5</sub> )	28
<b>Appendix A: Monitoring Results</b>	<b>30</b>
<b>Appendix B: Full Monthly Diffusion Tube Results for 2019</b>	<b>50</b>
<b>Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC</b>	<b>54</b>
<b>Appendix D: Map(s) of Monitoring Locations and AQMAs</b>	<b>64</b>
<b>Appendix E: Summary of Air Quality Objectives in England</b>	<b>67</b>
<b>Glossary of Terms</b>	<b>68</b>

## List of Tables

Table 2.1 – Declared Air Quality Management Areas.....	3
Table 2.2 – Progress on Measures to Improve Air Quality .....	12
Table A.1 - Details of Automatic Monitoring Sites.....	30
Table A.2 – Details of Non-Automatic Monitoring Sites .....	31
Table A.3 – Annual Mean NO <sub>2</sub> Monitoring Results .....	34
Table A.4 – 1-Hour Mean NO <sub>2</sub> Monitoring Results .....	45
Table A.5 – Annual Mean PM <sub>10</sub> Monitoring Results.....	46
Table A.6 – 24-Hour Mean PM <sub>10</sub> Monitoring Results.....	46
Table A.7 – PM <sub>2.5</sub> Monitoring Results .....	48
Table B.1 - NO <sub>2</sub> Monthly Diffusion Tube Results - 2019.....	50
Table E.1 – Air Quality Objectives in England .....	67

## List of Figures

Figure 1 One of the new electric buses in Cambridge .....	vi
Figure 2 Opening of the new cycle paths in Chesterton, East Cambridge .....	vii
Figure 3 Works in progress on the Chisholm Trail – new bridge for cyclists and pedestrians being installed .....	viii
Figure 4 Number of charging sessions at the Taxi EVCP in each quarter .....	ix
Figure 5 Number of miles driven on an electric charge in each quarter .....	ix
Figure A.1 – Trends in Annual Mean NO <sub>2</sub> Concentrations .....	39
Figure A.1.a Trend in averaged mean annual NO <sub>2</sub> for Background and Urban background sites .....	40
Figure A.1.b: Trend in averaged mean annual NO <sub>2</sub> for Radial Roads, Inner Ring Road and Inner City Streets .....	41
Figure A.1.c: Trend in averaged mean annual NO <sub>2</sub> for Bus Station are .....	42
Figure A.1.d: Trend in averaged mean annual NO <sub>2</sub> for CB1 area .....	43
Figure A.1.e: Trends in averaged mean annual NO <sub>2</sub> in Southern Cambridge .....	44
Figure A.3 – Trends in Annual Mean PM <sub>10</sub> Concentrations .....	47
Figure A.5 – Trends in Annual Mean PM <sub>2.5</sub> Concentrations .....	49

# 1 Local Air Quality Management

This report provides an overview of air quality in Cambridge during 2019. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives 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 Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Cambridge City Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Table E.1 in Appendix E.

## 2 Actions to Improve Air Quality

### 2.1 Air Quality Management Areas

Air Quality Management Areas (AQMA) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

Details of the AQMA declared by Cambridge City Council can be found in Table 2.1. Further information to the AQMA, including a map of AQMA boundaries are available online at

[https://uk-air.defra.gov.uk/aqma/details?aqma\\_ref=311](https://uk-air.defra.gov.uk/aqma/details?aqma_ref=311)

Alternatively, see Appendix D: Map(s) of Monitoring Locations and AQMA which provides maps of air quality monitoring locations and the AQMA (page 60).

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)		Action Plan		
						At Declaration	Now	Name	Date of Publication	Link
Cambridge	2004	Annual Mean Nitrogen Dioxide	Cambridge	An area encompassing the inner ring road and all the land within it (including a buffer zone around the ring road and its junctions with main feeder roads).	NO	Parker Street 49 (CM) Emmanuel Street 59 (DT)	Parker Street 33 (CM) Emmanuel Street 31 (DT)	Cambridge Air Quality Action Plan	2018	<a href="https://www.cambridge.gov.uk/air-quality-action-plan">https://www.cambridge.gov.uk/air-quality-action-plan</a>

Cambridge City Council confirms that the information on UK-Air regarding their AQMA is up to date.

## 2.2 Progress and Impact of Measures to address Air Quality in Cambridge

Defra's appraisal of last year's ASR concluded the report was well structured, detailed and provided the information specified.

Defra would like to see:

1. More clarity on where funding is and isn't available for their Action Plan measures.

*Details of funding are provided in Table 2.2 where the information is available.*

2. Consideration of pollution reduction targets and key performance indicators  
*Pollution reduction targets and Key Performance Indicators are provided where feasible.*

3. Annualisation of diffusion tubes using a relevant DEFRA AURN site as per TG.16.

*Annualisation of diffusion tubes is carried out according to TG.16 guidance, 7-56. A background continuous monitoring site is not available; therefore an appropriate diffusion tube is used.*

Cambridge City Council, with its partners (Cambridgeshire County Council, the Greater Cambridge Partnership (GCP) and the Cambridgeshire and Peterborough Combined Authority(CPCA)), has taken forward a number of direct measures during the current reporting year of 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

More detail on these measures can be found in the [Action Plan](#). Key completed measures are:

- The results of the Clean Air Zone Feasibility Study were included as part of the GCP's 'Choices for Better Journeys' engagement activity undertaken in March 2019, which sought feedback on a vision for public transport and measures that could help to deliver this. Over 5000 people responded – 82% backed the vision, and 81%

chose a traffic-reducing measure as their first **choice** for both funding public transport and reducing congestion.

- In September and October 2019, the GCP held a Citizens' Assembly looking at the question: how do we reduce congestion, improve air quality, and provide better public transport in Greater Cambridge? This brought together 53 randomly selected residents from across the travel to work area over two weekends to hear evidence about these issues, discuss and deliberate. Participants developed and prioritised a vision for transport, voted on a series of measures to achieve this, identified and prioritised supporting measures, and developed a series of key messages. The full report and recommendations were written by Involve, who delivered the Assembly, and can be viewed here.<sup>19</sup>
- The results of Choices for Better Journeys and the report from the Citizens' Assembly were put to the GCP Executive Board in February 2020, alongside comprehensive technical work looking at options to tackle congestion and provide better public transport, improve air quality and reduce carbon emissions. The GCP Board has agreed to bring forward options for packages of measures at a meeting later in the year, which may include a type of Clean Air Zone.
- An air quality baseline study of the Greater Cambridge area to allow the modelling of the proposed GCP interventions to assess their impact on air quality was completed in the summer 2019. The results of these modelling exercises will be used by the GCP when considering decisions to be made on proposed interventions.
- Two fully electric buses have joined the fleet on a trial. The cost of the new buses has been shared between the GCP and the operator Stagecoach. The buses have been popular with passengers.
- An Electric Vehicle and Infrastructure Strategy<sup>20</sup> was prepared to set out the current provision for EV charging in Cambridge and the wider region, identify where provision needs to be better, how this would be achieved and who would be responsible. A comprehensive and over-arching strategy will involve local authority departments such as environmental health, development and strategic planning, fleet

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<sup>19</sup>

[https://www.involve.org.uk/sites/default/files/field/attachemnt/GCCA%20on%20Congestion%20Air%20Quality%20and%20Public%20Transport%20-%20Full%20Report%20\\_0.pdf](https://www.involve.org.uk/sites/default/files/field/attachemnt/GCCA%20on%20Congestion%20Air%20Quality%20and%20Public%20Transport%20-%20Full%20Report%20_0.pdf)

<sup>20</sup> <https://www.cambridge.gov.uk/media/7988/electric-vehicle-and-infrastructure-strategy.pdf>



management, parking, transport managers, highways, as well as local companies and the DNO (UK Power Networks). Liaison with Office for Low Emission Vehicles as well as EV infrastructure and transport companies will be required. The Strategy was approved in September 2019. It will set out the ambition for a significant improvement in provision for EV charging, identifying priority areas and workstreams.

- The Cambridgeshire and Peterborough Combined Authority is considering putting a tender out for consultants to develop an over-arching EV charging strategy for the wider area, looking at all aspects of EV charging including where and how it could be delivered, depending on the national Government's direction of travel.
- Cambridgeshire County Council's Climate Change and Environment Strategy<sup>21</sup>(2020) incorporates electrification of transport and EV infrastructure provision, will build on the work already undertaken by the Energy Investment Unit such as developing Smart Energy Grids at Babraham and St Ives Park & Ride sites.
- A Supplementary Planning Document on Sustainable Design & Construction<sup>22</sup> was completed, consulted on and taken to relevant committees in January 2020. It was welcomed by members from both councils. The SPD includes a section on air quality and development control and includes the measures in the Air Quality Action Plan. Work has begun on a new Local Plan for the greater Cambridge area (Cambridge City and South Cambridgeshire districts).
- Air Quality is an integral part of the new CPCA Local Transport Plan<sup>23</sup>, which was adopted in January 2020. Further engagement with the CPCA has taken place to ensure that the transport authority considers air quality in its plans and contributes measures to improve air quality to the Air Quality Action Plan. The CPCA is now represented on the Air Quality Action Plan steering group.
- The Greater Cambridge Partnership, working with Cambridgeshire County Council has begun work on an extensive programme of cycling and walking infrastructure improvements, some of which have been completed (the five cross-city cycling projects and the Meldreth to Shepreth cycling and walking route).

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<sup>21</sup> DRAFT available here: <https://consultcambs.uk.engagementhq.com/3017/widgets/9927/documents/3606>

<sup>22</sup> <https://www.cambridge.gov.uk/greater-cambridge-sustainable-design-and-construction-spd>

<sup>23</sup> <https://cambridgeshirepeterborough-ca.gov.uk/assets/Transport/Draft-LTP.pdf>

- Work on the CPCA Bus Reform project commenced in 2019. The aim is to look at different ways in which bus services can be drawn together into a well-functioning integrated transport network – a core network with an integrated feeder network. The Bus Services Delivery Review<sup>24</sup> Vision for Bus (March 2020) set out the CPCA vision for a world class public transport network that gives everybody an integrated travel services with quality information and vehicles. Approval for developing the Outline Business Case was agreed in Spring 2020. The Outline Business Case will differentiate between the four identified options (Deregulated bus services, Advanced Quality Partnership Scheme (AQPS), Enhanced Partnership (EP) and Franchising). The business case will assess the benefits of the alternative operational models and be completed by Spring 2021.
- Work continued on the installation of OLEV-funded rapid charge points for taxis, with a further two Rapid Charge Points for Taxis installed at Castle Hill car park; sites are being finalised for the remaining charge points. The data provided by Swarco records that usage of the charge points continues to increase. The number of charging sessions increased from 1,609 in 2018/19 to 4,116 in 2019/20, improving air quality and saving carbon.
- The joint City and County Council procurement for a new Car Club (car sharing) scheme in the city was finalised in August. There are now 34 vehicles available to hire from both of on and off street locations around the city, 75% of which are ultra-low emission vehicles, and over 90% are hybrids. We have also installed East Anglia's first fully electric Car Club vehicle. Initial performance indicators have shown new membership take-up rates to be higher than expected, however we are working to increase this further and are working with local community groups and businesses to raise awareness of the Car Club amongst residents and businesses within the city.

Cambridge City Council and partners expect the following measures to be completed over the course of the next reporting year:

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<sup>24</sup><https://cambridgeshirepeterboroughcagov.cmis.uk.com/Meetings/tabid/70/ctl/ViewMeetingPublic/mid/397/Meeting/1959/Committee/67/SelectedTab/Documents/Default.aspx>

- Installation of the remaining planned taxi charge points. Nine charge points will be installed in Cambridge (at 6 different sites) and 4 in South Cambridgeshire District Council (at 3 different sites) – an additional 13 charge points in 2020.
- Assessment of the Clean Air Zone options and/or any other interventions brought forward for implementation
- Completion of some of the walking and cycling projects listed in Table 2.2 as well as further progress on the remaining projects.

Most of the projects currently in the Air Quality Action Plan are already ongoing, completed, or longer term projects.

### **Cambridge's City Council's priorities for the coming year**

- Continue to work with the GCP on the Clean Air Zone options. A Clean Air Zone of some type will be essential to reduce the emissions in central Cambridge.
- Continue to work with the GCP to ensure the impact on air quality of the proposed GCP interventions and projects is fully understood and considered as part of the review process.
- Work with the Cambridgeshire and Peterborough Combined Authority on all projects that will improve air quality, including the Strategic Bus Review, the Cambridge Area Metro (CAM) and Cambridge South railway station.
- Complete the installation of rapid charge points for taxis.
- Continue to work with the County Council and other partners on a range on-street charging projects.
- Continue to work with the County Council and other partners on a range of environmental and climate change projects which have an impact on air quality.
- Continue to publicise ways to improve air quality.
- Develop new Air Quality Planning policies for the joint Local Plan. Ensure that requirements for Health Impact Assessments are included.
- Consult on extension of the Smoke Control Areas to cover the whole district.
- Take advantage of any new funding opportunities that arise.

## Challenges

The principal challenge to implementation that Cambridge anticipates facing is growth in Cambridge and its surrounding geographical area, known in planning terms as 'Greater Cambridge'. Cambridgeshire has one of the fastest growing economies and populations in Britain, with a 22% increase in population predicted between 2010 and 2031. In the past, much of the growth around Cambridge has been directed to the South Cambridgeshire villages beyond the Green Belt, resulting in a growth of commuting by car to Cambridge (50% of the Cambridge workforce commute into the city), as well as congestion and pollution. The population of Cambridge city has risen significantly in recent years with an approximate increase of 50% over the 40 years from 1981 to 2021. Future increases in population are predicted to continue in new communities on the edge and just outside of the city, such as at Northstowe (up to 10,000 dwellings) and Waterbeach (up to 12,000 dwellings) and associated, business, retail, community, leisure and sports uses; hotels; schools). Economic growth continues in the region with some business/scientific parks sites increasing the number and size of buildings as well as new business and science parks such as Cambridge Biomedical Campus (75,000m<sup>2</sup>).

The increases in population and business growth will result in an increased demand for travel to/ from Cambridge city and thus further challenges to the air quality improvements that have been made in recent past. The GCP agreed powers and funding from Central Government, for public transport and active travel infrastructure improvements to help address these issues (City Deal programme). Continued investment in integrated public transport provision, including rail and low emission bus, will be essential to protect the city from the adverse impacts of commuter growth from these new communities.

**Progress on the following measures has been slower than expected.**

The new Cambridgeshire and Peterborough Combined Authority and GCP agreed to review some GCP approved projects to ensure that these are aligned with transport scheme needs and plans for the Combined Authority area.

- New A428 Cambourne – Cambridge (C2C) Better Public Transport project<sup>25</sup> was paused in 2018 for a review by the Cambridgeshire and Peterborough Combined Authority (CPCA). In October 2018, the CPCA review concluded that GCP's work to recommend a preferred, off-road route is robust and identified the optimal solution for the Cambourne to Cambridge corridor, as best delivering project objectives and aligning with future CAM proposals. Route assessment continued in 2019 and a single, end-to-end link was due to be presented to the GCP Executive Board in Spring 2020. However, the GCP understands that the Combined Authority, as the Strategic Transport Authority, has indicated it has an alternative route alignment, and the Board feels it must allow a short amount of time for that to be assessed before considering its current plans. This means the delivery date of 2024 is unlikely to be met.
- Park & Ride projects were paused as above, and in particular the proposed new P&R site(s) related to the A428 Cambourne – Cambridge Better Public Transport.
- Reducing emissions from buses (a priority measure) has not progressed as part of a Quality Bus Partnership. Calculated emissions from buses are not available this year, but anecdotal evidence suggests that the older E3 buses introduced in 2018 were removed in 2019 and indeed that newer buses have joined the fleet. The data from diffusion tubes in the area around the bus station shows that air pollution levels have fallen in this area, in line with the overall trend in Cambridge (unlike 2018). On the other hand, the GCP has been working with Stagecoach (the main operator locally) to assist with a trial of low emission buses operating on routes in the city centre –two fully electric buses have joined the fleet. The cost of the new buses has been shared between the GCP and the operator.

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<sup>25</sup> Link to Cambridge to Cambourne webpage <https://www.greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambridge/>

- Installation of EV Charge Points for residents and non-residents, on street. Progress has been slower than expected because of the logistic issues of installation of on-street EV charge points in areas of limited parking availability (which is where demand is highest) as well as the complexity of PFI contract with the lamp-post owners (which could provide wider coverage more effectively). A trial of lamp-post charge points is in preparation for later in 2020. Other options are being actively considered to provide charging infrastructure to meet the growing demand.
- Installation of EV Charge Points for residents and non-residents, in car parks. A procurement has been funded to provide an Electric Vehicle Charge Point Strategy in the City car parks for residents and non-residents.
- Options for reducing emissions from HGV are limited by funding resources and logistical challenges.
- Progress was slow on the County Council's public health programme of active participation across Cambridgeshire to address air pollution more collaboratively (including the development of communication resources, training and learning events, guidance for communities on air quality monitoring, and collaborative working). Progress is expected to pick up in 2020.

Cambridge City Council anticipates that the measures stated above and in Table 2.2 will maintain compliance in the Cambridge Air Quality Management Area.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1a	Expansion of Park & Ride services	Alternatives to private vehicle use	Bus based Park & Ride	5 P&R sites already in place (Camb. County Council)	Camb. County Council/ Greater Cambridge Partnership/ CACP	The Greater Cambridge Partnership /CACP	TBC	This measure is to provide an alternative to support future travel requirements	The GCP has increased provision at Trumpington Park & Ride by 274 car spaces and 5 additional bus bays.	This is an ongoing project.	The Greater Cambridge Partnership's programme includes plans for c.6500 new spaces at three new P&R sites to the west, south-west and south-east of the city. Proposals for the north and east are in development. These sites will be developed as travel hubs.  The Cambridgeshire and Peterborough Combined Authority will be pursuing new sites in the future that would integrate with the CAM scheme (measure number 91a)
1b	Expansion of Park & Ride services	Alternatives to private vehicle use	Rail based Park & Ride	TBC	The Greater Cambridge Partnership	The Greater Cambridge Partnership	Completion and opening	This measure is to provide an alternative to support future travel requirements	Planning phase	TBC	A travel hub with c.750 spaces is planned at Foxton railway station. More information: <a href="https://www.greatercambridge.org.uk/transport/transport-projects/">https://www.greatercambridge.org.uk/transport/transport-projects/</a>
2	Quality Bus Partner-ships	Alternatives to private vehicle use	Other	TBC	Cambridgeshire and Peterborough Combined Authority	Cambridgeshire and Peterborough Combined Authority and operators	No additional pollution from additional bus services.  QBP agreement for current services and all new services	This measure is to provide alternative to support future travel requirements and to ensure that the new services do not add air pollution	No QBP agreement for regular services in place.  Operators waiting for outcome of CA bus services review	TBC	Bus Reform Task Force is examining the appropriate framework for buses in the region  Provision of good public transport is key to meeting travel demand; buses must be high quality
3	Camshare is one strand of the Travel for Cambridge-shire scheme	Alternatives to private vehicle use	Car and lift sharing schemes	Ongoing	TfC, Camb. County Council	Camb. County Council	n/a	This measure is to provide alternative to support future travel requirements	5,000 members	Ongoing	Ongoing Routine  <a href="http://www.travelcambs.org.uk/car-share/">http://www.travelcambs.org.uk/car-share/</a>
4	Provision of car park places for car club vehicles	Alternatives to private vehicle use	Car Clubs	Ongoing	Parking Services, Camb. City Council Camb. County Council	Car club providers Camb. City Council	n/a	This measure is to provide alternative to support future travel requirements	12 cars and 1 van in Zipcar club across Cambridge  A further 35 vehicles introduced in 2019, and 3 more so far in 2020, across Cambridge	Ongoing	Ongoing project going well.  Cambridge City Council and Cambridgeshire County Council procured a car club operator to operate a car club.
5	Provision of on-street car parking places for car club vehicles	Alternatives to private vehicle use	Car Clubs	Ongoing	Parking Services, Camb. City Council Camb. County Council	Car club providers Camb. City Council	n/a	This measure is to provide alternative to support future travel requirements	12 cars and 1 van in Zipcar club across Cambridge  A further 35 vehicles introduced in 2019, and 3 more so far in 2020, across Cambridge	Ongoing	Ongoing project going well.  Cambridge City Council and Cambridgeshire County Council procured a car club operator to operate a car club.



6	Require a site-wide car club strategy for large-scale Major sites – detailing the location and phasing of the charge point installations	Alternatives to private vehicle use	Car Clubs	SPD adopted in January 2020	Environ-mental Health/ Planning Camb. City Council/ district councils	Developers via S106 or other agreement	n/a	This measure is to provide alternative to support future travel requirements	Not recorded.	Ongoing	Completed  Planning requirement in AQAP v2 and included in SPD.  Forward-thinking developers were already setting aside car club spaces.
7	Require 1 car club vehicle per 500 parking spaces in new residential develop-ment, 1 vehicle per 10,000 m2 in non-residential develop-ments	Alternatives to private vehicle use	Car Clubs	SPD adopted in January 2020	Environmental Health/ Planning Camb. City Council/ district councils	Developers via S106 or other agreement	n/a	This measure is to provide alternative to support future travel requirements	Not recorded.	Ongoing	Completed  Planning requirement in AQAP v2 and included in SPD.  Forward-thinking developers were already setting aside car club spaces.
8	Promotion of electric bike hire/hub schemes	Alternatives to private vehicle use	Other	TBC	Environmental Health/ Planning Camb. City Council/ district councils GCP	Depends on project	n/a	This measure is to provide alternative to support future travel requirements	Camb City and Cambs County have submitted a bid for 30 e-cargo bikes, for councils, business and resident use.. GCP match-funding	TBC	Forward-thinking developers are already proposing e-bike hubs on large developments as sustainable transport mode offer to mitigate air pollution impact. Business parks are also looking at how they could offer electric bike hire, including at Cambridge Science Park and the Biomedical Campus.
9	Develop policies to require electric bike charge hubs and parking in new residential areas without off street parking	Alternatives to private vehicle use	Other	TBC	Environ-mental Health and Planning, Camb. City Council/ district councils	Depends on project	n/a	This measure is to provide alternative to support future travel requirements	n/a	TBC	Will need to complement existing cycle parking requirements and space implications. Will need to consider if access is open or restricted.
10	Develop policies to promote electric bike charge facilities in workplaces and car parks/ require in new workplaces	Alternatives to private vehicle use	Other	TBC	Environ-mental Health and Planning, Camb. City Council/ district councils	Depends on project	n/a	This measure is to provide alternative to support future travel requirements	n/a	TBC	Will need to complement existing cycle parking requirements and space implications. Will need to consider if access is open or restricted.
17	Last Mile delivery based from P&R sites	Freight and Delivery Management	Delivery and service plans	TBC	GCP/ Camb. County Council/ CACP	TBC	TBC	This measure is to reduce the number of domestic and business deliveries, thus reducing traffic.	The GCP is exploring a freight pilot  The CPCA LTP includes policy (3.4)	TBC	The GCP has agreed to explore a freight pilot for the city centre, which would include consideration of consolidation provision.  The CPCA LTP includes policy (3.4) to promote sustainable urban freight distribution; this workstream is under development. This would have a regional emphasis, but would benefit all areas.
18	Click and Collect hubs at P&R sites	Freight and Delivery Management	Freight Consolidation Centre	TBC	GCP/ Camb. County Council/ CACP	TBC	TBC	This measure is to reduce the number of domestic and business deliveries, thus reducing traffic.	n/a	TBC	This would be considered as part of exploring a freight pilot for the city centre.

19	Unified Consolidation Centres	Freight and Delivery Management	Freight partnerships for city centre deliveries	TBC	GCP/ Camb. County Council/ CACP	TBC	n/a	n/a – this is about reducing traffic and keeping levels below NAQO in future	The GCP is exploring a freight pilot  The CPCA LTP includes policy (3.4)	TBC	The GCP has agreed to explore a freight pilot for the city centre, which would include consideration of consolidation provision.  The CPCA LTP includes policy (3.4) to promote sustainable urban freight distribution; this workstream is under development. This would have a regional emphasis, but would benefit all areas.
20	City Centre restrictions	Freight and Delivery Management	Quiet and Out of Hours delivery	Core Area changes completed over 10 years ago	GCP/ Camb. County Council	TBC	n/a	n/a – this is about keeping levels below NAQO in future	Complete	Ongoing	Completed  HGV not permitted in Cambridge Core Area 10 – 4  Further restrictions are being discussed
22	Cycle Delivery services	Freight and Delivery Management	Other		Camb. County Council	n/a	n/a	n/a – this is about reducing traffic and keeping levels below NAQO in future	Complete  GCP consider-ing further incentives for cycle deliveries	Ongoing	Completed  Zedify (Cambridge) use specialist cargo-bikes and Electric vehicles. Cycle deliveries are used for home-delivery of take-away food. These services are commercially viable.
23	Air Quality Policy in Joint Local Plan	Policy Guidance and Development Control	Regional planning – Area-wide strategies	TBC	Environmental Health/ Planning Joint team City/SCDC	n/a	Air Quality policies in joint Local Plan	n/a – this is about keeping levels below NAQO in future	Plan in preparation	TBC	Being progressed.  Issues and Options report has been consulted on. A draft Plan is in preparation.
24	Air Quality Policy in Local Plan	Policy Guidance and Development Control	Other Policy	2018	Environmental Health/ Planning Camb. City Council	n/a	n/a	n/a – this is about keeping levels below NAQO in future	In use	Ongoing	Completed
25	Adopt/ revise a Low Emissions Strategy	Policy Guidance and Development Control	Low Emissions Strategy		Environmental Health/ Planning Joint team City/SCDC	n/a	Completion of new LES	n/a – this is about keeping levels below NAQO in future	SCDC have a Low Emissions Strategy in place. City Council could adopt similar LES or work with SCDC on joint guidance.	TBC	To be considered with joint Local Plan discussions
26	Supplementary Planning Documents	Policy Guidance and Development Control	Air quality Planning and Policy Guidance	2020	Environmental Health/ Planning Joint team City/SCDC	n/a	Completion of Sustainable Construction and Development SPD	n/a – this is about keeping levels below NAQO in future	City and SCDC committees approved in 2020	2020	Completed.  Update of the 2007 Sustainable Design and Construction SPD to provide guidance for policies contained in the Local Plan.  More detail included than previously as the SPD incorporates the Air Quality Guidance specific requirements.
27	Air Quality and Planning guidance document	Policy Guidance and Development Control	Air quality Planning and Policy Guidance	-	Environmental Health/ Planning Joint team City/SCDC	-	Update of Air Quality in Cambridge: Developers Guide	n/a	Not yet started	2019	Not taken forwards. Detail included in SPD as a neater solution, see measure 26.
28	Develop guidance based on Defra cost-benefit approach to mitigation	Policy Guidance and Development Control	Air quality Planning and Policy Guidance	-	Environmental Health/ Planning Joint team City/SCDC	n/a	Production of new guidance to support Policy 36	n/a – this is about keeping levels below NAQO in future	Under discussion	TBC	On hold.  To provide a clear and simple procedure to ensure that all new developments are adequately mitigated.

29	Sustainable Procurement Guidance.	Policy Guidance and Develop-ment Control	Sustainable Procure-ment Guidance	2010	District councils City/SCDC	n/a	n/a	n/a	Cambs City produced a guide "Buying Green in Cambridge City Council", which covers sustain-able issues.	Complete	The approach to sustainable procurement will be refreshed in the near future; no timeline available yet.
30	Develop policies to require Health Impact Assess-ments (HIA) at Pre-application stage	Policy Guidance and Develop-ment Control	Other		Planning and Environ-mental Health Districts Camb. County Council	n/a	n/a	n/a – this is about keeping levels below NAQO in future	Early discussion phase	TBC	To ensure that Healthy Communities are part of the design, not an optional add-on
31	Air Quality input into Joint Strategic Needs Assess-ments for Transport and for Built Environ-ment	Policy Guidance and Develop-ment Control	Other		Public Health/Environmental Health Districts/ Camb. County Council	n/a	n/a	n/a – this is about keeping levels below NAQO in future	n/a	Ongoing	Complete To ensure that Healthy Community strategies are embedded into the JSNA.
32	Public Health to be consulted on preparation of SPDs	Policy Guidance and Develop-ment Control	Other	ongoing	Districts/ Camb. County Council	n/a	n/a	n/a – this is about keeping levels below NAQO in future	ongoing	ongoing	To ensure that positive health policies are enshrined in SPDs
33a	Require a site wide EV charging strategy for all large-scale Major sites	Policy Guidance and Develop-ment Control	Other	2020	Cambridge City Environ-mental Health/ Planning	n/a	n/a	Will reduce impact of additional development	In place	Ongoing	Planning requirement in AQAP v2 and included in SPD.
33b	Require a minimum of one slow EV Charge Point for each dwelling with allocated parking (100% coverage)	Policy Guidance and Develop-ment Control	Other	2020	Cambridge City Environ-mental Health/ Planning	n/a	n/a	Will reduce impact of additional development	In place	Ongoing	Planning requirement in AQAP v2 and included in SPD.
34a	Require a minimum of one slow EV Charge Point for two dwelling with comm-unal parking (50% coverage)	Policy Guidance and Develop-ment Control	Other	2020	Cambridge City Environ-mental Health/ Planning	n/a	n/a	Will reduce impact of additional development	In place	Ongoing	Planning requirement in AQAP v2 and included in SPD.
34b	Require a minimum of one slow EV Charge Point for every two parking spaces in non-resident-ial develop-ments (50% coverage)	Policy Guidance and Develop-ment Control	Other	2020	Cambridge City Environ-mental Health/ Planning	n/a	n/a	Will reduce impact of additional development	In place	Ongoing	Planning requirement in AQAP v2 and included in SPD.
35a	Require one fast EV Charge Point for 1,000m <sup>2</sup> non-residen-tial floor space	Policy Guidance and Develop-ment Control	Other	2020	Cambridge City Environ-mental Health/ Planning	n/a	n/a	Will reduce impact of additional development	In place	Ongoing	Planning requirement in AQAP v2 and included in SPD.

35b	Require one rapid EV Charge Point for 1,000m <sup>2</sup> non-residential floor space	Policy Guidance and Development Control	Other	2020	Cambridge City Environmental Health/ Planning	n/a	n/a	Will reduce impact of additional development	In place	Ongoing	Planning requirement in AQAP v2 and included in SPD.
35c	Require at least one rapid EV charge point for large-scale Major developments	Policy Guidance and Development Control	Other	2020	Cambridge City Environmental Health/ Planning	n/a	n/a	Will reduce impact of additional development	In place	Ongoing	Planning requirement in AQAP v2 and included in SPD.
36a	Any new or replacement car park to have EV charging points	Policy Guidance and Development Control	Other	2020	Cambridge City Environmental Health/ Planning	n/a	n/a	Will reduce impact of additional development	In place	Ongoing	Planning requirement in AQAP v2 and included in SPD.
36b	Require EV charge points to mitigate increase in trip generation where site use is intensified	Policy Guidance and Development Control	Other	2020	Cambridge City Environmental Health/ Planning	n/a	n/a	Will reduce impact of additional development	In place	Ongoing	Planning requirement in AQAP v2 and included in SPD.
36c	Require installation of passive charge points at all parking spaces without active charge points	Policy Guidance and Development Control	Other	2020	Cambridge City Environmental Health/ Planning	n/a	n/a	Will reduce impact of additional development	In place	Ongoing	Planning requirement in AQAP v2 and included in SPD.
37	CHP emission standards	Promoting Low Emission Plant	Emission control equipment for small and medium stationary combustion plant	Ongoing	Cambridge City Environmental Health/ Planning	n/a	n/a	Will reduce impact of additional development	In place	Ongoing	All gas CHP to meet low emissions standards, Spark ignition engine: less than 150 mgNOx/Nm <sup>3</sup> Compression ignition engine: less than 400 mgNOx/Nm <sup>3</sup> Gas turbine: less than 50 mgNOx/Nm <sup>3</sup>
38	Low NOx boilers	Promoting Low Emission Plant	Emission control equipment for small and medium stationary combustion plant	Ongoing	Cambridge City Environmental Health/ Planning	n/a	n/a	Will reduce impact of additional development	In place	Ongoing	All developments to have low NOx boilers, defined as boilers that meet a dry NOx emission rating of 40mg/kWh.
42	Extension of Smoke Control Area	Promoting Low Emission Plant	Regulations for fuel quality for low emission fuels for stationary and mobile sources	TBC	Camb City Council	Defra AQG	n/a	n/a	Defra AQG funding won to undertake consultation into a City wide SCA.	2020 or 2021	Waiting for final version of Environment Act to be passed into legislation.
43	Restriction on fuel types used on dwellings moored on river	Promoting Low Emission Plant	Regulations for fuel quality for low emission fuels for stationary and mobile sources	Ongoing	Camb City Council	n/a	n/a	n/a	Regulations already in place to cover fuel use and smoke nuisance	Ongoing	-
44	Encourage use of zero-emission heating sources such as electric heating,	Promoting Low Emission Plant	Shift to installations using low emission fuels for stationary and mobile sources	2020	Camb City Council	n/a	n/a	n/a	An alternative to low NOx boilers suggested in the Sustainable Design and Construction PD n/a	2025	-

	ground source and air source heat pumps										
46	"Clean Air Zone"	Promoting low emission transport	Low Emission Zone	TBC	Camb City Council/ Camb County Council/ Greater Cambridge Partnership	Greater Cambridge Partnership	CAZ in place	TBC	The GCP Board will present options for packages of measures for implementation at a meeting later in 2020	2021	This Measure is the one that has potential for the greatest improvement in air quality
47	LEV discount offered as part of policy for residents parking permits	Promoting low emission transport	LEV priority parking	2019	Cambs County Council	Cambs County Council	Discount offered on residents parking permits to Low Emission Vehicles	This measure is to support alternative fuels	In place	2019	A vehicle with emissions of less than 75gkms CO2 will attract a 20% discount of the full cost of a resident permit.
48	Installation of Rapid and Fast EV charge points for taxis	Promoting low emission transport	Alternative refuelling infrastructure	2018	Camb City Council/ South Cambs DC/ Camb County Council/ Greater Cambridge Partnership	Funding from OLEV, Greater Cambridge Partnership, Cambridge City Council	Installation of 18 Rapid and 3 Fast EV chargepoints in Cambridge and South Cambridge-shire	1.5 – 4.5% reduction in NOx emissions	8 Rapid chargers installed by March 2020	2020	Steady progress, finding suitable sites and drawing up legal agreements with land-owners takes time.
49a	Installation of EV charge points for residents – on road	Promoting low emission transport	Alternative refuelling infrastructure	TBC	Camb City Council/ Camb County Council/ Greater Cambridge Partnership	OLEV/GCP County/City	Installation of 16 EV chargepoints in residential parking zones  For property with no off-street parking	This measure is to support alternative fuels	Discussion Phase	TBC	This strand of the project is delayed because of a scarcity of suitable parking spaces in Cambridge to be given over for EVCP provision
49b	Installation of EV charge points for residents - slot drains for cables	Promoting low emission transport	Alternative refuelling infrastructure	TBC	Camb City Council	OLEV/GCP County/City	TBC	This measure is to support alternative fuels	Discussion phase to find a suitable methodology	TBC	The AQAP partners are looking at alternative solutions for property with no off-street parking – on road charging
49c	Installation of EV charge points for residential areas with communal car parks	Promoting low emission transport	Alternative refuelling infrastructure	TBC	Camb City Council Environmental Health and Housing teams	OLEV/GCP County/City	TBC	This measure is to support alternative fuels	Discussion phase	TBC	The AQAP partners are looking at alternative solutions for property with no off-street parking – on road charging
49d	Installation of EV charge points for residents – adjacent to taxi charge point bays	Promoting low emission transport	Alternative refuelling infrastructure	TBC	Camb City Council County Council	OLEV/GCP County/City	TBC	This measure is to support alternative fuels	Discussion phase	TBC	The AQAP partners are looking at alternative solutions for property with no off-street parking – on road charging
49e	Installation of EV charge points in car parks for overnight charging for residents	Promoting low emission transport	Alternative refuelling infrastructure	TBC	Camb City Council Environmental Health and Parking teams	OLEV/GCP County/City	Installation of EVCP in car parks for overnight charging	This measure is to support alternative fuels	Discussion phase	TBC	Needs to align with Parking EV Strategy (in planning stage)
49f	Installation of EV charge points on lampposts, for residents and non-residents	Promoting low emission transport	Alternative refuelling infrastructure	TBC	Camb City Council/ Camb County Council/ Greater Cambridge Partnership	OLEV/GCP County/City	Installation of a trial of 6 EV charging points from lampposts	This measure is to support alternative fuels	A trial is planned for 2020.	TBC	The AQAP partners are looking at alternative solutions for property with no off-street parking – on road charging
50	Installation of EV charge points for non-residents in car parks	Promoting low emission transport	Alternative refuelling infrastructure	ongoing	Camb City Council/ Camb County Council/ Greater Cambridge Partnership	OLEV/GCP County/City	TBC	This measure is to support alternative fuels	Some EV already in car parks	Ongoing	Parking EV Strategy will establish route map for further provision in City Car parks.
51	Installation of EV charge points on lampposts, for residents and non-	Promoting low emission transport	Alternative refuelling infrastructure	TBC	Camb City Council/ Camb County Council/ Greater Cambridge Partnership	OLEV/GCP	TBC	This measure is to support alternative fuels	Discussion phase	n/a	The AQAP partners are looking at alternative solutions for property with no off-street parking – on road charging



	residents										
53a	Procuring low emission vehicles for own fleet where possible	Promoting low emission transport	Public vehicle procure-ment	2019 Electric Refuse vehicle on test 2017 10 EV vans on city council fleet	Camb. City Council and shared services	Camb. City Council and SDC	Project completion	n/a – this is about keeping levels below NAQO in future	A review paper has been prepared for consid-eration by members during the summer 2020	2026	Decarbonising Cambridge City Council Vehicle Fleet, internal review document
53b	Procuring low emission vehicles for own fleet where possible	Promoting low emission transport	Public vehicle procurement		County Council		Electrification of fleet	n/a – this is about keeping levels below NAQO in future		2025	Initially pool cars, but have also to replace minibuses for adult care transport
54	Fee reduction for low emission taxis	Promoting low emission transport	Taxi emission incentives	2018	Camb. City Council	Camb. City Council	Minimum of 9 HCV and 5 PHV per annum per annum from 2018/19	1.5 – 4.5% reduction in NOx emissions	37 EV have Zero Emission exemption.	In place	-
55	Licensing conditions to require low emission taxis	Promoting low emission transport	Taxi Licensing conditions	2018	Camb. City Council	City Council/ operator	Minimum of 9 HCV and 5 PHV per annum from 2018/19	1.5 – 4.5% reduction in NOx emissions	37 EV and 65 petrol hybrid out of a fleet of 452	In place	A big shift from 2017 fleet - 2 EV and 30 petrol hybrid taxis
56a	Lowering emissions from public service vehicles (buses and coaches)	Promoting low emission transport	Other	Gradual improve-ment of bus fleet is ongoing and has been for more than 10 years	Camb City Council/ Camb. County Council/GCP/ CPCA	Operator	100% buses E6 or better No increase in emissions from additional services	Could be significant	36% bus journey kilometres E6 in Cam-bridge Core Area (2018). Data not available for 2019/20 fleet.	TBC, no mechanism in place to require improve-ments, CAZ may be the most effective tool	The cost of new buses.
56b	Lowering emissions from public service vehicles (buses and coaches)	Promoting low emission transport	Other	Gradual improve-ment of bus fleet is ongoing and has been for more than 10 years	Camb City Council/ Camb. County Council/ Greater Cambridge Partnership	GCP/Operator	100% buses E6 or better No increase in emissions from additional services	Could be significant	GCP co-funded a trial with Stage-coach for two electric buses. Operating on the Citi 6 route in February 2020.	The GCP Board has agreed to look at extending the trial to create all-electric fleets on one or more additional routes.	The cost of electric buses and charging infrastructure are the barriers.  CPCA looking at design and location of depots to facilitate operators introducing alternatively fuelled vehicles.
56c	Electric Vehicle Charging Strategy	Promoting low emission transport	Other	September 2019	Cambridge City Council	TBC	TBC	This measure is to support alternative fuels	Environ-mental Health Team completed position statement in 2019	TBC	
56d	Electric Vehicle Charging Strategy	Promoting low emission transport	Other	-	Cambridgeshire & Peterborough Combined Authority	TBC	TBC	This measure is to support alternative fuels	CPCA developing EV/EC strategy	TBC	CPCA tendering for consultants to develop, consult on and take EV/EC strategy to adoption. This will benefit whole region including Cambridge.
57a	Home-working policies	Promoting Travel Alternatives	Encourage and facilitate home working	Ongoing	Camb City Council/Camb County Council/GCP /CPCA	n/a	n/a	This measure is to reduce the need to travel to work	Home-working policies are in place	Ongoing	
58	Active Travel Infra-structure via GCP measures	Promoting Travel Alternatives	Intensive Active Travel campaign and infra-structure	Ongoing	TfC Camb County Council Greater Cambridge Partnership	Greater Cambridge Partnership	n/a	n/a	No specific measure in place	n/a	Integral part of other measures – new routes, junction upgrades, cycle parking, promotion of cycling and walking, etc.
59	Travel for Cambridge-shire	Promoting Travel Alternatives	Personalised Travel Planning	Ongoing	Camb County Council	n/a	n/a	n/a	Not recorded.	Ongoing	Can be required for major sites at point of residents moving in to ensure they are aware of all travel options/ options for travel other than private car.

# Cambridge City Council

60	Refresh Cambridge City Council Travel Plan	Promoting Travel Alternatives	Other	Ongoing	Cambridge City Council	n/a	Adoption of refreshed Travel Plan each year	n/a	n/a	ongoing	Ongoing Routine Travel to work and travel for work
61	Workplace Travel Plan	Promoting Travel Alternatives	Promote use of rail	Ongoing	TfC Camb County Council	n/a	n/a	n/a	n/a	ongoing	Ongoing Routine Discounts available for TfC partners
62	Cycle parking provision in Local Plan	Promoting Travel Alternatives	Promotion of Cycling	Ongoing	Environ-mental Services/ Planning	n/a	n/a	n/a	n/a	Ongoing	Cycle parking provision in current Local Plan and will be carried forward to future Local Plans, standards to be reviewed
63	S106 agree-ments for cycling and walking infra structure	Promoting Travel Alternatives	Promotion of Cycling	Ongoing	Environ-mental Services/ Planning	n/a	n/a	n/a	n/a	Ongoing	Part of development/ planning contributions
64	Cycle parking design guide	Promoting Travel Alternatives	Promotion of Cycling	2010	Environ-mental Services/ Planning	n/a	n/a	n/a	In place	In place	<a href="https://www.cambridge.gov.uk/media/6771/cycle-parking-guide-for-new-residential-developments.pdf">https://www.cambridge.gov.uk/media/6771/cycle-parking-guide-for-new-residential-developments.pdf</a>
65	Schemes and grants	Promoting Travel Alternatives	Promotion of Cycling	ongoing	Camb City Council/ Camb. County Council/	Camb City Council/ Camb. County Council/	n/a	n/a	n/a	Ongoing	<a href="https://www.cambridge.gov.uk/cycling-and-walking-promotion-grants">https://www.cambridge.gov.uk/cycling-and-walking-promotion-grants</a>
66	Schemes and grants	Promoting Travel Alternatives	Promotion of walking	ongoing	Camb City Council/ Camb. County Council/	Camb City Council/ Camb. County Council/	n/a	n/a	n/a	Ongoing	<a href="https://www.cambridge.gov.uk/cycling-and-walking-promotion-grants">https://www.cambridge.gov.uk/cycling-and-walking-promotion-grants</a>
67	Travel for Cambridge shire Travel Plan Services	Promoting Travel Alternatives	School Travel Plans	Ongoing	TfC Camb County Council	n/a	n/a	n/a	n/a.	Ongoing	Travel Plan Services offer help with writing, developing, maintaining and monitoring as well as support for Travel Plan implementation
68	Travel for Cambridge shire Travel Plan Services	Promoting Travel Alternatives	Workplace Travel Plans	Ongoing	TfC Camb County Council	n/a	n/a	n/a	n/a	Ongoing	Travel Plan Services offer help with writing, developing, maintaining and monitoring as well as support for Travel Plan implementation
69	Travel for Cambridge shire (TfC)	Promoting Travel Alternatives	Other	Ongoing	TfC Camb County Council	n/a	n/a	n/a	TfC offers employers a range of services, tools and resources to support sustainable travel choices	Ongoing	The aim is to implement effective travel initiatives that promote cycling, walking, public transport and car sharing to work.
70	Cambridge Matters magazine	Public Information	Leaflets	Ongoing	Environ-mental health and Media Team, Camb City Council	Camb City Council	n/a	n/a	Air quality articles in most quarters	Ongoing	Delivered to every household in the district.
71	Twitter and Facebook	Public Information	Social media	Ongoing	Environ-mental health and Media Team, Camb City Council	Camb City Council	n/a	n/a	Ongoing	Ongoing	Ongoing Routine As required
72	Provide information on request	Public Information	Radio	Ongoing	Environ-mental health and Media Team, Camb City Council	Camb City Council	n/a	n/a	Ongoing	Ongoing	Ongoing Routine As required
73	Provide information on request	Public Information	TV	Ongoing	Environ-mental health and Media Team, Camb City Council	Camb City Council	n/a	n/a	Ongoing	Ongoing	Ongoing Routine As required

74	Website	Public Information	Internet	Ongoing	Environ-mental health and Media Team, Camb City Council	Camb City Council	n/a	n/a	Ongoing	Ongoing	Ongoing Routine Plenty of information and updates on the City Council website <sup>26</sup>
75	Clean Air Day	Public Information	Other	Ongoing	Environ-mental health and Media Team, Camb City Council	Camb City Councilss	n/a	n/a	Ongoing	Ongoing	Annual campaign to provide information about air quality and actions
76	<b>Campaigns to provide information about impacts air pollution on health</b>	<b>Public Information</b>	<b>Other</b>	<b>Ongoing</b>	<b>Environ-mental health and Media Team, Camb City Council, PH Camb County Council</b>	n/a	n/a	n/a	as required	-	<b>Prepare and disseminate information about health impacts</b>
78	Campaign to provide information about impacts of wood burning, what type of wood to burn and how to burn it efficiently	Public Information	Other	Ongoing	Environ-mental health and Media Team, Camb City Council	n/a	n/a	n/a	Defra leaflets are available from the website and publicised in Cambridge Matters	ongoing	Defra have recently produced information leaflets. Cambridge City Council has links to these and others on its website.
79	Publicity campaign	Traffic Manage-ment	Anti-idling enforce-ment	Ongoing	Environ-mental health and Media Team, Camb City Council	n/a	n/a	n/a	As required	Ongoing	Anti-idling information in Cambridge Matters
80	Penalty notices for non-compli-ance	Traffic Manage-ment	Anti-idling enforce-ment		Camb City Council		n/a	n/a	On hold	n/a	Would need additional resource and powers for enforcement
81	Expansion of residents' parking schemes	Traffic Manage-ment	Emission based parking and permit charges	2018	Highways Team, Camb County Council	Camb County Council	Number of parking spaces in schemes	n/a	26 potential new RPS were identified in the original report – of which seven have been installed, one is pending installation, six have been deferred due to lack of resident support, a further nine have been proposed by councillors but not yet brought forwards.	On hold.	Implementation of schemes not yet started will be paused from the end of March 2020 for 12 months to allow the provision of sustainable transport measures to catch-up with the parking restrictions. This decision was made by members of the County Council's Highways and Infrastructure Committee. The implementation of increased provision of alternative and more sustainable methods of travelling to Cambridge has been slower than originally anticipated. <a href="https://cambridgeshire.cmis.uk.com/ccclive/Meetings/tabid/70/ctl/ViewMeetingPublic/mid/397/Meeting/1150/Committee/7/Default.aspx">https://cambridgeshire.cmis.uk.com/ccclive/Meetings/tabid/70/ctl/ViewMeetingPublic/mid/397/Meeting/1150/Committee/7/Default.aspx</a>
83	<b>Congestion charging or road user charging</b>	<b>Traffic Manage-ment</b>	<b>Road-User charging/ congestion zones</b>	<b>TBC</b>	<b>Infra-structure Team, Camb County Council, Greater Cambridge Partnership</b>	<b>Greater Cambridge Partnership</b>	n/a	n/a	<b>GCP Board will look at how packages of different measures could work</b>	<b>TBC</b>	<b>Work to assess possible demand management underway.</b>  <b>Will improve air quality, reduce carbon emissions and provide reliable public transport</b>

<sup>26</sup> <https://www.cambridge.gov.uk/air-pollution>



84	Recon-figuration of road space in Cambridge	Traffic Manage-ment	Strategic highways improve-ments	TBC	Infra-structure Team, Camb County Council, Greater Cambridge Partnership	TBC	Agreement and implementation of schemes	n/a at this stage	In February 2020 the GCP Board agreed to explore piloting further road closures in the central area.	TBC	The City Council consulted on the vision, aims, objectives and strategy for a Spaces and Movement SPD in autumn 2019.
85	Creation of better cycling and walking on key routes	Traffic Manage-ment	Re-prioritisa-tion of road space	Ongoing projects	Infra-structure Team, Camb County Council, Greater Cambridge Partnership	Greater Cambridge Partnership	n/a	n/a	See below for details of specific schemes	Ongoing projects	<a href="https://www.sustrans.org.uk/bike-life/bike-life-greater-cambridge">https://www.sustrans.org.uk/bike-life/bike-life-greater-cambridge</a>
86	<b>Extension of Core Area schemes – limiting access to city centre</b>	<b>Traffic Manage-ment</b>	<b>Access management</b>	<b>Ongoing project</b>	<b>Infra-structure Team, Camb County Council, Greater Cambridge Partnership</b>	<b>Greater Cambridge Partnership</b>	<b>TBC</b>	<b>Could be substantial in Core Area</b>	<b>Spaces and Movement SPD consultation</b>  <b>GCP Board agreed to explore pilot schemes</b>	<b>TBC</b>	<b>The City Council consulted on the vision, aims, objectives and strategy for a Spaces and Movement SPD in autumn 2019.</b>  <b>In February 2020 the GCP Board agreed to explore piloting further road closures in the central area.</b>
88	Review of traffic signals in Cambridge	Traffic Manage-ment	UTC, congestion management, traffic reduction	Rolling programme of reviews in progress	Greater Cambridge Partnership	Greater Cambridge Partnership	n/a	n/a	Greater Cambridge Partnership	3 corridor reviews completed with outcomes being implemented	GCP study to review existing infrastructure and consider future technology which may improve traffic flow and reduce idling, and could include bus prioritisation.  2-3 year programme anticipated
89	Workplace Parking Levy for employers with more than 300 employees in an area to be specified	Traffic Manage-ment	Workplace Parking Levy	TBC	Camb County Council/ Greater Cambridge Partnership	Greater Cambridge Partnership	TBC	n/a	n/a	n/a	Work to assess possible demand management underway.
91a	<b>CAM, Cambridge Area Metro</b>	<b>Transport Planning and Infra-structure</b>	<b>Public transport improve-ments)</b>	<b>TBC</b>	<b>Cambridgeshire and Peterborough Combined Authority</b>	<b>TBC</b>	<b>Completion of project</b>	<b>A measure to accommodate long-term travel demand</b>	<b>Planning phase</b>	<b>Start from 2021 – completed 2031</b>	<b>Will reduce the need to use private transport to access key work, leisure and retail areas</b>
91b	Whittlesford Railway Station Travel Hub – bus, cycling, walking improvement, station upgrade	Transport Planning and Infra-structure	Public Transport Improve-ments	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand and reduce congestion in Cambridge	Draft Delivery Plan being developed further through further stake-holder engage-ment	TBC	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/rural-travel-hubs/whittlesford-transport-master-planning-exercise">https://www.greatercambridge.org.uk/transport/transport-projects/rural-travel-hubs/whittlesford-transport-master-planning-exercise</a>
91c	New on road bus routes for Cambourne to Cambridge corridor, to north and south Cambridge	Transport Planning and Infra-structure	Bus route improve-ments	TBC	Cambridgeshire and Peterborough Combined Authority	Cambridgeshire and Peterborough Combined Authority	TBC	A measure to accommodate current travel demand until CAM in place	delayed	Due Summer 2020	Currently on hold due to COVID-19
91d	Cambridge South East Transport Project	Transport Planning and Infra-structure	Bus route improve-ments	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	n/a	A measure to accommodate long-term travel demand	In second phase of consultation	2024	<a href="http://www.greatercambridge.org.uk/transport/transport-projects/cambridgesoutheast">www.greatercambridge.org.uk/transport/transport-projects/cambridgesoutheast</a>
91e	Cambourne to Cambridge corridor off-road Busway	Transport Planning and Infra-structure	Bus route improve-ments	TBC	Greater Cambridge Partnership, Stagecoach	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand	Route decision deferred	2024	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambridge">https://www.greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambridge</a>

91f	Improve-ments to bus routes Histon Road	Transport Planning and Infra-structure	Bus route improve-ments	Spring 2020	Greater Cambridge Partnership	Under construction	Completion	A measure to accommodate long-term travel demand	Preparation ground works have started	2021/2	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/histon-road/">https://www.greatercambridge.org.uk/transport/transport-projects/histon-road/</a>
91g	Improve-ments to bus routes Milton Road	Transport Planning and Infra-structure	Bus route improve-ments	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand	Being progressed, on hold until A14 upgrade and Histon Road improve-ments have been completed	2024	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/milton-road/">https://www.greatercambridge.org.uk/transport/transport-projects/milton-road/</a>
91h	Improve-ments to bus routes City Access	Transport Planning and Infra-structure	Bus route improve-ments	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion of projects	A measure to accommodate long-term travel demand and reduce congestion in Cambridge	Package of measures to be proposed to Board for decision in June 2020	Ongoing project with multiple strands	<a href="https://www.greatercambridge.org.uk/city-access">https://www.greatercambridge.org.uk/city-access</a>
92a	New cycling routes - Chisholm Trail	Transport Planning and Infra-structure	Cycle network	Construc-tion started in March 2019.	Greater Cambridge Partnership	Greater Cambridge Partnership	Opening	A measure to accommodate long-term travel demand	Under con-struction	2022 – 2025 Some sections open earlier	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/chisholm-trail">https://www.greatercambridge.org.uk/transport/transport-projects/chisholm-trail</a>
92b	Cambridge South East cycle route	Transport Planning and Infra-structure	Cycle network	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	n/a	A measure to accommodate long-term travel demand		2024	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/cambridgesoutheast">https://www.greatercambridge.org.uk/transport/transport-projects/cambridgesoutheast</a>
92c	Cambourne to Cambridge cycle route	Transport Planning and Infra-structure	Cycle network	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	n/a	A measure to accommodate long-term travel demand	Ongoing	2024	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambridge/">https://www.greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambridge/</a>
92d	Improved cycle routes - Histon Road	Transport Planning and Infra-structure	Cycle network	Work started winter 2020	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand	Ongoing	2021/2	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/histon-road/">https://www.greatercambridge.org.uk/transport/transport-projects/histon-road/</a>
92e	Improved cycle routes - Milton Road	Transport Planning and Infra-structure	Cycle network	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand	Post-poned until completion of other major works nearby completed	2024	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/milton-road/">https://www.greatercambridge.org.uk/transport/transport-projects/milton-road/</a>
92g	New and/or improved cycle routes - Rural Travel Hubs	Transport Planning and Infra-structure	Cycle network	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand and reduce congestion in Cambridge	Consultation closed January 2019, further discussion on detail with local residents agreed	TBC	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/rural-travel-hubs">https://www.greatercambridge.org.uk/transport/transport-projects/rural-travel-hubs</a>
92h	Improved cycle routes – Cross City Cyclin	Transport Planning and Infra-structure	Cycle network	2019	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion of the 5 schemes	A measure to accommodate long-term travel demand and reduce congestion	Almost complete	Summer 2020	Cross City Cycling <a href="https://www.greatercambridge.org.uk/transport/transport-projects/cross-city-cycling/">https://www.greatercambridge.org.uk/transport/transport-projects/cross-city-cycling/</a>
92i	New cycle routes - Greenways	Transport Planning and Infra-structure	Cycle network	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion of all 12 routes	A measure to accommodate long-term travel demand	Routes prioritised for implementation	TBC, First route to be completed by 2024	Greenways project <a href="https://www.greatercambridge.org.uk/transport/transport-projects/greenways/">https://www.greatercambridge.org.uk/transport/transport-projects/greenways/</a>
92j	New and/or improved cycle routes - Madingley Road	Transport Planning and Infra-structure	Cycle network	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand and reduce congestion in Cambridge	Consult-ation on options in closed in February 2020	TBC	Madingley Road <a href="https://www.greatercambridge.org.uk/transport/transport-projects/madingley-road/">https://www.greatercambridge.org.uk/transport/transport-projects/madingley-road/</a>
92k	New cycling routes - A10 Royston to Cambridge	Transport Planning and Infra-structure	Cycle network	2019	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand	Cycle link between Melbourn and Shepreth completed.	TBC	Further link is the Melbourn Greenway project.
93a	New walking routes - Chisholm Trail	Transport Planning and Infra-structure	Walking network	Con-struction started in March 2019.	Greater Cambridge Partnership	Greater Cambridge Partnership	Opening	A measure to accommodate long-term travel demand	Under con-struction	2022 – 2025 Some sections open earlier	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/chisholm-trail">https://www.greatercambridge.org.uk/transport/transport-projects/chisholm-trail</a>

93b	Cambridge South East	Transport Planning and Infra-structure	Walking network	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	n/a	A measure to accommodate long-term travel demand		2024	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/cambridgesoutheast">https://www.greatercambridge.org.uk/transport/transport-projects/cambridgesoutheast</a>
93c	Cambourne to Cambridge	Transport Planning and Infra-structure	Walking network	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	n/a	A measure to accommodate long-term travel demand	Ongoing	2024	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambridge/">https://www.greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambridge/</a>
93d	Improved walking routes -Histon Road	Transport Planning and Infra-structure	Walking network	Work started winter 2020	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand	Ongoing	2021/2	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/histon-road/">https://www.greatercambridge.org.uk/transport/transport-projects/histon-road/</a>
93e	New and/or improved walking routes - Milton Road	Transport Planning and Infra-structure	Walking network	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand	Pos-poned until other local works have been completed	2024	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/milton-road/">https://www.greatercambridge.org.uk/transport/transport-projects/milton-road/</a>
93g	New and/or improved walking routes - Rural Travel Hubs	Transport Planning and Infra-structure	Walking network	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand and reduce congestion in Cambridge	Consultation closed January 2019, further discussion on detail with local residents agreed	TBC	<a href="https://www.greatercambridge.org.uk/transport/transport-projects/rural-travel-hubs">https://www.greatercambridge.org.uk/transport/transport-projects/rural-travel-hubs</a>
93i	New walking routes - Greenways	Transport Planning and Infra-structure	Walking network	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion of all 12 routes	A measure to accommodate long-term travel demand	Routes prioritised for implementation	TBC, First route to be completed by 2024	Greenways project <a href="https://www.greatercambridge.org.uk/transport/transport-projects/greenways/">https://www.greatercambridge.org.uk/transport/transport-projects/greenways/</a>
93j	New and/or improved walking routes - Madingley Road	Transport Planning and Infra-structure	Walking network	TBC	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand and reduce congestion in Cambridge	Consultation on options in closed in February 2020	TBC	Madingley Road <a href="https://www.greatercambridge.org.uk/transport/transport-projects/madingley-road/">https://www.greatercambridge.org.uk/transport/transport-projects/madingley-road/</a>
93k	New and/or improved walking routes - A10 Royston to Cambridge	Transport Planning and Infra-structure	Walking network	2019	Greater Cambridge Partnership	Greater Cambridge Partnership	Completion	A measure to accommodate long-term travel demand	Cycle link between Melbourn and Shepreth completed.	TBC	Further link is the Melbourn Greenway project.
94	Bike Hire schemes	Transport Planning and Infra-structure	Cycle hire scheme	2018	Cambridge City Council, hire operators	operators	n/a	n/a	n/a	n/a	Mobike are trialling bike hire schemes in Cambridge, replacing Ofo. This is viable without intervention from local authorities.
95	Improvements to P&R sites	Transport Planning and Infra-structure	Public transport improvements – interchanges and stations	-	Camb County Council/ Greater Cambridge Partnership	Greater Cambridge Partnership	TBC	n/a	n/a	n/a	Being progressed
96	Piloting rural hubs	Transport Planning and Infra-structure	Public transport improvements – interchanges and stations		Greater Cambridge Partnership	Greater Cambridge Partnership	n/a	n/a	n/a	n/a	First trial hubs due in 2020 <a href="https://www.greatercambridge.org.uk/transport/transport-projects/rural-travel-hubs/">https://www.greatercambridge.org.uk/transport/transport-projects/rural-travel-hubs/</a>
97	New station to serve the hospital and bio-medical campus	Transport Planning and Infra-structure	Public transport improvements – interchanges and stations	-	Greater Cambridge Partnership with CBC2020 campus	TBC	Station fully operational	n/a	Planning Phase	TBC	Unlikely to be completed in the lifetime of this Plan but important for future.
102	Improve air quality by increasing tree cover	-	-	2020	Camb City Council	Camb City Council	n/a	n/a	-	Planting from 2020 to 2023	<a href="https://www.cambridge.gov.uk/cambridge-canopy-project">https://www.cambridge.gov.uk/cambridge-canopy-project</a>

## 2.3 PM<sub>2.5</sub> – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of PM<sub>2.5</sub> (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM<sub>2.5</sub> has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Source apportionment using the Defra Background maps shows that most background PM<sub>2.5</sub> in Cambridge has a regional component (around 95%). The background estimates in Cambridge are around 10 micrograms per cubic metre (2019).

PM<sub>2.5</sub> is measured at two locations in Cambridge – Gonville Place (a busy junction) and Newmarket Road (an arterial route). Recent measurements of PM<sub>2.5</sub> at Newmarket Road indicate that there is a very small roads component in this location (10 micrograms per cubic metre annual mean in 2019), but at Gonville Place there is an additional contribution of up to 4 micrograms per cubic metre PM<sub>2.5</sub> (14 micrograms per cubic metre annual mean in 2019). Most parts of Cambridge have 'background' levels of PM<sub>2.5</sub>, but it is likely that hotspots are present in locations of high traffic density, such as Gonville Place.

### Particulate Matter specific measures

Cambridge City Council has considered setting targets for PM<sub>2.5</sub> reduction, although the potential to achieve significant reduction is limited by the high regional contribution. There are few measures that can be undertaken locally that will specifically reduce the small amount of PM<sub>2.5</sub> produced locally. Regional, national and international measures will be more effective.

There are measures in the Action Plan that address the sources of nitrogen dioxide will also help to reduce particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>); which include:

- Ensuring that any increase in public transport provision is offset, at least, by improvements in tail-pipe emissions.

- Ensuring that the Public Health perspective is integrated into all transport/traffic policies and GCP plans and investment decisions.
- Ensuring that the Public Health perspective is integrated into planning policies; for example, by developing planning policies in the next iteration of the Local Plan that require a Health Impact Assessment for proposed developments over a certain size. This will ensure that new developments have health considerations at the heart of the scheme and lead to healthier communities.
- Publicity campaigns to provide information about impacts of wood burning/what type of wood to burn and how to burn it efficiently.
- Publicity campaigns about traffic idling.

Cambridge already takes the following measures to address particulate matter levels:

- Demolition and construction dust is controlled by planning conditions requiring demolition and construction management plans.
- Where appropriate, the use of planning conditions to control non-road mobile machinery emissions.
- Smoke Control Areas cover the central part of Cambridge. We are considering extending the SCA to cover the whole district, but are waiting to see what national measures will be included in the final version of the Environment Act, currently going through parliament.
- Control of wood/coal burning from boats via licence/permit mooring agreements.

## **3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance**

### **3.1 Summary of Monitoring Undertaken**

No significant changes were made to the monitoring network in 2018.

All automatic monitors achieved data capture above 95% (with the exception of nitrogen dioxide at Regent Street which achieved 87%) and 5 diffusion tubes required annualisation.

The levels of NO<sub>2</sub> recorded both inside and outside the AQMA in 2019 remain typically stable when compared with 2018 results; with a continuing small but downward trend when considered longer term. The diffusion tubes have recorded a more variable trend in two areas, around the railway station and the southern part of Cambridge.

Both PM<sub>10</sub> and PM<sub>2.5</sub> levels have a stable trend. No changes to the Air Quality Management Area are proposed.

More detail is set out in Appendix A.

#### **3.1.1 Automatic Monitoring Sites**

This section sets out what monitoring has taken place and how it compares with objectives.

Cambridge City Council undertook automatic (continuous) monitoring at 5 sites during 2019. Table A.1 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

#### **3.1.2 Non-Automatic Monitoring Sites**

Cambridge City Council undertook non-automatic (passive) monitoring of NO<sub>2</sub> at 69 sites during 2019. One diffusion tube was relocated from Hills Road (where it was usually missing) to Eddington Avenue in a large new development on the edge of the city. Table A.2 in Appendix A shows the details of the sites.

Cambridge City Council monitors levels of benzene for the non-automatic monitoring network at the AURN site in Regent Street. National monitoring results are available at <https://uk-air.defra.gov.uk/data/>. (The annual average level of benzene was 0.58 micrograms per cubic metre in 2019.)



Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. “annualisation” and/or distance correction), are included in Appendix C.

## 3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias<sup>27</sup>, “annualisation” (where the data capture falls below 75%), and distance correction<sup>28</sup>. Further details on adjustments are provided in Appendix C.

Tables of data and graphs are provided in Appendix A.

### 3.2.1 Nitrogen Dioxide (NO<sub>2</sub>)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO<sub>2</sub> annual mean concentrations for the past 5 years with the air quality objective of 40µg/m<sup>3</sup>. Note that the concentration data presented in

Table A.3 represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2019 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.4 in Appendix A compares the ratified continuous monitored NO<sub>2</sub> hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m<sup>3</sup>, not to be exceeded more than 18 times per year.

No automatic monitoring sites exceeded the AQ objective annual mean concentration of 40µg/m<sup>3</sup> in 2019.

There were no hourly exceedences at any of the sites.

Trend graphs are presented from page 39 onwards.

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<sup>27</sup> <https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html>

<sup>28</sup> Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)

There was an increase in recorded levels of nitrogen dioxide in the city centre monitor at Regent Street and Parker Street; however, the monitors further out of the centre (Newmarket Road, Montague Road and Gonville Place) recorded a small decrease.

Cambridge City Council had 71 diffusion tubes located at 69 locations (triplicate at Gonville Place) across the city in 2019. Of the 69 locations, 40 tubes recorded a decrease, 14 recorded no change, 14 recorded an increase and 1 was in a new location. It is worth noting that the majority of results have remained fairly constant with only a fluctuation up or down of 3 µg/m<sup>3</sup> (62 of 69 tubes). Where there is a more marked increase or decrease this can typically be explained by traffic flow changes. No passive diffusion sites exceeded the AQ objective annual mean concentration of 40µg/m<sup>3</sup> in 2019.

### **3.2.2 Particulate Matter (PM<sub>10</sub>)**

Table A.5 in Appendix A compares the ratified and adjusted monitored PM<sub>10</sub> annual mean concentrations for the past 5 years with the air quality objective of 40µg/m<sup>3</sup>.

Table A.6 in Appendix A compares the ratified continuous monitored PM<sub>10</sub> daily mean concentrations for the past 5 years with the air quality objective of 50µg/m<sup>3</sup>, not to be exceeded more than 35 times per year.

Mean annual PM<sub>10</sub> levels fluctuated slightly. However Figure 3.7 demonstrates that the trend in the annual mean PM<sub>10</sub> concentration remains stable with levels for PM<sub>10</sub> remaining well below the National Air Quality Objective.

There is a small increase in the number of 24-hour mean exceedences (greater than 50µgm<sup>3</sup>) at all sites. This number of exceedences fluctuates from year to year but remains well below the threshold of 35 exceedences per year.

### **3.2.3 Particulate Matter (PM<sub>2.5</sub>)**

The Public Health Outcomes Framework indicator for air pollution is about raising awareness of the effect of air pollution on public health. It is intended to encourage promotion of the need for local, regional and national actions to reduce air pollution and to help form a partnership between all delivery partners in pursuit of this goal. The Public Health Outcomes Framework concentrates on two high-level outcomes to be achieved across the public health system, and focuses not only on how long people live, but on how well they live at all stages of life. The PHOF indicator for air pollution is based on PM<sub>2.5</sub> data.



Table A.7 in Appendix A presents the ratified and adjusted monitored PM<sub>2.5</sub> annual mean concentrations for the past 5 years.

PM<sub>2.5</sub> is measured at 2 sites. The recorded measurement at Newmarket Road was the same as 2018; at Gonville Place it was a little lower.

## Appendix A: Monitoring Results

**Table A.1 - Details of Automatic Monitoring Sites**

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Inlet Height (m)
CM1	Gonville Place	Roadside	545 508	257 828	NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub>	YES	Chemiluminescence, M200E 2 x BAM-1020 (PM <sub>10</sub> and PM <sub>2.5</sub> )	1.8	3.2	2
CM2	Montague Road	Roadside	546 057	259487	NO <sub>2</sub> , PM <sub>10</sub>	YES	Chemiluminescence, M200E BAM-1020 (PM <sub>10</sub> )	1.4	3.9	2
CM3	Newmarket Road	Roadside	546 317	258 900	NO <sub>2</sub> , PM <sub>2.5</sub>	YES	Chemiluminescence, ML2041 TEOM (PM <sub>2.5</sub> )	0.5	3.3	2
CM4	Parker Street	Roadside	545 366	258 391	NO <sub>2</sub> , PM <sub>10</sub>	YES	Chemiluminescence, M200E, BAM-1020	0.5	3.3	2.5
CM5	Regent Street	Roadside	545 289	258 118	NO <sub>2</sub>	YES	Chemiluminescence, Teledyne API NO <sub>x</sub> T200	0.5	2.3	5

**Notes:**

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable

Table A.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube collocated with a Continuous Analyser?	Height (m)
DT1	Emmanuel Street	Roadside	545,293	258,418	NO2	YES	0	2.4	NO	2.5
DT2	Histon Road 2	Roadside	544,284	261,273	NO2	NO	20	1.7	NO	2.5
DT3	Magdalene Street	Roadside	544,674	258,992	NO2	YES	0	2	NO	2.5
DT4	Northampton Street	Roadside	544,492	259,021	NO2	YES	0	2	NO	2.5
DT5	Silver Street	Roadside	544,783	258,116	NO2	YES	0	1	NO	2.5
DT6	Long Road	Kerbside	544,867	255,709	NO2	NO	20	0.1	NO	2
DT7	Newmarket Road 1	Roadside	546,195	258,867	NO2	YES	2	1.7	NO	2
DT8	Milton Road	Roadside	545,977	260,352	NO2	NO	3	8	NO	2
DT9	Drummer Street	Roadside	545,247	258,472	NO2	YES	0	2.1	NO	2.5
DT10	Gilbert Road	Roadside	545,314	259,777	NO2	NO	10	1	NO	2
DT11	Latham Road	Background	544,784	256,746	NO2	NO	10	N/A	NO	2
DT12	Newmarket Road 2	Roadside	547,998	259,349	NO2	YES	30	3.7	NO	2
DT13	East Road	Roadside	545,908	258,439	NO2	YES	1	4	NO	2.5
DT14	Mill Road	Roadside	546,080	257,944	NO2	YES	0	2	NO	2
DT15	Eddington Avenue	Kerbside	542,772	260,067	NO2	NO	10	0.5	NO	2
DT16	Regent Street	Roadside	545,289	258,118	NO2	YES	0	2.5	YES	2.5
DT17	Coldhams Lane	Roadside	547,216	258,286	NO2	NO	10	3.5	NO	2
DT18	Pembroke Street	Roadside	544,884	258,098	NO2	YES	0	1.2	NO	2
DT19	Huntingdon Road 2	Roadside	543,101	260,344	NO2	NO	25	2.5	NO	2
DT20	Elizabeth Way	Roadside	546,062	259,260	NO2	YES	50	1	NO	2.5
DT21	Victoria Road	Roadside	544,425	259,560	NO2	YES	0	1.8	NO	2

DT22	Madingley Road	Kerbside	543,784	259,093	NO2	NO	20	0.8	NO	2
DT23	Huntingdon Road 1	Roadside	543,761	259,813	NO2	NO	15	1	NO	2
DT24	Histon Road 1	Kerbside	544,308	259,664	NO2	NO	2	0.5	NO	2
DT25	Barton Road	Roadside	544,100	257,473	NO2	NO	20	2.2	NO	2
DT26	Fen Causeway	Roadside	544,943	257,567	NO2	YES	50	2.1	NO	2
DT27	Trumpington High St	Roadside	544,575	255,307	NO2	NO	5	2.7	NO	2
DT28	Babraham Road	Roadside	546,953	255,138	NO2	NO	30	0.5	NO	2
DT29	Cherry Hinton Road	Kerbside	548,331	256,242	NO2	NO	10	0.8	NO	2.5
DT30	Arbury Road	Kerbside	545,693	260,473	NO2	NO	5	0.8	NO	2
DT31	Newnham Road	Roadside	544,529	257,730	NO2	YES	0	1.6	NO	2
DT32	Hills Road 2	Roadside	546,186	256,530	NO2	NO	2	3.6	NO	2.5
DT33	Victoria Avenue	Roadside	545,331	259,438	NO2	YES	0	1.4	NO	2
DT34	Parker Street	Roadside	545,370	258,399	NO2	YES	0	1.4	NO	2.5
DT35	Abbey Road	Roadside	546,163	258,983	NO2	YES	1	1.7	NO	2
DT36	Cockburn Street	Urban Background	546,596	257,594	NO2	YES	0	1.5	NO	2
DT37	Oaktree Avenue	Urban Background	545,885	260,088	NO2	YES	10	1	NO	2
DT38	Chesterton Road	Roadside	545,566	259,578	NO2	YES	2	2.7	NO	2
DT39	Maids Causeway	Kerbside	545,710	258,782	NO2	YES	5	0.8	NO	2
DT40	Emmanuel Road	Roadside	545,405	258,521	NO2	YES	0	1.5	NO	2
DT41	Downing Street	Roadside	545,162	258,240	NO2	YES	0	1.3	NO	2
DT42	Trumpington Street	Roadside	544,999	257,871	NO2	YES	2	1.4	NO	2
DT43	Lensfield Road	Roadside	545,271	257,675	NO2	YES	5	1.8	NO	2
DT44	Park Terrace	Roadside	545,429	258,271	NO2	YES	3	1.9	NO	2.5
DT45	St Andrew's St	Urban Centre	545,147	258,367	NO2	YES	1	0.8	NO	2.5
DT46	Parkside	Kerbside	545,539	258,295	NO2	YES	10	0.5	NO	2
DT47/ 48/49	Gonville Place (triplicate)	Roadside	545,508	257,828	NO2	YES	0	3.3	YES	2

DT50	Hills Road 3	Roadside	545,893	257,152	NO2	NO	3	3	NO	2
DT51	Shelford Road	Roadside	544,960	254,220	NO2	NO	5	2	NO	2
DT52	Station Road 2 east	Kerbside	546,019	257,300	NO2	YES	10	0.4	NO	2.5
DT53	Station Road 1 West	Kerbside	545,897	257,325	NO2	YES	10	0.4	NO	2.5
DT54	Tenison Road	Kerbside	546,027	257,663	NO2	YES	4	0.2	NO	2.5
DT55	Tenison Road 2	Kerbside	546,005	257,405	NO2	YES	4	0.3	NO	2.5
DT56	Coldhams Lane 2	Roadside	546,602	258,796	NO2	YES	8	1.7	NO	2
DT57	Great Northern Road	Kerbside	546080	257130	NO2	NO	3	0.2	NO	2.5
DT58	Station Place	Kerbside	546100	257390	NO2	NO	5	0.5	NO	2.5
DT59	Coldhams Lane 3	Roadside	548858	257162	NO2	NO	7.5	2.5	NO	2.5
DT60	Barnwell Road	Kerbside	547917	258942	NO2	NO	7.5	0.2	NO	2.5
DT61	Newmarket Road 3	Roadside	546341	258882	NO2	YES	10	2	NO	2.5
DT62	Mill Road 2	Roadside	547181	257566	NO2	NO	0	2.5	NO	2.5
DT63	Station Square	Other	546176	257308	NO2	YES	N/A	1	NO	2.5
DT64	Park Street	Roadside	544955	258850	NO2	YES	8	2	NO	2.5
DT65	Brooklands Avenue	Roadside	545894	257025	NO2	NO	20	1	NO	2.5
DT66	Shelford/Trumpington Rd	Roadside	544614	254646	NO2	NO	15	1	NO	2.5
DT67	Shelford Rd 2	Kerbside	544664	254600	NO2	NO	15	0.5	NO	2.5
DT68	Addenbrookes Access Road	Roadside	545237	254212	NO2	NO	10	3	NO	2.5
DT69	Fendon Road	Kerbside	546702	255380	NO2	NO	20	0.5	NO	2.5
DT70	Hills Road 4	Roadside	546700	255374	NO2	NO	30	3	NO	2.5
DT71	Trumpington road 2	Kerbside	545245	256860	NO2	NO	20	0.5	NO	2.5

**Notes:**

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable.

Table A.3 – Annual Mean NO<sub>2</sub> Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3) (4)</sup>				
							2015	2016	2017	2018	2019
DT1	545,293	258,418	Roadside	Diffusion Tube	58	58	35	38	34	36	35
DT2	544,284	261,273	Roadside	Diffusion Tube	100	100	31	27	23	24	21
DT3	544,674	258,992	Roadside	Diffusion Tube	100	100	28	27	21	22	20
DT4	544,492	259,021	Roadside	Diffusion Tube	92	92	38	37	33	31	31
DT5	544,783	258,116	Roadside	Diffusion Tube	100	100	33	34	29	26	24
DT6	544,867	255,709	Kerbside	Diffusion Tube	100	100	45	45	40	37	34
CM3 – Newmarket Road	546,317	258,900	Roadside	Automatic	98	98.2	25	24	26	25	22
DT7	546,195	258,867	Roadside	Diffusion Tube	92	92	39	35	32	33	31
DT8	545,977	260,352	Roadside	Diffusion Tube	100	100	23	20	19	18	18
DT9	545,247	258,472	Roadside	Diffusion Tube	100	100	32	31	25	28	23
DT10	545,314	259,777	Kerbside	Diffusion Tube	92	92	21	22	21	20	24
DT11	544,784	256,746	Background	Diffusion Tube	100	100	12	13	10	10	11
DT12	547,998	259,349	Roadside	Diffusion Tube	100	100	28	29	28	25	23
DT13	545,908	258,439	Roadside	Diffusion Tube	66	66	28	26	24	24	22
DT14	546,080	257,944	Roadside	Diffusion Tube	83	83	27	25	24	23	21

Cambridge City Council

DT15	542,772	260,067	Roadside	Diffusion Tube	58	58	35	36	31	N/A	18
CM5 Regent Street	545,289	258,118	Roadside	Automatic	87	87.0	34	32	29	26	27
DT16	545,289	258,118	Roadside	Diffusion Tube	66	66	34	30	29	27	26
DT17	547,216	258,286	Roadside	Diffusion Tube	92	92	26	24	22	21	22
DT18	544,884	258,098	Roadside	Diffusion Tube	75	75	39	36	34	30	30
DT19	543,101	260,344	Roadside	Diffusion Tube	92	92	27	23	21	20	18
CM2 Montague Road	546,057	259,487	Roadside	Automatic	100	99.7	23	27	24	25	22
DT20	546,062	259,260	Roadside	Diffusion Tube	100	100	32	31	26	27	26
DT21	544,425	259,560	Roadside	Diffusion Tube	100	100	30	28	25	24	22
DT22	543,784	259,093	Kerbside	Diffusion Tube	100	100	38	37	33	30	30
DT23	543,761	259,813	Roadside	Diffusion Tube	100	100	24	23	19	17	17
DT24	544,308	259,664	Kerbside	Diffusion Tube	83	83	35	29	29	24	25
DT25	544,100	257,473	Roadside	Diffusion Tube	92	92	22	22	19	19	18
DT26	544,943	257,567	Roadside	Diffusion Tube	92	92	23	22	19	19	18
DT27	544,575	255,307	Roadside	Diffusion Tube	100	100	25	24	19	20	18
DT28	546,953	255,138	Roadside	Diffusion Tube	100	100	N/A	N/A	39	32	33
DT29	548,331	256,242	Roadside	Diffusion Tube	100	100	23	22	21	19	19
DT30	545,693	260,473	Roadside	Diffusion Tube	92	92	20	19	18	17	18
DT31	544,529	257,730	Roadside	Diffusion Tube	100	100	42	33	31	31	29
DT32	546,186	256,530	Roadside	Diffusion	92	92	28	29	24	22	22

				Tube							
DT33	545,331	259,438	Roadside	Diffusion Tube	92	92	38	37	35	35	31
CM4 – Parker Street	545,366	258,391	Roadside	Automatic	95	94.6	45	41	37	32	33
DT34	545,370	258,399	Roadside	Diffusion Tube	83	83	39	39	32	33	31
DT35	546,163	258,983	Roadside	Diffusion Tube	92	92	22	21	19	17	17
DT36	546,596	257,594	Urban Background	Diffusion Tube	83	83	20	20	17	16	15
DT37	545,885	260,088	Urban Background	Diffusion Tube	100	100	17	18	16	15	15
DT38	545,566	259,578	Roadside	Diffusion Tube	83	83	26	26	23	21	23
DT39	545,710	258,782	Kerbside	Diffusion Tube	92	92	34	32	28	30	27
DT40	545,405	258,521	Roadside	Diffusion Tube	75	75	42	39	33	34	31
DT41	545,162	258,240	Roadside	Diffusion Tube	83	83	34	36	28	31	27
DT42	544,999	257,871	Roadside	Diffusion Tube	83	83	26	27	24	20	20
DT43	545,271	257,675	Roadside	Diffusion Tube	100	100	34	36	32	29	27
DT44	545,429	258,271	Roadside	Diffusion Tube	100	100	30	31	23	20	21
DT45	545,147	258,367	Roadside	Diffusion Tube	83	83	40	37	33	33	32
DT46	545,539	258,295	Roadside	Diffusion Tube	100	100	23	25	23	23	19
CM1 – Gonville Place	545,508	257,828	Roadside	Automatic	97	97.4	35	36	31	30	28
DT47/48/49	545,508	257,828	Roadside	Diffusion Tube	100	100	36	35	31	31	29
DT50	545,893	257,152	Roadside	Diffusion Tube	92	92	32	32	23	25	23
DT51	544,960	254,220	Roadside	Diffusion Tube	75	75	27	27	24	22	25



Cambridge City Council

DT52	546,019	257,300	Kerbside	Diffusion Tube	83	83	31	34	22	22	24
DT53	545,897	257,325	Kerbside	Diffusion Tube	92	92	31	34	30	23	27
DT54	546,027	257,663	Roadside	Diffusion Tube	92	92	23	23	21	23	20
DT55	546,005	257,405	Roadside	Diffusion Tube	100	100	26	25	25	22	22
DT56	546,602	258,796	Roadside	Diffusion Tube	66	66	27	27	23	23	20
DT57	546080	257130	Roadside	Diffusion Tube	83	83	N/A	25	33	30	31
DT58	546100	257390	Kerbside	Diffusion Tube	100	100	N/A	36	32	31	30
DT59	548858	257162	Roadside	Diffusion Tube	92	92	N/A	N/A	N/A	15	16
DT60	547917	258942	Kerbside	Diffusion Tube	100	100	N/A	N/A	N/A	23	22
DT61	546341	258882	Roadside	Diffusion Tube	92	92	N/A	N/A	N/A	33	34
DT62	547181	257566	Roadside	Diffusion Tube	83	83	N/A	N/A	N/A	N/A	20
DT63	546176	257308	Other	Diffusion Tube	100	100	N/A	N/A	N/A	31	33
DT64	544955	258850	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	24	23
DT65	545894	257025	Roadside	Diffusion Tube	92	92	N/A	27	22	24	22
DT66	544614	254646	Roadside	Diffusion Tube	100	100	N/A	36	32	30	28
DT67	544664	254600	Roadside	Diffusion Tube	100	100	N/A	25	21	18	19
DT68	545237	254212	Roadside	Diffusion Tube	100	100	N/A	22	18	17	16
DT69	546702	255380	Roadside	Diffusion Tube	92	92	N/A	27	24	22	21
DT70	546700	255374	Roadside	Diffusion Tube	92	92	N/A	27	22	21	21
DT71	545245	256860	Roadside	Diffusion Tube	75	75	N/A	32	25	26	25

- ☒ Diffusion tube data has been bias corrected
- ☒ Annualisation has been conducted where data capture is <75%
- ☒ Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance adjustment

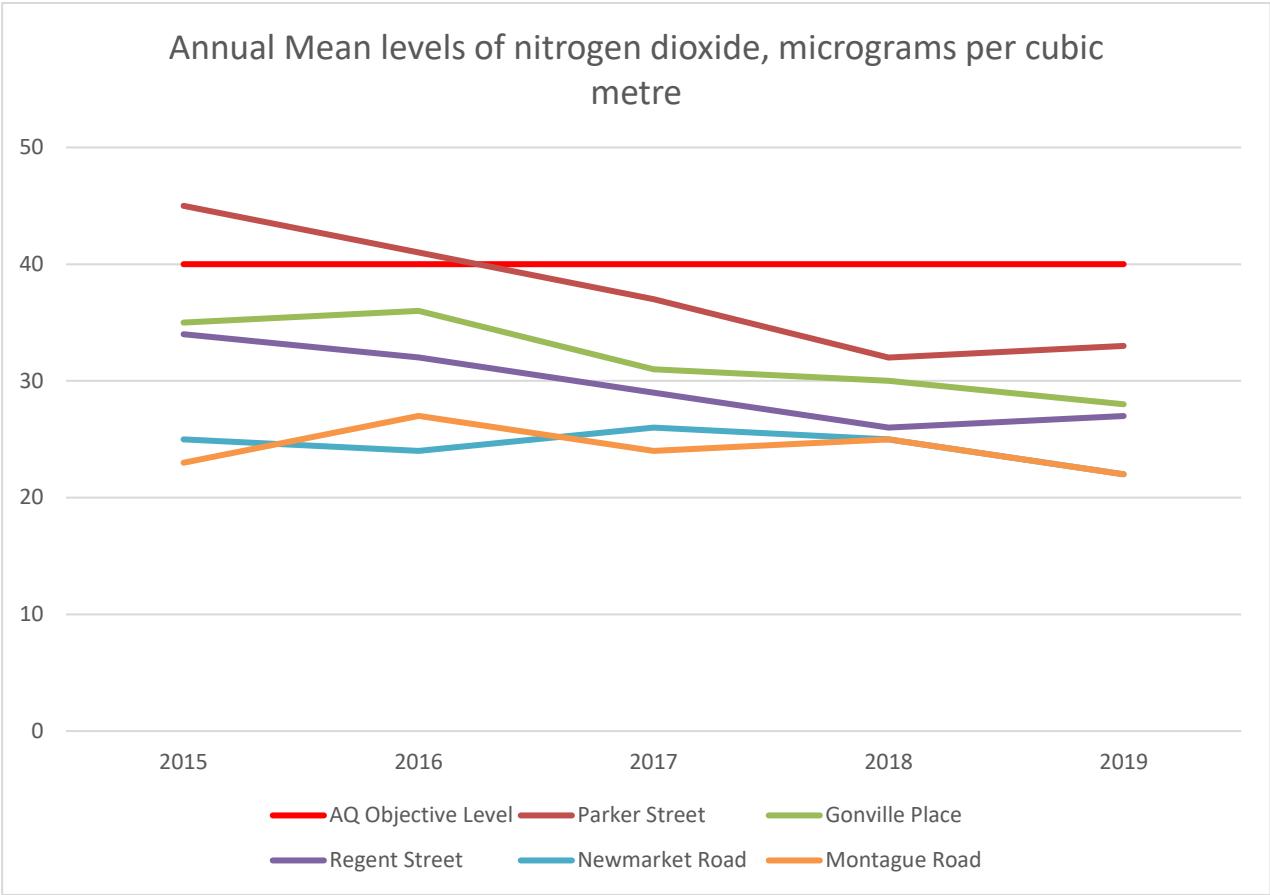
**Notes:**

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

- (1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
- (2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).
- (3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.
- (4) Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

Figure A.1 – Trends in Annual Mean NO<sub>2</sub> Concentrations



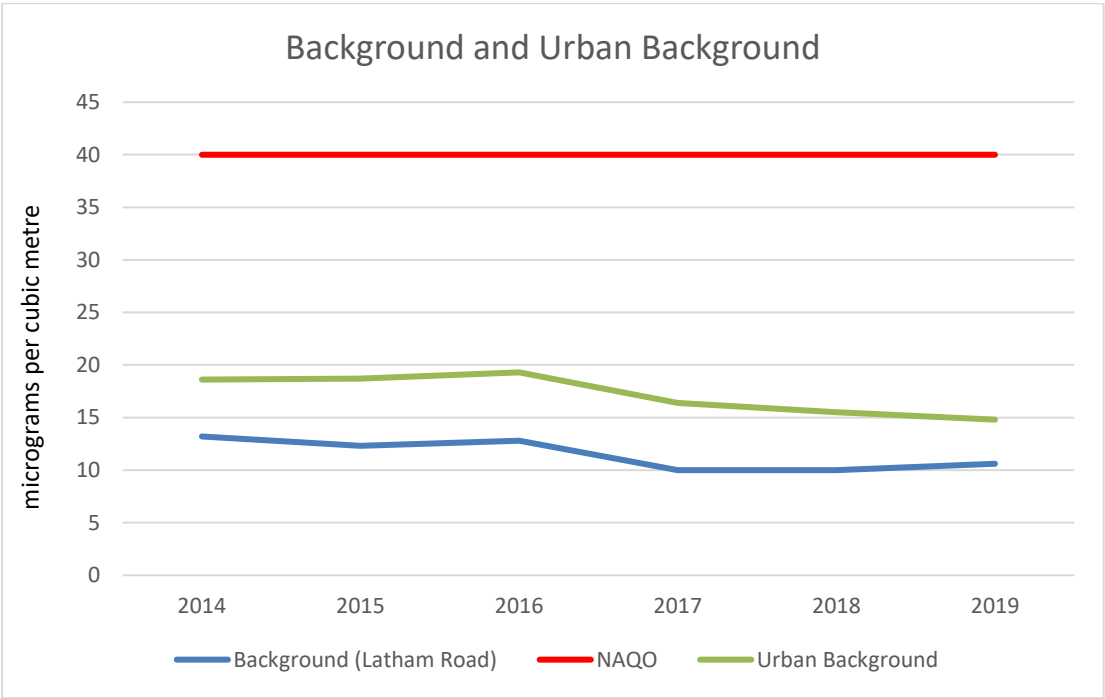
The automatic monitors recorded a fairly flat trend overall, two monitors recording a small increase and three recording a decrease in nitrogen dioxide levels.

As usual, the diffusion tube data has been split into groups based on the type of location or the specific area of interest in which they are located.

Background and Urban Background

The Background level rose very slightly and both Urban background sites fell very slightly in comparison with 2018 levels.

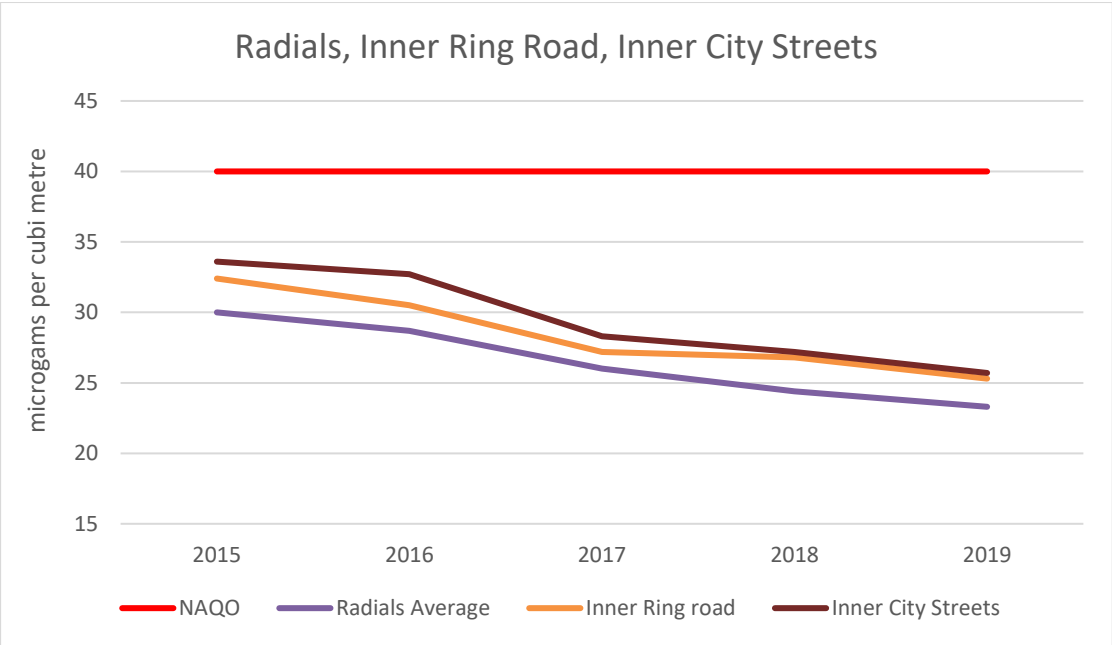
**Figure A.1.a Trend in averaged mean annual NO<sub>2</sub> for Background and Urban background site**



Radial Roads, Inner Ring Road and Inner City Streets

The trend data for the Radial Roads, Inner Ring Road and Inner City Streets have continued downwards following the marked drop in 2017. This may be due to improvements from emissions finally beginning to be realised as older cars are removed from the road.

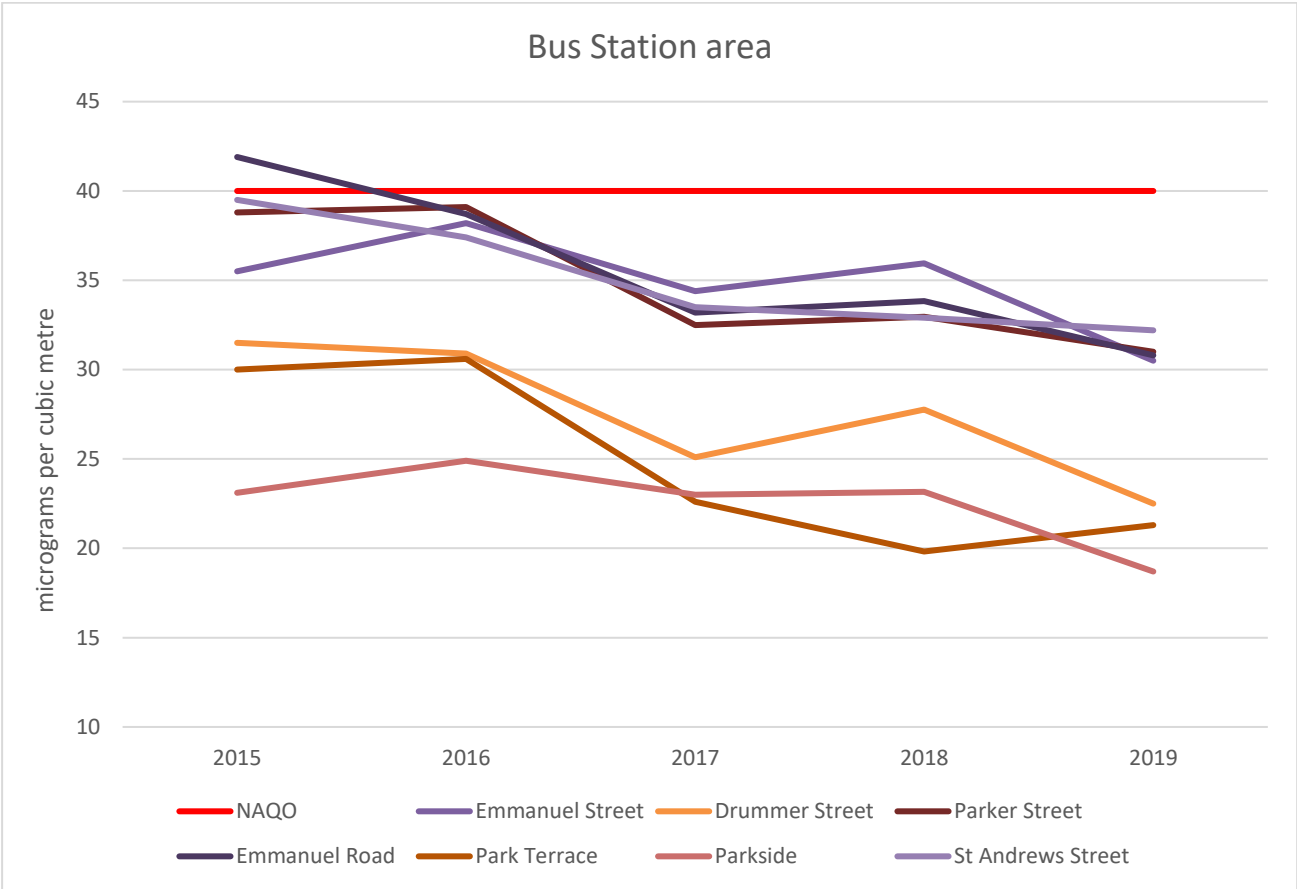
**Figure A.1.b: Trend in averaged mean annual NO<sub>2</sub> for Radial Roads, Inner Ring Road and Inner City Streets**



Bus Station Area

The roads around the bus station no longer contradict the typically downward trend as most locations recorded a small decrease in 2019. This agrees with the anecdotal evidence that the older buses have been removed from the fleet. One location recorded an increase, Park Terrace. This is considered to be caused by an increase in traffic, including queuing traffic, related to multistage road works and road closures in 2019.

Figure A.1.c: Trend in averaged mean annual NO<sub>2</sub> for Bus Station area



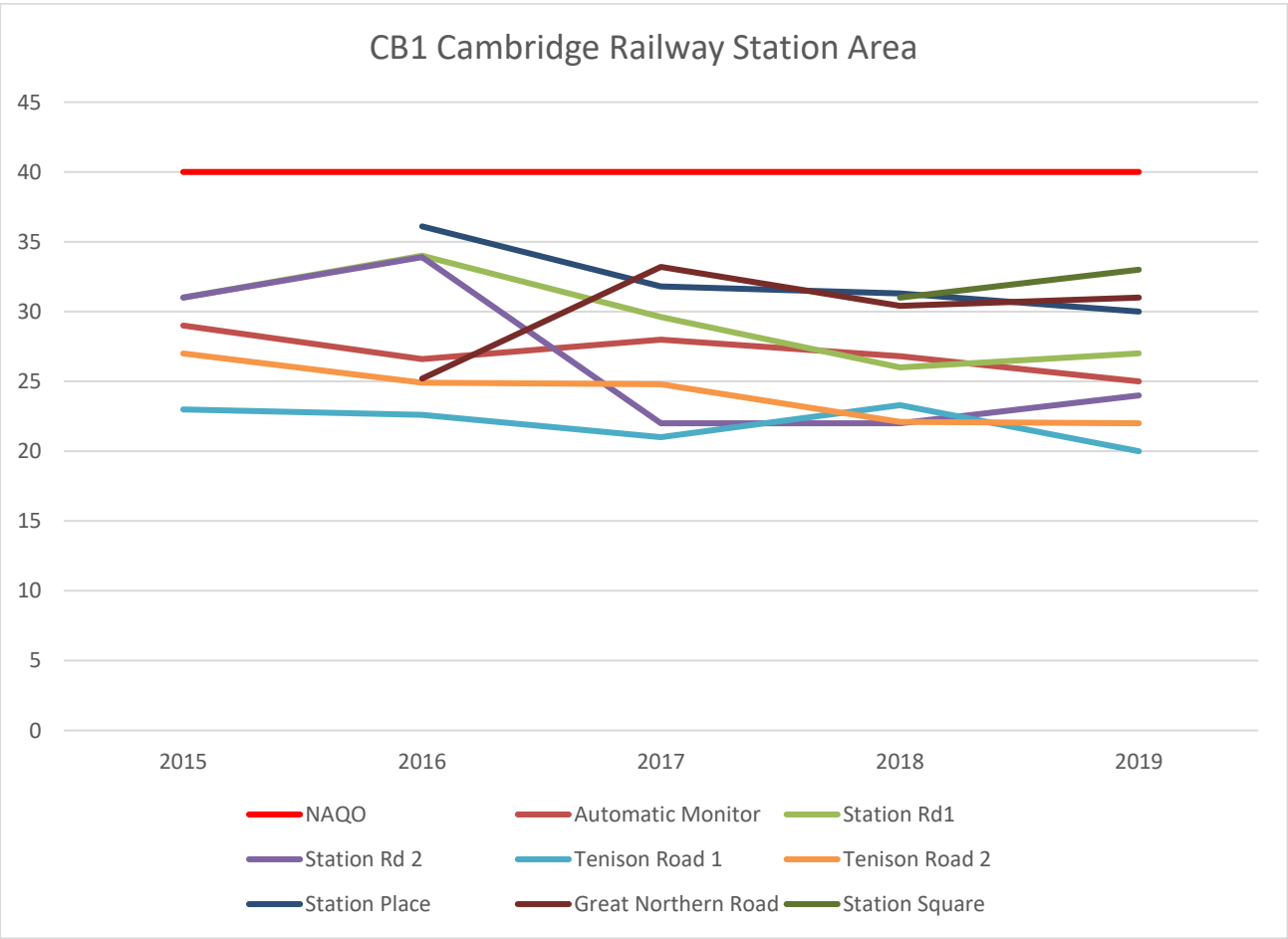
Railway Station Area

The CB1 area of Cambridge close to the train station is an area of ongoing extensive development. We monitor nitrogen dioxide levels in this area because of the scale of the residential development, alongside the high levels of traffic travelling to the station including taxis and buses. Demand for rail services is set to carry on increasing, which will put more pressure on congestion and air quality in the area.

All recorded levels remained below objective levels in 2019. However, half of the sites showed a small increase in recorded levels of nitrogen dioxide and half showed a small decrease.

This area continues to undergo change and it will be some time before a clear picture of the air quality in this area is established.

Figure A.1.d: Trend in averaged mean annual NO<sub>2</sub> for CB1 area



Southern Cambridge is another area which is undergoing extensive development. Recorded air pollution levels in 2019 have remained typically stable compared with 2017. Although 3 of the 9 sites measured higher levels of nitrogen dioxide, the overall trend is downwards – but not as obvious as the other parts of Cambridge. We will continue to monitor the NO<sub>2</sub> levels in this part of the city as development continues.

Figure A.1.e: Trends in averaged mean annual NO<sub>2</sub> in Southern Cambridge

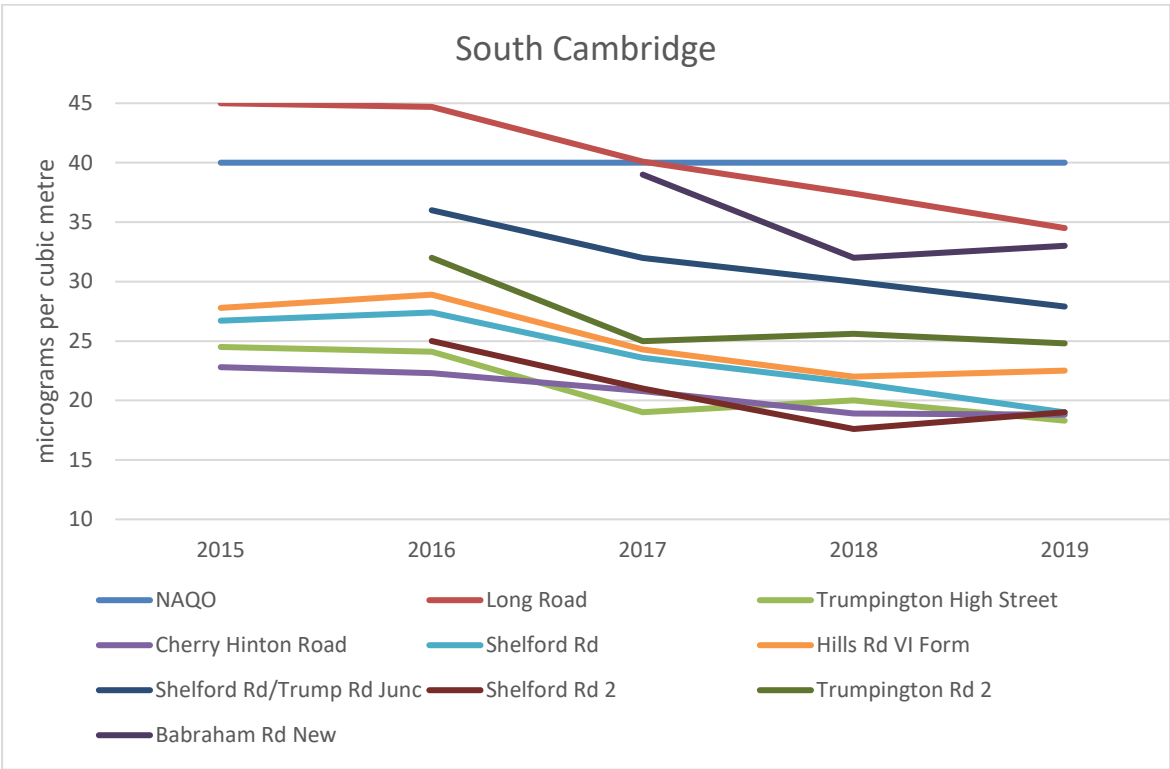




Table A.4 – 1-Hour Mean NO<sub>2</sub> Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	NO <sub>2</sub> 1-Hour Means > 200µg/m <sup>3</sup> <sup>(3)</sup>				
							2015	2016	2017	2018	2019
CM1	545 508	257 828	Roadside	Automatic	97.4	97.4	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
CM2	546 057	259 487	Roadside	Automatic	99.7	99.7	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
CM3	546 317	258 900	Roadside	Automatic	98.2	98.2	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
CM4	545 366	258 391	Roadside	Automatic	94.6	94.6	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
CM5	545 289	258 118	Roadside	Automatic	87.0	87.0	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Notes:**

Exceedances of the NO<sub>2</sub> 1-hour mean objective (200µg/m<sup>3</sup> not to be exceeded more than 18 times/year) are shown in **bold**.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) If the period of valid data is less than 85%, the 99.8<sup>th</sup> percentile of 1-hour means is provided in brackets.

Table A.5 – Annual Mean PM<sub>10</sub> Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	PM <sub>10</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup>				
						2015	2016	2017	2018	2019
CM1	545 508	257 828	Roadside	95.2	95.2	21	20	18	19	19
CM2	546 057	259 487	Roadside	97.6	97.6	22	22	20	21	22
CM4	545 366	258 391	Roadside	96.0	96.0	23	22	21	23	21

**Notes:**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.6 – 24-Hour Mean PM<sub>10</sub> Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	PM <sub>10</sub> 24-Hour Means > 50µg/m <sup>3</sup> <sup>(3)</sup>				
						2015	2016	2017	2018	2019
CM1	545 508	257 828	Roadside	95.2	95.2	2	1	3	1	2
CM2	546 057	259 487	Roadside	97.6	97.6	4	2	3	1	6
CM4	545 366	258 391	Roadside	96.0	96.0	4	4	4	1	5

**Notes:**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) If the period of valid data is less than 85%, the 90.4<sup>th</sup> percentile of 24-hour means is provided in brackets.

Figure A.2 – Trends in Annual Mean PM<sub>10</sub> Concentrations

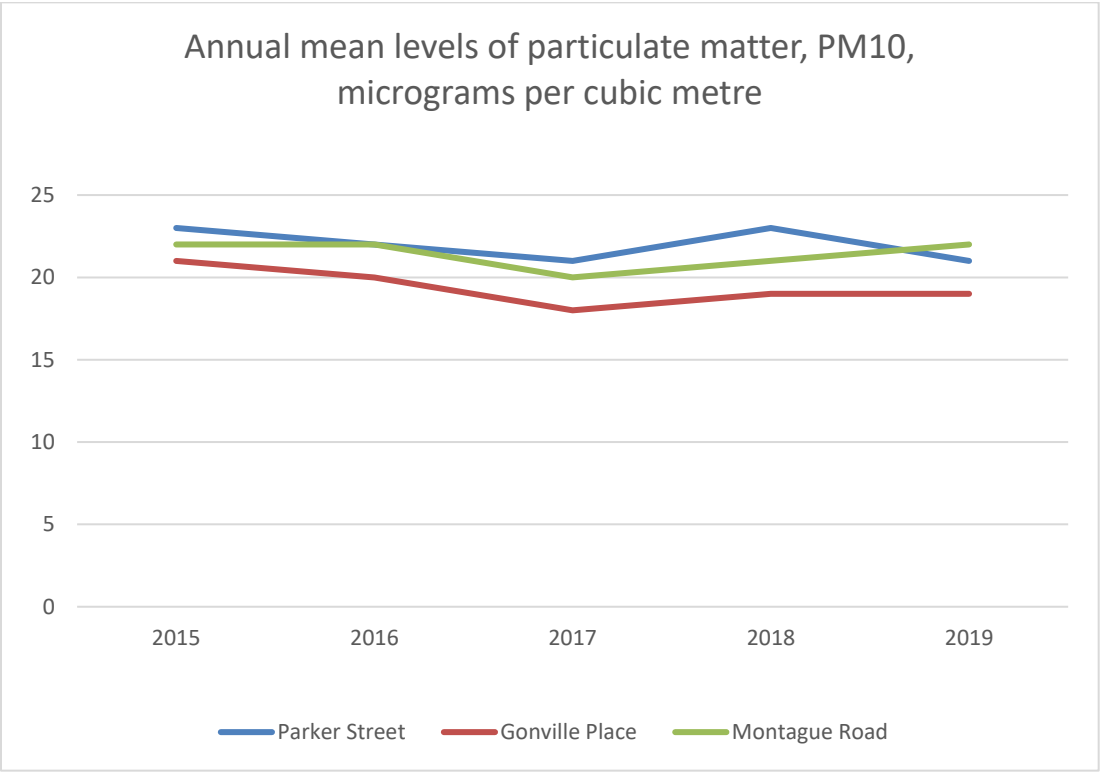


Table A.7 – PM<sub>2.5</sub> Monitoring Results

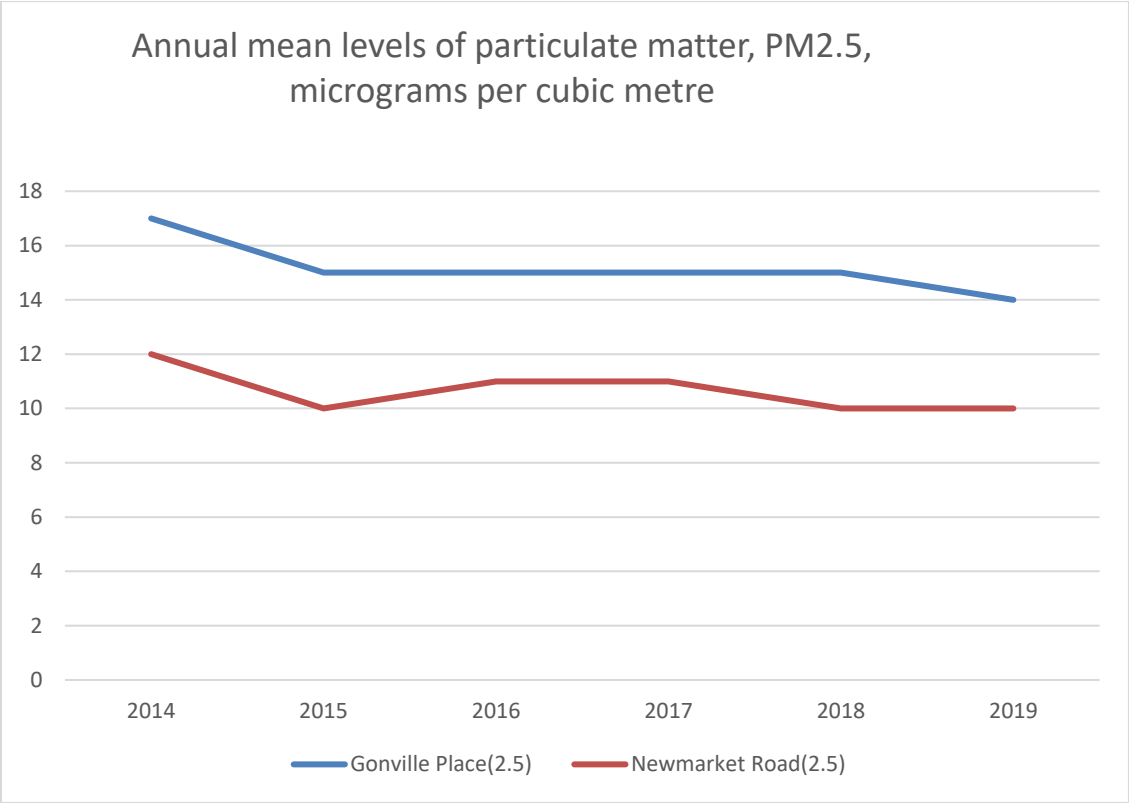
Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	PM <sub>2.5</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup>				
						2015	2016	2017	2018	2019
CM1	332395	433175	Roadside	95.4	95.4	15	15	15	15	14
CM3	331435	418175	Roadside	83.8	83.8	10	11	11	10	10

**Notes:**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.3 – Trends in Annual Mean PM<sub>2.5</sub> Concentrations



## Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 - NO<sub>2</sub> Monthly Diffusion Tube Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO <sub>2</sub> Mean Concentrations (µg/m <sup>3</sup> )														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.68) and Annualised <sup>(1)</sup>	Distance Corrected to Nearest Exposure <sup>(2)</sup>
DT1	545,293	258,418			47.9	33.1	40.3		44.4	48.5	43.1		56.6		44.8	35	
DT2	544,284	261,273	37.3	37	27	34	30.7	28.5	26.7	20.7	28.9	30.1	40	27.8	30.7	21	
DT3	544,674	258,992	39.7	35.8	29.8	32	30	26.8	18.2	23.4	27	32.2	41.6	23.8	30.0	20	
DT4	544,492	259,021	50.8	56.4	41.4	40.9	34.4	41.6		40.7	40.2	45.5	55.6	47.3	45.0	31	
DT5	544,783	258,116	42.6	44.5	35.7	32.6	29.7	32.7	27	25.6	28.6	37.6	45.6	33.7	34.7	24	
DT6	544,867	255,709	68.8	61.7	46.5	38.3	48.9	46.9	45	45.5	53.7	42.7	63.3	47.5	50.7	34	
DT7	546,195	258,867	52.8	61.7	47.5	40.2	38.1	42.8	35.4	40.9	44.6		49.3	52.6	46.0	31	
DT8	545,977	260,352	33.2	37.4	24.8	21.1	17.7	21.1	17.7	20.1	27.8	32.7	37.2	28.7	26.6	18	
DT9	545,247	258,472	37.9	45	35.1	42.4	28.6	31.8	24.1	23.4	27.8	31.6	39.1	30.9	33.1	23	
DT10	545,314	259,777	42.3	34.4	29.8	54.1	23.4	28.9	25.3		32.1	39.4	45	27.5	34.7	24	
DT11	544,784	256,746	21.3	21.3	13.2	13.7	22.1	9.4	7.6	9.7	12.9	18.1	20.3	16.6	15.5	11	
DT12	547,998	259,349	42	44.8	33.1	27.8	25.6	26.8	28.1	31.4	31.5	36.2	49.4	31.2	34.0	23	
DT13	545,908	258,439	36.6	51.6	35.7		26.7	26.7	23.2		28.5	17.8			30.9	22	
DT14	546,080	257,944	42.7	43.1	29.4	31.6	29.9	23.5	21.9	19.9	28.7	33.6			30.4	21	
DT15	545,557	257,695						14.9	15.6	18.6	23.4	28.1	40.5	24.5	23.7	18	

DT16	545,289	258,118	46.4	49.5	45.3	33.2		32.8	31.8	36.4			47.6		40.4	26	
DT17	547,216	258,286	41.1	37.6	29.1	28.4		20.8	22.4	22.6	26	32.6	46.1	54	32.8	22	
DT18	544,884	258,098	48.3	55.2	42.2	40.9		36			37.7	44.3	54.2	40.4	44.4	30	
DT19	543,101	260,344	32.6	37	27.3	26.4	18.3	16.7	17.2		19.9	28.7	38.1	22.1	25.8	18	
DT20	546,062	259,260	48.6	51.7	32.3	40.6	30.6	30.5	25.7	28.6	31.5	43.6	61.7	32.5	38.2	26	
DT21	544,425	259,560	37.8	40	31.7	29.9	27.8	27.8	25.6	22.6	29.3	37.1	47.4	27.5	32.0	22	
DT22	543,784	259,093	52.1	54.9	41.6	42.1	38.5	41.2	36.4	37.8	40.5	46.8	56.1	38.7	43.9	30	
DT23	543,761	259,813	30.4	31.7	24.8	27.7	22.1	17.3	18.6	16.5	24.3	21.4	37	25.7	24.8	17	
DT24	544,305	259,580	51.5		38.6	27.3	30	30.4	27.9	29.5		40.5	50.1	36.9	36.3	25	
DT25	544,100	257,473	30	32.5	22	29.8	22	23.1	18.6	16.5		27.9	37.9	25.8	26.0	18	
DT26	544,943	257,567	33.5	25	28.1	34.2	22.7		17.7	15.1	21.7	28.7	37.9	23.8	26.2	18	
DT27	544,575	255,307	34.4	34.1	24.1	26.3	18.9	21.6	17.4	16.9	23	33.5	40.4	32.6	26.9	18	
DT28	546,948	255,169	60.3	54.4	53.9	37.4	43.6	38.9	45	46.5	47.7	47.7	57.5	45.5	48.2	33	
DT29	548,331	256,242	42.4	31.5	26.9	20.1	22.8	20.8	16.8	20.3	29.7	32.3	37.6	30	27.6	19	
DT30	545,693	260,473	33		19.7	20.7	17	15.7		30.2	26.4	30.6	39.9	34.7	26.8	18	
DT31	544,529	257,730	46	51.4	38.7	45.2	37.7	42.3	37.3	35.8	42.6	47.6	58.1	37.6	43.4	29	
DT32	546,186	256,530		41.4	31.7	34.2	28.9	27.3	23.1	23.6	35.8	35.7	52.1	30	33.1	22	
DT33	545,331	259,438	48.4		44.2	51.1	45.7	46.7	39.1	32.2	43.6	50	61.4	41.3	45.8	31	
DT34	545,370	258,399		48.3	47	47.7			39.6	39.6	41.9	46.6	55.9	43.6	45.6	31	
DT35	546,163	258,983	30.8	41.8	22.5	20.2	16.3	17.8	15.2	17.3		28.3	37.2	30.5	25.3	17	
DT36	546,596	257,594	36.6	32.8	24.7	18.6	17.8	14.9	13.3	16.3	19.6	26.6			22.1	15	
DT37	545,885	260,088	30.3	33.1	21.2	17.1	14	14.2	13.1	15.3	17.1	24.1	33.4	24.4	21.4	15	
DT38	545,566	259,578	40	45.6	35.9		27.3	24.8	23.6		26.3	34.8	49.6	35.9	34.4	23	
DT39	545,710	258,782	53.6	50.9	40.2	36.2	36.9	29.9	32.2	40.1	29.6	37.5	48.8		39.6	27	
DT40	545,405	258,521	49.2	58.4	47.4		46.6	41.5	40.5	38.7	41.8			43	45.2	31	
DT41	545,162	258,240	49.1	52.3	41.6	40.6	31.2	31.4		27.1	31.9	40.4	49		39.5	27	

DT42	544,999	257,871	43.1	37.7		21	23.3	22.1	20.6	20.4	24.9		46.5	31.7	29.1	20	
DT43	545,271	257,675	51.3	47.9	42.4	36.7	33	33.3	32	31.4	38.6	43.5	52.7	37.8	40.1	27	
DT44	545,429	258,271	43.9	37.4	31.4	28.8	26.7	23.4	24.1	23.8	30.2	32	43.4	31.6	31.4	21	
DT45	545,147	258,367	54.2	67.3	46.9	41.5	40.8		37.5	38.9	38.7		55.2	52.1	47.3	32	
DT46	545,539	258,295	36.3	40.7	26.2	26.7	21.3	19.1	18	16.1	22.4	29.8	44	29.7	27.5	19	
DT47	545,508	257,828	44.8	45.1	38.2	48.7	40.2	39.6	40.9	38.9	39	44.2	50	37	42.2	29	
DT50	545,893	257,152	40.9	31.3	32.6	42.5	31.6	29.6	31.4	25.8	30.6	32.9	49.5		34.4	23	
DT51	544,960	254,220	43.7	40.1	65.9			21.4	18.1		28.3	33	43.1	33.4	36.3	25	
DT52	546,019	257,300	36.7	43	32.5	31.1	29		38		29	38.4	51.3	28.5	35.8	24	
DT53	545,897	257,325	46.7	32.2	42.6	45.2	37.5	34.2		34.2	34	39.4	51.2	33.2	39.1	27	
DT54	546,027	257,663	29	41.4	29.2	26.3	23.9	22.6	21.3	16.2		34.7	45.8	31.9	29.3	20	
DT55	546,005	257,405	33.4	39.9	32.8	37.8	27.4	28.8	26.6	22.3	30.5	36.9	48.6	32	33.1	22	
DT56	546,602	258,796	41.1	38.7	32.2	36.3			26.9	23.4		31.8		31.8	32.8	21	
DT57	546080	257130	45.7	56.4	45.9	34	36.2			38.6	39.4	49.6	57.6	46	44.9	31	
DT58	546100	257390	57.3	57.7	47.3	41.6	39.5	37.3	40.6	34.6	39.9	44	56.3	38.4	44.5	30	
DT59	548858	257162	40.8	29.4	23.4	22.4	18.2	16.2	15.4	14.9	18.1	30.2		27.5	23.3	16	
DT60	547917	258942	35.9	35.7	30.3	29.5	28.2	25.5	25.8	22.7	30	37.7	47.4	31.6	31.7	22	
DT61	546341	258882	53.3	71.7		52.9	39.9	45.4	53.2	46.2	48.6	56.8	49.4	31.9	49.9	34	
DT62	547181	257566			31.2	29.2	26.8	23.2	16.7	21.3	28.9	35.8	47.8	30.7	29.2	20	
DT63	546176	257308	55.7	60.6	49.9	52.9	41.4	42.6	40.5	38.4	44.3	50.6	59.5	42.5	48.2	33	
DT64	544955	258850	42.5	44.7	31.6	31.2	28.2	25.39	24.3	25.1	29.1	43.1	45.9	33.7	33.7	23	
DT65	545894	257025	39		32.2	44.2	27.3	27.7	23.1	20.3	27.7	30.6	48.1	28.2	31.7	22	
DT66	544614	254646	51.3	54.1	38.6	36.2	33.7	34.7	34	35.8	44	42.1	51.9	35.4	41.0	28	
DT67	544664	254600	37.4	38.2	30.1	23.4	22.3	18.9	18.3	19.7	27.8	29.9	38.7	30.1	27.9	19	
DT68	545237	254212	33.8	31.7	16.7	21	18	17.3	13.5	14.5	21.5	26.9	37.4	26.8	23.3	16	
DT69	546702	255380	43.8	44.1	28.9	28.6	21.9	22.4	22.6	28.1	28.6	29.7	39.4		30.7	21	



DT70	546700	255374	38.9	38.8	27.6	32.1	24	23.3	21.2	24.5	28.1	36.5	46.5		31.0	21	
DT71	545245	256860	42	37.6	34.1		33			27.9	37	38.4	46	31.9	36.4	25	

☒ Local bias adjustment factor used

☐ National bias adjustment factor used

☒ Annualisation has been conducted where data capture is <75%

☒ Where applicable, data has been distance corrected for relevant exposure in the final column

**Notes:**

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

## Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

### ***Automatic Monitoring sites - QA/QC***

Cambridge City Council has five continuous monitors; all are at roadside sites. The monitoring station at Regent Street is situated at the offices of Cambridge City Council in Mandela House. It is part of the National Automatic Urban Network (AURN) on behalf of DEFRA and has been in place since 1993. Monitors for Gonville Place and Parker Street were commissioned in 1998. The monitor at Newmarket Road was commissioned in 2001 in response to perceived data shortfalls for urban feeder roads following the first round of R&A. The monitoring station at Montague Road was commissioned in April 2007, using the monitors formerly located in Silver Street.

Each of the sites is calibrated and maintained every 2-3 weeks by the Local Site Operator (LSO). The sites are serviced every six months. Our Equipment Support Unit (ESU) services are provided by Matts Monitors. The sites are audited by Ricardo Energy & Environment either as part of the AURN or through the 'Calibration Club'. All data is collated and ratified externally by Ricardo Energy & Environment. The results are ratified and returned as hourly sequential data.

### ***Non-Automatic Monitoring Sites***

#### **Nitrogen Dioxide**

##### ***QA/QC***

Socotec UK Ltd (formerly ESG) supply and analyse the nitrogen dioxide tubes for Cambridge City Council. The tubes are prepared by spiking acetone: triethanolamine (50:50) onto the grids prior to being assembled. The tubes are desorbed with distilled water and the extract is analysed using a segmented flow autoanalyser with ultraviolet detection. Socotec UK Ltd, Didcot is one of the laboratories that follows the AIR PT intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes; SOCOTEC currently holds the highest rank of a **Satisfactory** laboratory.

Exposure periods for the diffusion tubes are those of the UK Nitrogen Dioxide Diffusion Tube Network run by National Physical Laboratory, with the tubes being changed every four or five weeks.

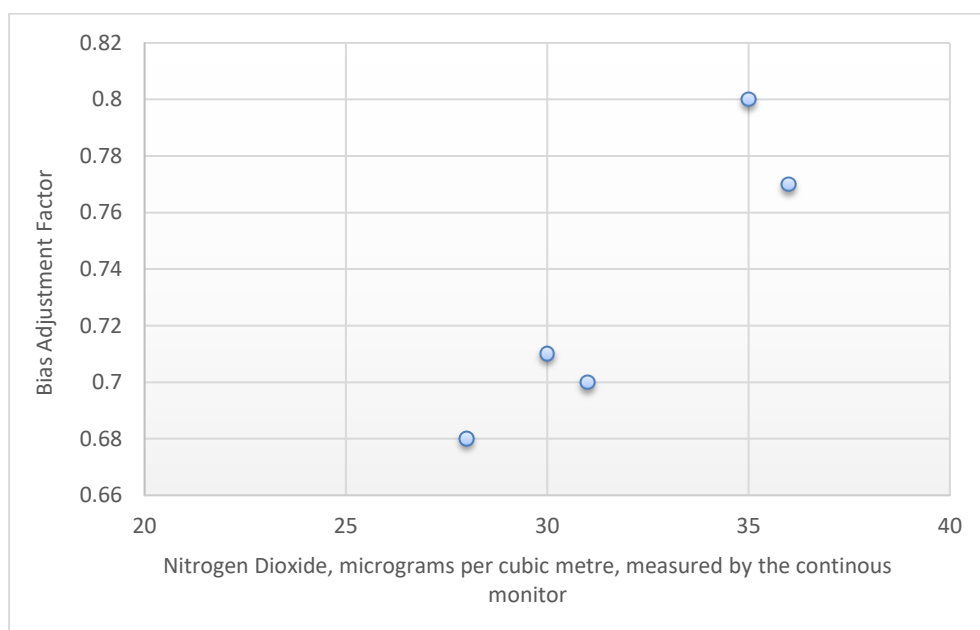
QA/QC procedures are as detailed in the UK NO<sub>2</sub> Diffusion Tube Network Instruction Manual. Some diffusion tube data were rejected from the dataset in line with guidance. Low concentrations are rare at urban background or roadside sites and are likely to result from an analytical problem or a faulty tube and therefore are rejected, particularly if they are an isolated occurrence. High concentrations are included unless there is a reason to reject them.

### ***Bias Adjustment***

The results are bias-adjusted using a locally derived co-location factor. For 2019 this is 0.68 compared with a nationally derived factor of 0.75 for the ESG Didcot 50%TEA in acetone method. This locally derived factor compares the results from the continuous monitor with the average from the triplicate tubes all located at Gonville Place, Cambridge. The locally derived factor is used as it is more representative of the local situation compared with the national factor, as well as for consistency.


The bias-adjustment factor has been falling gradually as levels of nitrogen dioxide have fallen at the triplicate site Gonville Place, as shown in the graph below. We have discussed this with various air quality professionals in recent years; our understanding is that the relationship between the diffusion tube measurements and the continuous monitor measurements drifts at lower levels of nitrogen dioxide (as measured by the continuous monitor).

Most of Cambridge City Council's diffusion tubes are in place to monitor long-term traffic-related air pollution trends rather than for LAQM purposes.



	NO2	BA
2015	35	0.8
2016	36	0.77
2017	31	0.7
2018	30	0.71
2019	28	0.68
	RSQ 0.87	

Adjustment of DUPLICATE or TRIPLICATE Tubes


**AEA Energy & Environment**  
 From the AEA group

Diffusion Tubes Measurements

Peri od	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm <sup>-3</sup>	Tube 2 µgm <sup>-3</sup>	Tube 3 µgm <sup>-3</sup>	Triplika te Average	Standar d Deviation	CV	95% CI mean
1	03/01/2019	07/02/2019	44.8	45.7	46.2	45.6	0.71	1.56	1.76
2	07/02/2019	07/03/2019	45.1	41.7	44.8	43.9	1.88	4.29	4.68
3	07/03/2019	05/04/2019	38.2	38.0	36.6	37.6	0.87	2.32	2.17
4	05/04/2019	30/04/2019	48.7	41.8	44.3	44.9	3.49	7.77	8.68
5	30/04/2019	29/05/2019	40.2	39.5	36.1	38.6	2.19	5.68	5.45
6	29/05/2019	03/07/2019	39.6	40.6	40.0	40.1	0.50	1.26	1.25
7	03/07/2019	02/08/2019	40.9	40.1	38.0	39.7	1.50	3.78	3.72
8	02/08/2019	02/09/2019	38.9	36.7	38.5	38.0	1.17	3.08	2.91
9	02/09/2019	01/10/2019	39.0	38.8	38.9	38.9	0.10	0.26	0.25
10	01/10/2019	08/11/2019	44.2	44.6	40.4	43.1	2.32	5.38	5.76
11	08/11/2019	05/12/2019	50.0	47.5	50.9	49.5	1.76	3.56	4.38
12	05/12/2019	07/01/2020	37.0	36.8	40.6	38.1	2.14	5.61	5.31
13	07/01/2020								

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Site Name/ ID: **Gonville Place**

Jaume Torro, for AEA

Version 04 - February 2011

Adjusted measurement (95% confidence level)

Without periods with CV larger than 20%

Bias calculated using 11 periods of data

Tube Precision: 4 Automatic DC: 100%

Bias factor A: 0.68 (0.65 - 0.72)

Bias B: 47% (40% - 54%)

Information about tubes to be adjusted

Diffusion Tube average: 41 µgm<sup>-3</sup>

Average Precision (CV): 4

Adjusted Tube average: 28 ± 1 µgm<sup>-3</sup>

Adjusted measurement (95% confidence level)

with all data

Bias calculated using 11 periods of data

Tube Precision: 4 Automatic DC: 100%

Bias factor A: 0.68 (0.65 - 0.72)

Bias B: 47% (40% - 54%)

Information about tubes to be adjusted

Diffusion Tube average: 41 µgm<sup>-3</sup>

Average Precision (CV): 4

Adjusted Tube average: 28 ± 1 µgm<sup>-3</sup>

## Annualisation

The annualisation calculations for sites with low data capture during 2019 are presented below. All automatic monitors achieved over 75% data capture.

There were five tubes that required annualisation due to low data capture.

Annualisation was based on the average of three AURN background sites within 50 miles radius of Cambridge.

**DT1 Emmanuel Street – 58% data capture**

	Borehamwood Meadow Park	Emmanuel Street	Borehamwood Meadow Park
January	30.3		
February	32.5		
March	19.0	<b>47.9</b>	19.0
April	20.1	33.1	20.1
May	14.9	<b>40.3</b>	14.9
June	13.0		
July	14.5	<b>44.4</b>	14.5
August	17.8	<b>48.5</b>	17.8
September	17.4	<b>43.1</b>	17.4
October	21.6		
November	30.5	<b>56.6</b>	30.5
December	23.9		
Average	21.3	44.8	19.2
Am/Pm	1.1		
Estimated Annual Mean	49.8		
Bias-adjusted	33.9		

	Wicken Fen	Emmanuel Street	Wicken Fen
January	14.4		
February	14.3		
March	7.9	<b>47.9</b>	7.9
April	7.9	33.1	7.9
May	6.2	<b>40.3</b>	6.2
June	4.5		
July	5.3	<b>44.4</b>	5.3
August	5.6	<b>48.5</b>	5.6
September	5.3	<b>43.1</b>	5.3
October	8.0		
November	13.6	<b>56.6</b>	13.6
December	9.8		
Average	8.6	44.8	7.4
Am/Pm	1.2		
Estimated Annual Mean	51.8		
Bias-adjusted	35.2		

**Average 34.6**

**DT13 East Road – 66% data capture**

	Borehamwood Meadow Park	East Road	Borehamwood Meadow Park
January	30.3	36.6	30.3
February	32.5	<b>51.6</b>	32.5
March	19.0	35.7	19.0
April	20.1		
May	14.9	26.7	14.9
June	13.0	26.7	13.0
July	14.5	23.2	14.5
August	17.8		17.8
September	17.4	28.5	17.4
October	21.6	17.8	21.6
November	30.5		
December	23.9		
Average	21.3	30.9	20.1
Am/Pm	1.1		
Estimated Annual Mean	32.7		
Bias-adjusted	22.2		

	Wicken Fen	East Road	Wicken Fen
January	14.4	36.6	14.4
February	14.3	<b>51.6</b>	14.3
March	7.9	35.7	7.9
April	7.9		
May	6.2	26.7	6.2
June	4.5	26.7	4.5
July	5.3	23.2	5.3
August	5.6		
September	5.3	28.5	5.3
October	8.0	17.8	8.0
November	13.6		
December	9.8		
Average	8.6	30.9	8.2
Am/Pm	1.0		
Estimated Annual Mean	32.1		
Bias-adjusted	21.8		

**Average 22.0**

**DT Eddington – 58% data capture**

This tube was only in the network for 7 months.

	Borehamwood Meadow Park	Eddington	Borehamwood Meadow Park
January	30.3		
February	32.5		
March	19.0		
April	20.1		
May	14.9		
June	13.0	14.9	13.0
July	14.5	15.6	14.5
August	17.8	18.6	17.8
September	17.4	23.4	17.4
October	21.6	28.1	21.6
November	30.5	<b>40.5</b>	30.5
December	23.9	24.5	23.9
Average	21.3	23.7	19.8
Am/Pm	1.1		
Estimated Annual Mean	25.4		
Bias-adjusted	17.3		

	Wicken Fen	Eddington	Wicken Fen
January	14.4		
February	14.3		
March	7.9		
April	7.9		
May	6.2		
June	4.5	14.9	4.5
July	5.3	15.6	5.3
August	5.6	18.6	5.6
September	5.3	23.4	5.3
October	8.0	28.1	8.0
November	13.6	<b>40.5</b>	13.6
December	9.8	24.5	9.8
Average	8.6	23.7	7.4
Am/Pm	1.2		
Estimated Annual Mean	27.2		
Bias-adjusted	18.5		

**Average 17.9**



**DT16 Regent Street – 66% data capture**

	Borehamwood Meadow Park	Regent	Borehamwood Meadow Park
January	30.3	<b>46.4</b>	30.3
February	32.5	<b>49.5</b>	32.5
March	19.0	<b>45.3</b>	19.0
April	20.1	33.2	20.1
May	14.9		
June	13.0	32.8	13.0
July	14.5	31.8	14.5
August	17.8	36.4	17.8
September	17.4		
October	21.6		
November	30.5	<b>47.6</b>	30.5
December	23.9		
Average	21.3	40.4	22.2
Am/Pm	1.0		
Estimated Annual Mean	38.7		
Bias-adjusted	26.3		

	Wicken Fen	Regent	Wicken Fen
January	14.4	<b>46.4</b>	14.4
February	14.3	<b>49.5</b>	14.3
March	7.9	<b>45.3</b>	7.9
April	7.9	33.2	7.9
May	6.2		
June	4.5	32.8	4.5
July	5.3	31.8	5.3
August	5.6	36.4	5.6
September	5.3		
October	8.0		
November	13.6	<b>47.6</b>	13.6
December	9.8		
Average	8.6	40.4	9.2
Am/Pm	0.9		
Estimated Annual Mean	37.6		
Bias-adjusted	25.6		

**Average 25.9**

**DT 56 Coldhams Lane 2 – 66% data capture**

	Borehamwood Meadow Park	Coldhams	Borehamwood Meadow Park
January	30.3	<b>41.1</b>	30.3
February	32.5	38.7	32.5
March	19.0	32.2	19.0
April	20.1	36.3	20.1
May	14.9		
June	13.0		
July	14.5	26.9	14.5
August	17.8	23.4	17.8
September	17.4		
October	21.6	31.8	21.6
November	30.5		
December	23.9	31.8	23.9
Average	21.3	32.8	22.5
Am/Pm	0.9		
Estimated Annual Mean	31.1		
Bias-adjusted	21.1		

	Wicken Fen	Coldhams	Wicken Fen
January	14.4	<b>41.1</b>	14.4
February	14.3	38.7	14.3
March	7.9	32.2	7.9
April	7.9	36.3	7.9
May	6.2		
June	4.5		
July	5.3	26.9	5.3
August	5.6	23.4	5.6
September	5.3		
October	8.0	31.8	8.0
November	13.6		
December	9.8	31.8	9.8
Average	8.6	32.8	9.1
Am/Pm	0.9		
Estimated Annual Mean	30.7		
Bias-adjusted	20.9		

**Average 21**

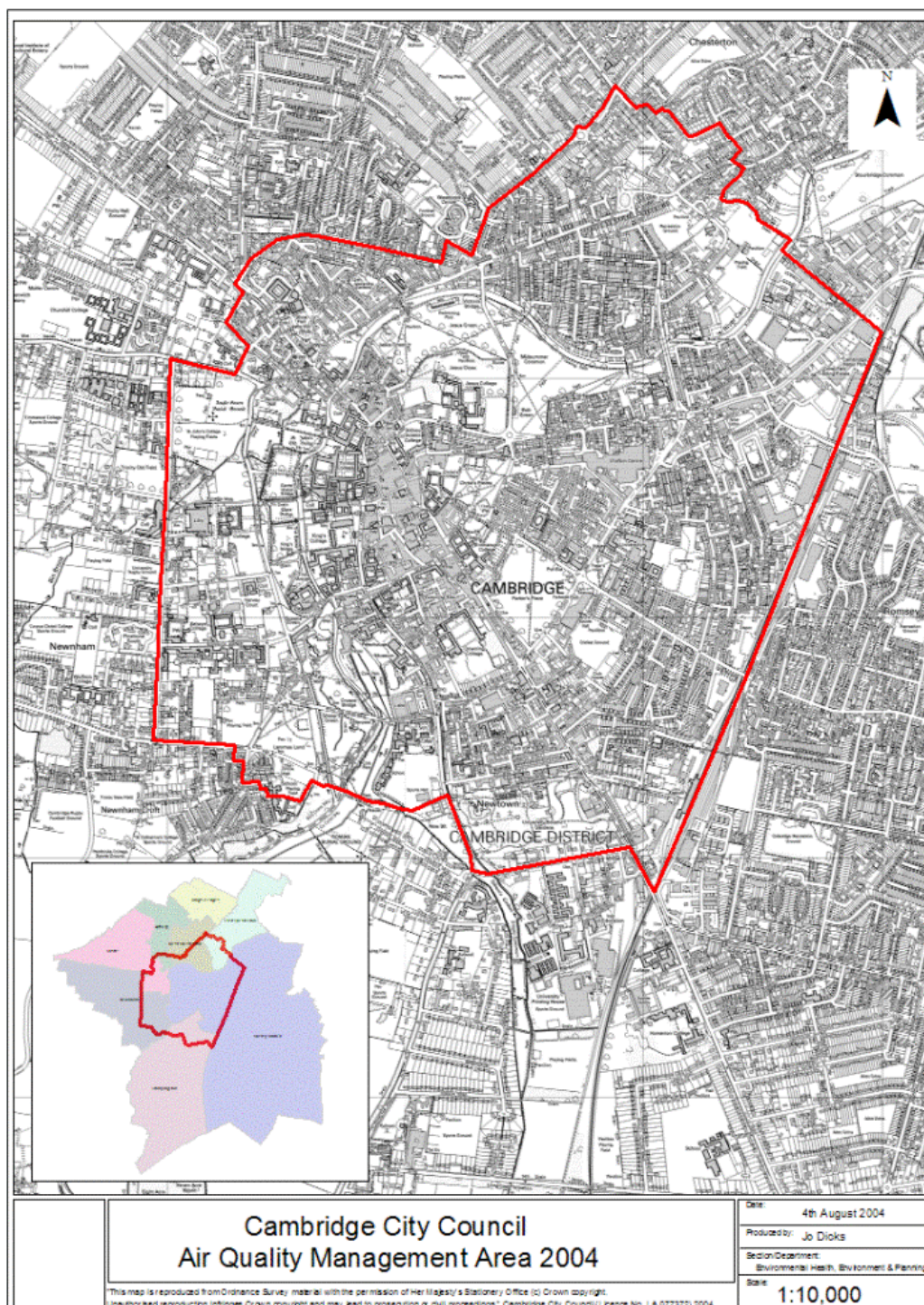
**Benzene**

**QA/QC**

Cambridge City Council has measured benzene at Cambridge Roadside on behalf of the national monitoring network since February 2008. Tubes are changed fortnightly by the LSO. Data is collected by Ricardo AEA.

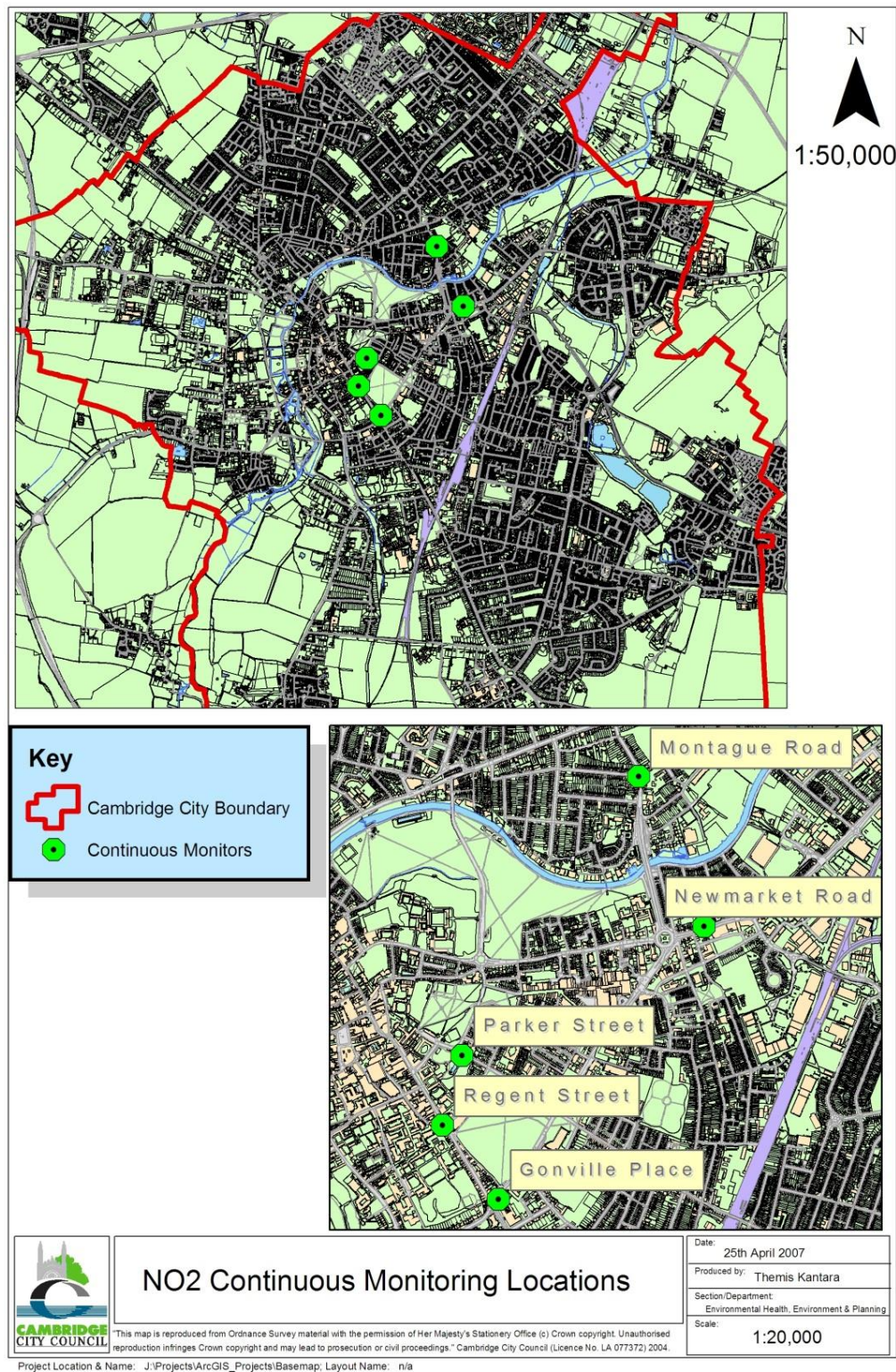
## Appendix D: Map(s) of Monitoring Locations and AQMAs

### Cambridge City Council Air Quality Management Area



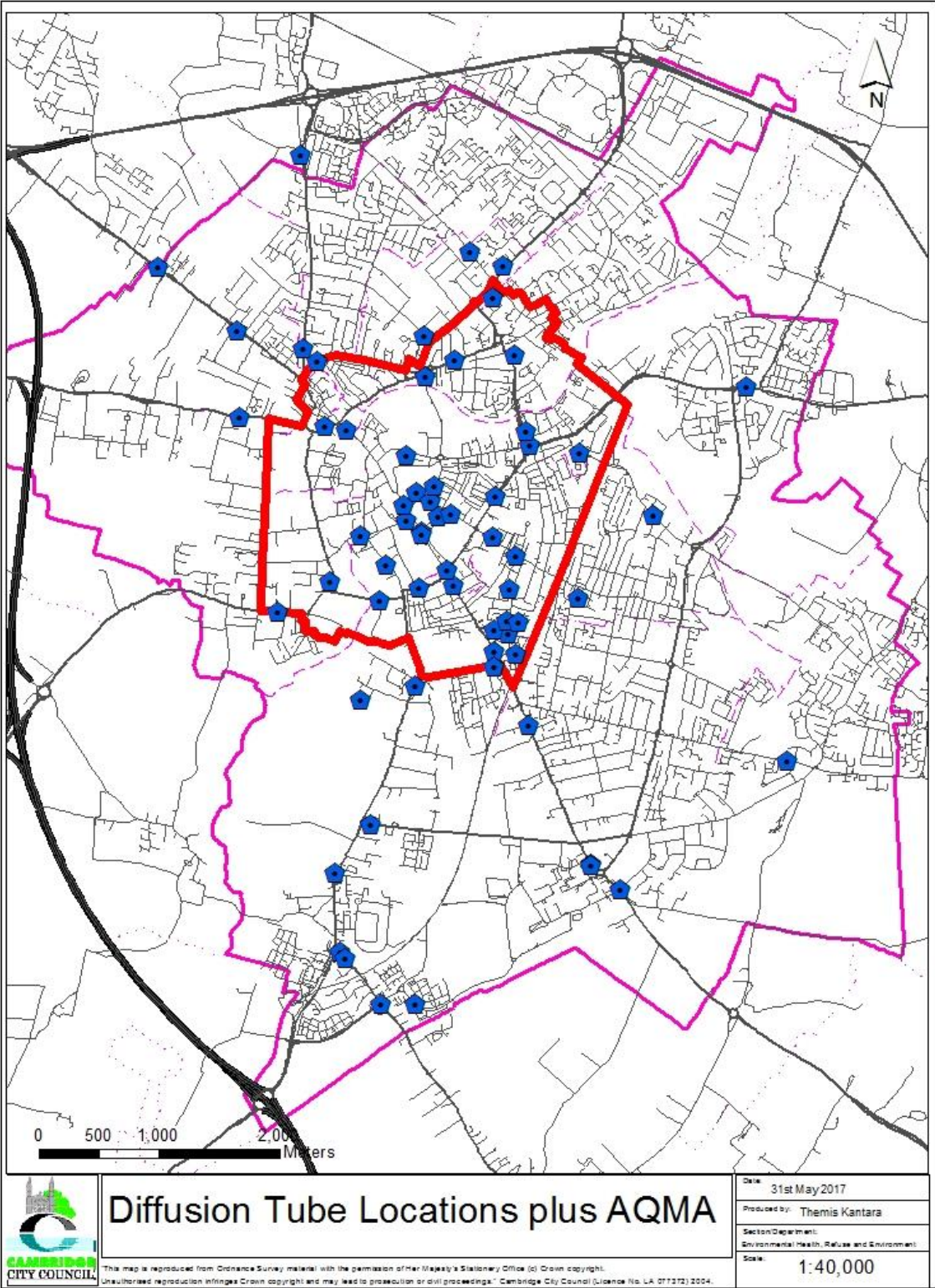


Map of the continuous monitoring locations. These are all in central Cambridge, within the AQMA.





Map of the diffusion tube locations, showing relationship to the Air Quality Management Area



## Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective <sup>29</sup>	
	Concentration	Measured as
Nitrogen Dioxide (NO <sub>2</sub> )	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m <sup>3</sup>	Annual mean
Particulate Matter (PM <sub>10</sub> )	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m <sup>3</sup>	Annual mean
Sulphur Dioxide (SO <sub>2</sub> )	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean

<sup>29</sup> The units are in microgrammes of pollutant per cubic metre of air (µg/m<sup>3</sup>).

## Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air Quality Annual Status Report
CPCA	Cambridgeshire and Peterborough Combined Authority
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
GCP	Greater Cambridge Partnership
LAQM	Local Air Quality Management
NO <sub>2</sub>	Nitrogen Dioxide
PM <sub>10</sub>	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM <sub>2.5</sub>	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control