



2023 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995
Local Air Quality Management, as amended by the
Environment Act 2021

Date: 29th June 2023

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Report Reference Number	ASR 2023
Date	29 th June 2023

Executive Summary: Air Quality in Our Area

Air Quality in Cambridge City

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. Additionally, air pollution particularly affects the most vulnerable in society: children, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas^{1,2}.

The mortality burden of air pollution within the UK is equivalent to 29,000 to 343,000 deaths at typical ages³, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017⁴.

The air quality in Cambridge has been continuing to improve since the Air Quality Management Area (AQMA) was declared in 2004 across the core centre of Cambridge due to exceedances of Nitrogen Dioxide against statutory objective levels (annual average of 40µg/m³). The main source of nitrogen dioxide in Cambridge is from vehicle emissions. Air quality tends to be better in the suburbs and away from busy roads than in the busy, narrow city centre streets, inner ring roads and on roads with high traffic levels. Pollutant levels fluctuate throughout the day with higher levels at peak hours.

The improvements to air quality across Cambridge City has been both in a response to active measures to improve air quality implemented by Cambridge City Council and its wider partners and a 'cleaner' vehicle fleet as older vehicle are replaced with newer 'cleaner' vehicles. Monitored levels of nitrogen dioxide were below this objective level in most locations prior to COVID and fell further during lockdowns in response to the subsequent restrictions; particularly those associated with the reduction in vehicle movements across the district. Monitored levels are still below pre-COVID levels for nitrogen dioxide and have

¹ Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

² Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

³ Defra. Air quality appraisal: damage cost guidance, January 2023

⁴ Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

been slow to return which can be attributed to the slow return of vehicle movements into the city in 2021 which carried over into 2022. One theory in the slow return of vehicles to the roads is linked to the slow return to the workplace given the nature of the industries within Cambridge which have enabled a shift to increased working from home, with people only now beginning to return to the workplace more by choice as opposed to necessity. In addition, retail footfall has slowly returned over the year with the summer months almost back to pre-pandemic levels.

Traffic counters in Cambridge show that traffic volumes have slowly been increasing across 2022. However, they are still lower than pre-covid levels in 2019, with 13% lower traffic volumes in December 2022. Lower traffic levels in December 2022 have been attributed to the cold weather experienced during this month, with people choosing to remain at home rather than venture into the office. Levels of nitrogen dioxide recorded via the diffusion tube monitoring network increased significantly across the district (with a couple of isolated exceptions) which is supported by the increased vehicles in 2022 when compared with 2020 and 2021. This marked increase was not seen across the automatic monitoring network with levels remaining broadly stable. This disparity in the results between the diffusion tubes and automatic monitors can be explained by localised traffic variations and issues with data collection influencing the monitoring results; introducing further uncertainty into the clarity of the results from the automatic monitoring network. This is discussed further in Section 3. However, all monitoring sites remained well below 2019 levels. Given that poor air quality is attributed predominantly to vehicle emissions in Cambridge these increases are to be expected, and it remains uncertain (particularly taking into account the continuing increase of vehicle movements within the city into 2023) what the new 'normal' post-COVID level will be compared with pre pandemic levels. At this time it is not possible to establish the impact that the pandemic has had on working patterns and whether levels will return to those recorded pre pandemic.

In addition to legal limits for nitrogen dioxide there are also legal limits for small particles, known as PM₁₀ (particulate matter of diameter less than or equal to 10 micrometres or microns). We also monitor PM_{2.5} (particulate matter of diameter less than or equal to 2.5 micrometres or microns) at two locations and whilst there are currently no legal limits there are recommended standards. The Government recently announced national targets for PM_{2.5} of 10µg/m³ annual average. Whilst this target has not been adopted as an objective level under LAQM Local Authorities have a responsibility to reduce PM_{2.5} within their district.

Whilst levels of Particulate Matter (PM₁₀ and PM_{2.5}) saw a reduction during the pandemic this was much less marked as emission sources for particulate matter are much more diverse and transient often originating from outside our district.

Public Health data indicates that in 2020, 48 deaths in Cambridge could be attributed to Particulate Air Pollution.

Recorded levels of PM₁₀ increased at all monitoring locations in 2022 although it is worth noting that the levels of PM₁₀ in Cambridge are below the legal limits. We only currently monitor at two locations for PM_{2.5}. Both sites have had prolonged periods of down time during 2022 so the results remain inconclusive with one site increasing and one decreasing when compared with levels recorded in 2021. Only a small proportion of overall particulate matter in Cambridge air is related to vehicular traffic, so significant drops in traffic levels will only have a small impact on overall particulate pollution levels in the city.

Levels of all measured pollutants are currently below their respective national air quality objectives levels. Whilst these improvements in air quality offer health benefits; it is widely accepted that there is no safe level of air pollution⁵, so we continue to work with our partners to achieve lower levels. Our air quality improvement work focuses on ways to reduce vehicle emissions as well as reducing other sources of air pollution, with increased focus moving forward to reduce local sources of particulate matter. We are striving to maintain and improve air quality despite continuing population increases and extensive development across the district and in surrounding villages.

Data for 2022 represented the first full year of data post pandemic. The picture forming is that of a slow return of vehicles to the City, as people slowly return to the work place and therefore a subsequent slower increase of pollutant levels across the city. Initial indication from national sources suggests that vehicle movements across the UK have plateaued at a new post-COVID 'normal'. This is not considered to be representative within Cambridge based on the 2022 results, with further increases expected in 2023. It is still too early to establish the picture of air quality within the city and whether COVID 19 has led to a permanent shift in working patterns and behaviour that will see a sustained reduction in future years. In parallel, work continues on projects across the city to improve infrastructure enabling a modal shift away from private cars to alternative modes of transport.

⁵ www.gov.uk/government/collections/comeap-reports

Air Quality data for 2022 is provided in Chapter 3 and Appendix A.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

The Environmental Improvement Plan⁶ sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term PM_{2.5} targets. The National Air Quality Strategy (for which a draft was consulted on in early 2023), will provide more information on local authorities' responsibilities to work towards these new targets and reduce PM_{2.5} in their areas. The Road to Zero⁷ details the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

Locally, planning and action to improve air quality involves working with a range of public sector partners, 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, as such, has a legal responsibility to work with the City Council and to the development and monitoring of actions to improve air quality in the city. Both councils have worked together for more than 15 years to bring in measures to improve the city's air quality. The Greater Cambridge Partnership (GCP) 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 the Greater Cambridge area (Cambridge and South Cambridgeshire) that keeps people and businesses physically connected as the area continues to grow. The GCP focusses on improvements to public transport and active travel modes, such as cycling and walking. The

⁶ Defra. Environmental Improvement Plan 2023, January 2023

⁷ DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

Cambridgeshire and Peterborough Combined Authority (CPCA), led by an elected Mayor, has adopted the strategic responsibilities for highways, traffic and public transport. CPCA officers are now fully engaged with the Cambridge Air Quality Action Planning process.

In 2017, we developed an Air Quality Action Plan with Cambridgeshire County Council and the GCP, which sets out how we can reduce polluting emissions in the city, with cleaner air for all residents, visitors and workers in the city.

This Plan for Cambridge was approved unanimously at the Environment Scrutiny Committee in 2018 and sets out the council's priorities up to 2023, 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.

We have begun to work on our new AQAP. In parallel to this we are developing a Greater Cambridge Clean Air Strategy with South Cambridgeshire. This will align the approach of the two councils in minimising impact on air pollution (particularly in relation to new developments) and will sit within the new Emerging Greater Cambridge Local Plan Air Quality Policy. We hope to take both the new AQAP and Air Quality Strategy to committee

in late 2023 with the adoption of both in line with the adoption of the new Greater Cambridge Local Plan in 2024. The revised and updated AQAP will continue to build on the work already achieved. However, it is worth noting that the AQAP will be influenced heavily by the decision on whether to proceed with the plans for a Sustainable Travel Zone which was widely consulted on in 2022 with a decision expected later in 2023.

Conclusions and Priorities

Whilst levels of Nitrogen dioxide remain below pre-COVID levels for a further year, there has been a significant increase across the monitoring network which can be accounted for by the slow return of vehicles into the city which has only begun to increase in the latter part of 2022. Further increases in measured pollutants are expected in 2023. Measured levels of PM₁₀ have increased across all monitoring locations and in one location (Parker Street) are at pre-COVID levels.

Given that the primary local source of pollution within Cambridge City is from vehicle emissions no changes to the Air Quality Management Area are proposed at this time. We need to fully understand where pollutant levels will settle post COVID in order to continue to effectively maintain and improve air quality moving forward given the scale of development coming forward over the next 10 years. Uncertainty still exists into 2023 in the following areas:

- Increasing vehicle movements and subsequent increased nitrogen dioxide levels were recorded in 2022 with further increases expected in 2023. It remains unclear at this time where pollutant levels will settle post COVID.
- A decision on whether to proceed with the proposed Sustainable Travel Zone and in what format will be made later in 2023. This will heavily influence future decisions made to address air quality as in its current format it is predicted to bring about a 50% modal shift away from private vehicles which could alleviate the majority of air quality issues related to nitrogen dioxide in future years.
- The Automatic Monitoring Network is in the process of being replaced. This has been delayed due to supply issues on both monitors and cabinets. Due to the age of the existing equipment, the need to remove a key monitor due to redevelopment of a site (Gonville Place) we have large gaps in the data for 2022. Further to this we have concerns about the reliability of the data from Newmarket Road due to the suitability of the location and age of the equipment. Taking this into account we are not confident that

the monitored pollutant levels in 2022 are representative of existing levels at this time. The new monitors will record nitrogen dioxide and PM (PM₁₀ and PM_{2.5}) at all sites.

Priorities for 2023

- Continue to deliver the measures already underway that stalled during 2020 and 2021 and begin work on new measures in accordance with our Air Quality Action Plan.
- Await decision on the Sustainable Travel Zone which will help shape the landscape of air quality across the city and any intervention measures required moving forward.
- Develop updated and revised AQAP and Greater Cambridge Air Quality Strategy
- To increase confidence in the data collected across the city complete the Automatic Monitor Replacement Programme and implement the 'wind cap' diffusion tube project
- Work with the Greater Cambridge Planning Service to implement further measures to minimise impact of development on air quality.
- Continue to work with the Greater Cambridge Partnership and the Cambridgeshire and Peterborough Combined Authority to support strategic transport planning and infrastructure investment.
- Continue to work with Cambridgeshire County Council on matters relating to the highways and public health.

The greatest challenge faced across Cambridge City in relation to air quality is maintaining and continuing to improve air quality across the city in response to the planned population increase and development coming forward over the next 10 years. This requires close working with the planning department and there are concerns that national planning policy could easily undermine the ability to deliver air quality improvements at a local level particularly in areas where pollutants are below LAQM objective levels.

Further to this we continue to work with the planning department through the deployment of local policy and with key partners to deliver the infrastructure required to support the switch from internal combustion engine to low emission vehicles for both private and public fleets which is required for wider air quality improvements.

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 which is reviewed and updated regularly. We try to ensure access to information and who has responsibility for key areas is as clear as possible on our website; linking with partner organisations to signpost residents effectively. Our website also links directly to both UK-Air and Air Quality England so residents can access real time monitoring data within the district. Cambridgeshire County Council includes air quality information on its [Cambridgeshire Insight](#) information website.

Cambridge City Council is fortunate that well established partnerships have been formed over the years with other key delivery organisations and we work closely with these partners in promoting and disseminating information about air quality. For example for Clean Air Day and the School Streets pilot, which has raised awareness of air quality within schools in the District.

Cambridge residents are very engaged with air quality issues and frequently raise questions or make suggestions via our email eqg@cambridge.gov.uk

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.
- Use walking or cycling for short trips in the City.
- Try using public transport.
- Try using one of the scooter or bike hire schemes in the City for short journeys, if you don't own your own bike.

- Information on [public transport](#) around Cambridge can be found on the Cambridgeshire County Council website, as well as the Cambridgeshire and Peterborough Combined Authority [website](#).
- My [Bus Trip](#) is a useful app for real-time bus information.
- [MotionMap](#) is a journey-planning app for travel by bus, train, walking and cycling; it's available from app stores. [Citymapper](#) includes Cambridge as part of its London mapping area.
- Walking and cycling help you to stay physically and mentally healthy plus save you money in fuel costs.
- 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](#).
- 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 – More people than ever are buying electric vehicles. There are charging points at on-street locations across the city and in some of our car parks. Plans are underway to introduce more to meet demand.
- If you own more than one car, consider if you could sell one and make use of a car club instead? As well as reducing air pollution, for many people this will save them money too. There are two car clubs in Cambridge. [Enterprise](#) has 37 vehicles for short or longer term use in Cambridge and [Zipcar](#) has 12.
- If you only own one car, could you switch more of your journeys to public transport, walking and cycling, and use a car club for those trips where you really need a car?
- 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 eqg@cambridge.gov.uk.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Cambridge City Council with the support from colleagues within Cambridgeshire County Council and the Greater Cambridgeshire Partnership.

This ASR has been approved by:

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1 Local Air Quality Management

This report provides an overview of air quality in Cambridge City during 2022. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), 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 order to achieve and maintain the objectives and the dates by which each measure will be carried out. 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 are presented in Table E.1.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained; and provide dates by which measures will be carried out.

A summary of AQMAs declared by Cambridge City Council can be found in Table 2.1. The table presents a description of the AQMA that is currently designated within Cambridge City Council. 'Appendix D: Map(s) of Monitoring Locations and AQMAs' provides a map of the AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designation are as follows:

- NO₂ annual mean

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Cambridge	2004	NO2 Annual Mean	An area encompassing the inner ring road and all the land within it	NO	Parker St 49 (CM) Emmanuel St 59 (DT) micrograms per cubic metre	0	5	Cambridge Air Quality Action Plan, 2018	https://www.cambridge.gov.uk/air-quality-action-plan

☒ Cambridge City Council confirm the information on UK-Air regarding their AQMA(s) is up to date

☒ Cambridge City Council confirm that all current AQAPs have been submitted to Defra

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

Defra's appraisal of last year's ASR concluded that the report was well structured, detailed and provides the information specified in the guidance. It went on to say that the report provided good, detailed discussion on NO₂ trends within the borough including for monitoring locations in different key areas around the city; as well as on the status and future of the Cambridge AQMA and justification for its retention. See below actions for consideration in future reports and our response on how (if applicable) they have been incorporated into this years report:

- Figures should be produced that show the results from each individual monitoring location so that the reader can easily make comparisons to the NO₂ annual mean AQO for monitoring sites in every area of the city, not just key areas.

Response: Given that we have an extensive network of diffusion tubes across the city we have split the results into groups based on the type of location or specific area of interest (typically in response to areas of major development and growth). In response to the comments above we have incorporated more of the tubes into these trend graphs however given the number of tubes we do not feel it is practical to provide trend data for each of the individual tubes.

- Table 2.2 should be filled in as much as possible as for quite a few measures, the funding status and estimated cost is not given.

Response: Where possible this information has been provided in Table 2.2.

- The maps in Appendix D should be made clearer by making the figures larger (perhaps by making the pages that the figures are on, portrait) and by putting labels showing each monitoring location and the AQMA area on each figure. This would make reading and understanding the maps easier for the reader and make it easier to determine whether the monitoring network is still fit for purpose.

Response: As requested the maps have been made larger. Again, given the number of diffusion tubes it is not practical to have labels on these maps. The map is available online and as you zoom in on it and click on a specific tube it gives you the name and location. We will be updating our web pages including all maps over the coming months to respond to the changes in the monitoring network we have made during 2023. We will take account of

DEFRA comments when we are undertaking this work and will consider how this can be integrated more effectively into future reports.

- In future reports, it would be good to have a section where planning applications are discussed and assessed, and whether they would have an impact on the status of the Cambridge AQMA and on the impact of general air quality in the borough.

Response: references to development is integrated throughout the report with additional text added in Section 2.2. Changes have been made to the monitoring network in 2022 and we will include a section specific to planning in next years report in response to these changes.

Cambridge City Council has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 132 measures are included within Table 2.2, with the type of measure and the progress Cambridge City Council have made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

Most of the projects currently in the Air Quality Action Plan are already ongoing, completed, or longer term projects. Key completed measures for 2022 are:

- Histon Road bus and cycle lane improvements
- Electric charge points on-road for residents and visitors (with County)
- Contract in place to install Electric car charging points in Council run car parks
- Zebra Buses – 30 new zero emission double-decker buses on all P&R routes into Cambridge and on two City Centre routes in Cambridge. This also includes the upgrade of the depot to allow charging infrastructure to be installed.
- Chisholm Trail – 1st Phase complete
- Improvements to cycle lanes – East Road
- Cambridge South Station – construction has begun

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

- Milton Road bus and cycle lane improvements
- Taxi charge point project (OLEV Funded)
- 1st phase of new electric car charging points in council run car parks
- Decision on Sustainable Travel Zone

- Joint Air Quality Strategy with South Cambridgeshire District Council which forms Greater Cambridge under the joint planning service
- New AQAP
- Local Transport and Connectivity Plan
- Decisions on: Cambridge South East / Cambourne to Cambridge offroad bus, cycle and walking route/ Waterbeach to Cambridge
- Construction of Greater Cambridge Greenways to begin
- Whippet Buses - 9 new zero emission single decker buses to operate the Universal bus service through the heart of the city to be delivered by the end of the year. This will bring the number of pure electric buses operating in central Cambridge up to 41, all of them focused on short distance, high-frequency routes where they can offer the greatest benefits.

Focus continues to be on major transport projects with key decisions being made in the coming year on the Sustainable Travel Zone, Cambridge South East, Cambourne to Cambridge and Waterbeach to Cambridge. These will all allow for long term demand management planning and encourage modal shift for visitors and residents in Cambridge, reducing congestion and resulting in improved air quality.

The emerging Greater Cambridge Local Plan which is scheduled for adoption in early 2024 will see a single air quality policy for both Cambridge City and South Cambridgeshire District Council. Under the two existing local plans air quality policy is approached quite differently. The opportunity exists to streamline the approach for reducing emissions across both districts under a new Joint Greater Cambridge Air Quality Strategy. This makes sense given the scale of development within both districts coming forward in the next ten years with many of the major growth sites straddling both districts. The greatest challenge faced by Cambridge City is both maintaining and continuing to improve air quality despite major growth. Development Control has a key role to play in this and the emerging local plan and joint air quality strategy will ensure that all new development within the Greater Cambridge Area will continue to consider impact on air quality both inside and outside the AQMA and minimise emissions enabling improvements in air quality longer term. Environmental Health are widely consulted at the pre app stage on major growth sites enabling the issue of air quality to be raised early on and measures to minimise the impact of development on air quality at both the construction and operational phase.

The new Air Quality Action Plan will integrate measures included within both the Air Quality Strategy and the Local Transport and Connectivity Plan.

Cambridge City Council's priorities for the coming year are as follows:

- *Develop Greater Cambridge Air Quality Strategy* – to be adopted alongside the Joint Local Plan this will continue to build on the improvements in air quality already achieved and integrate further measures within development control to minimise emissions across all developments within Greater Cambridge.
- *Develop updated and revised AQAP* – This will sit alongside the Greater Cambridge Air Quality Strategy and pull together measures (both existing and new) that are being developed and implemented within Cambridge City by Cambridge city Council and wider partners to ensure air quality is below NAQO levels, as well as resulting in improvements in air quality in the longer term.
- *Sustainable Travel Zone* – Recommendations for a Sustainable Travel Zone were consulted on widely in 2022 with a decision expected later in 2023 (www.greatercambridge.org.uk/sustainable-transport-programme/city-access-programme/making-connections) . If implemented this will affect how traffic is managed on entering the City and could encourage a significant modal shift of up to 50% of residents and visitors within the City away from private vehicles. The outcome of this decision and subsequent roll out will impact significantly on future decisions being undertaken by both the city council and wider partners moving forward including on for example road hierarchy changes, integrated parking strategic measures, freight consolidation measures and last mile delivery measures.

Cambridge City Council worked to implement these measures in partnership with the following stakeholders during 2022:

- South Cambridgeshire District Council
- Greater Cambridgeshire Partnership
- Cambridgeshire County Council
- Cambridgeshire and Peterborough Combined Authority

The principal challenges and barriers to implementation that Cambridge City Council anticipates facing are the lack of ambitious statutory requirements from National Government with regards to air quality. This could mean that the Joint Air Quality Strategy and AQAP are not given enough weight when planning decisions are made plus access to funding to implement costly measures to facilitate modal shifts and behavioural change.

The proposed Sustainable Travel Zone, corridor schemes and wider raft of pedestrian, cycle and bus lane improvement represent a package of measures to encourage modal shift away

from private vehicles towards public transport schemes and more active travel. Should the proposals for the Sustainable Travel Zone either not go ahead or be changed following the extensive consultation Cambridge City Council and wider partners will be looking at other measures to achieve this significant modal shift away from private vehicle use. This could include a Clean Air Zone. The proposed corridor schemes represent a significant increase in public transport provision within the City Centre and without a significant reduction in private vehicles these public transport schemes could find themselves stuck in congestion, discouraging wider take up and undermining the modal shift potential of such schemes. These public transport schemes also need to be operated by zero emission vehicles to avoid major routes used by these schemes seeing an increase in pollution due to the increased volumes of public vehicles.

Progress on the following measures has been slower than expected:

- Progress on the Cambourne to Cambridge scheme has been slower than expected due to concerns from various parties about the scheme and how it would align with the now defunct Cambridge Metro scheme. Following Independent Review in 2021 the scheme has now proceeded to preparing the Environmental Impact Assessment (EIA). The Transport and Works Act Order for the scheme, including the EIA, will be submitted in 2023.
- Consultation on extension of the Smoke Control Areas to cover the whole district has been further delayed as updated guidance setting out the detail of the amendments to SCA legislation following the amendments to the Environment Bill was not released until early 2023. The aim is to consult on this measure in late 2023.
- Installation of Electric Vehicle Charge Points for Taxis - 5 charge points were installed at the beginning of 2022/23, with a further 3 sites expected in 2023/24 to complete this project. We have seen a continued increase in the amount of usage since early 2021 with the rate of increase remaining consistent throughout.

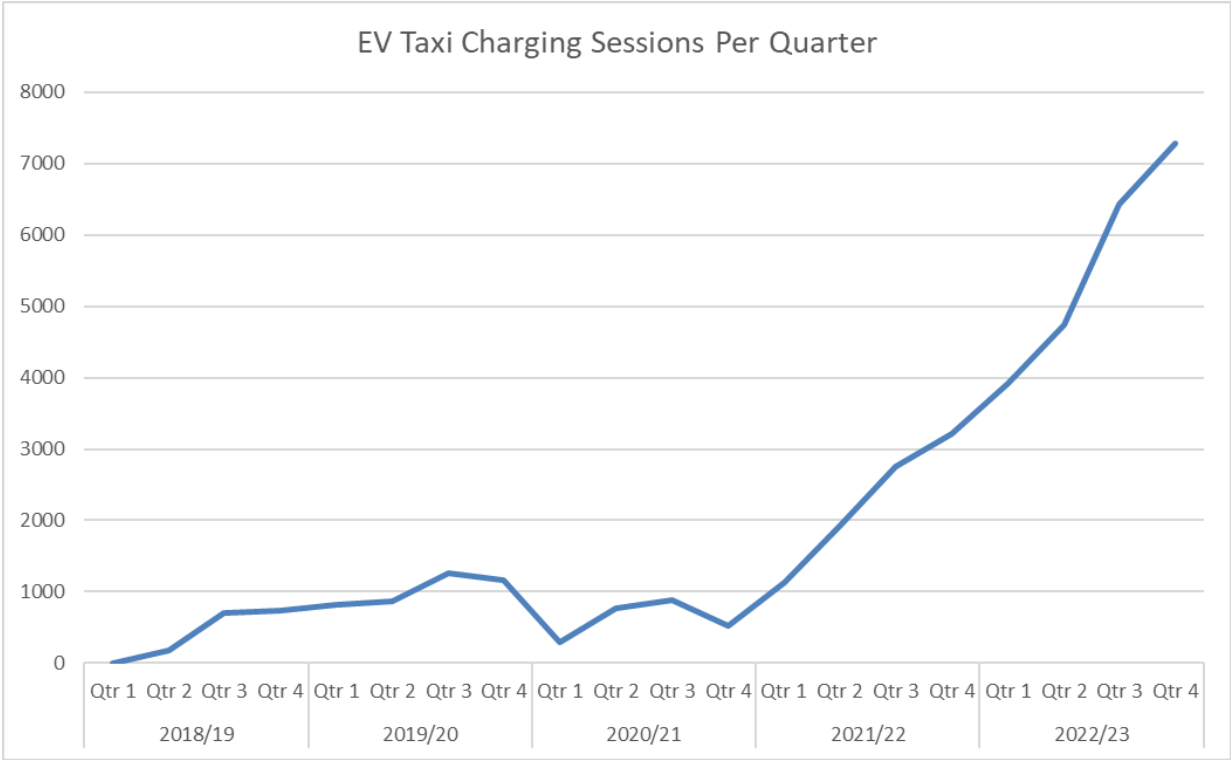


Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1a	Expansion of Park and Ride Services	Alternatives to private vehicle use	Bus based Park & Ride	2019	2025	Cambridgeshire County Council / Greater Cambridge Partnership / CPCA	Greater Cambridge Partnership	NO	Fully funded	> £10 million	Planning	This measure is to provide an alternative option to support future travel requirements and reduce emissions from private vehicles.	No additional pollution from additional bus services	The GCP has increased provision at Trumpington Park and Ride by 274 spaces and additional 5 bus bays. The GCP has also extended Babraham Park and Ride. Cambridge South West Travel Hub has planning permission and is due to begin construction in 2024/25. The GCP's programme includes plans for c.6500 new spaces at three new P&R sites.	Work is ongoing at other sites through preparation of EIA / Transport orders.
1b	Expansion of Park and Ride Services	Alternatives to private vehicle use	Rail based Park & Ride	2019	2025	Greater Cambridge Partnership	Greater Cambridge Partnership	NO	Not Funded	< £10k	Planning	This measure is to provide an alternative option to support future travel requirements and reduce emissions from private vehicles.	Completion and opening	A Park and Ride is planned for Foxton railway station. More information: http://www.greatercambridge.org.uk/transport/transport-projects/	Approved at Dec21 GCP committee.
2	Quality Bus partnerships	Alternatives to private vehicle use	Other	2012	2035	CPCA	CPCA	NO	Not Funded	< £10k	Implementation	This measure is to provide an alternative option to support future travel requirements and reduce emissions from private vehicles.	QBP agreement for current services and all new services	Operators waiting for outcome of CPCA bus services review and central government bus strategy.	CPCA Looking at bus provision in the region.
3	Camshare	Alternatives to private vehicle use	Car & lift sharing schemes	2012	2040	Cambridgeshire County Council	Cambridgeshire County Council	NO	Partially Funded	£1 million - £10 million	Implementation	This measure is to provide an alternative option to support future travel requirements and reduce emissions from private vehicles.	n/a	5,000 members	Ongoing routine. Http://www.travelcambs.org.uk/car-share/
4	Provision of car parking spaces for car club vehicles	Alternatives to private vehicle use	Car Clubs	2012	2040	Parking Services Cambridge City Council	Car club providers	NO	Funded	£1 million - £10 million	Completed	This measure is to provide an alternative option to support future travel requirements and reduce emissions	n/a	Cambridge City Council and Cambridgeshire County Council procured a car club operator to operate a car club. Currently 1438 members. 37 vehicles, and all are hybrid.	Council working with OZEV to install electric charge points on street and in car parks for car club use.

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												from private vehicles.			
5	Provision of on-street car club parking spaces	Alternatives to private vehicle use	Car Clubs	2012	2040	Parking Services Cambridge City Council / Cambridgeshire County Council	Car club providers	NO	Funded	£1 million - £10 million	Completed	This measure is to provide an alternative option to support future travel requirements and reduce emissions from private vehicles.	n/a	Cambridge City Council and Cambridgeshire County Council procured a car club operator to operate a car club. Currently 1438 members. 37 vehicles, and all are hybrid.	Council working with OZEV to install electric charge points on street and in car parks for car club use.
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	2020	2025	Environmental health / Planning / Cambridge City Council	Developers via S106 or other agreement	NO	Funded	< £10k	Completed	This measure is to provide an alternative option to support future travel requirements and reduce emissions from private vehicles.	n/a	Not recorded	Planning requirement in AQAP V2 and included in SPD.
7	Require 1 car club vehicle per 500 parking spaces, in a new development, 1 vehicle per 10,000 m2 in non-residential developments.	Alternatives to private vehicle use	Car Clubs	2020	2025	Environmental health / Planning / Cambridge City Council	Developers via S106 or other agreement	NO	Funded	< £10k	Completed	This measure is to provide an alternative option to support future travel requirements and reduce emissions from private vehicles.	n/a	Not recorded	Planning requirement in AQAP V2 and included in SPD.
8	Promotion of electric bike hire / hub schemes	Alternatives to private vehicle use	Other	2019	2025	Environmental health / Planning / Cambridge City Council	Project basis	NO	Funded	< £10k	Completed	This measure is to provide an alternative option to support future travel requirements and reduce emissions from private vehicles.	n/a	Cambridge City Council successfully bid for 30 e-cargo bikes, for councils, business and resident use, which are now in use. The other are in schemes which allow residents and businesses to use.	Forward thinking developers are already proposing e-bike hubs on large developments as sustainable transport infrastructure to mitigate air pollution impact. Business parks are now looking at how they could offer electric bike hire.

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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	2019	2025	Environmental health / Planning / Cambridge City Council	Project basis	NO	Funded	< £10k	Completed	This measure is to provide an alternative option to support future travel requirements and reduce emissions from private vehicles.	n/a	Cambridge City Council successfully bid for 30 e-cargo bikes, for councils, business and resident use, which are now in use. The others are in schemes which allow residents and businesses to use.	Forward thinking developers are already proposing e-bike hubs on large developments as sustainable transport infrastructure to mitigate air pollution impact. Business parks are now looking at how they could offer electric bike hire.
10	Develop policies to promote electric bike charging facilities in workplaces / car parks / require in new workplaces.	Alternatives to private vehicle use	Other	2019	2025	Environmental health / Planning / Cambridge City Council	Project basis	NO	Funded	< £10k	Planning	This measure is to provide an alternative option to support future travel requirements and reduce emissions from private vehicles.	n/a		Will need to complement existing cycle parking requirements and space implications. Will need to consider if access is open or restricted.
11	Provision of electric scooters (trial)	Alternatives to private vehicle use	Other	2020	2023	CPCA	Operator	NO	Funded	< £10k	Implementation	This measure is to provide an alternative option to support future travel requirements and reduce emissions from private vehicles.	n/a	400 e-scooters and 100 e-bikes in DfT trial, patronage increasing now that lockdown has eased.	12 month trial in and around Cambridge. VOI funds the trial. No cost to the Council. VOI report 27% of our riders in Cambridge reported that they are using e-scooters for journeys which were previously taken by car, ride-share or taxi. Responses based on in-app survey in 2021. Trial initially extended to Nov 2022. Confusion over whether trial just operates in City or surrounding areas.
17	Last mile delivery based from P&R sites	Freight and Delivery Management	Delivery and Service plans	2023	2026	Cambridge City Council / Cambridgeshire County Council / CPCA / Greater Cambridge Partnership	Cambridge City Council / Cambridgeshire County Council / CPCA / Greater Cambridge Partnership	NO	Not Funded	< £10k	Planning	This measure is to reduce the number of domestic and business deliveries, thus reducing traffic and emissions	n/a	The GCP is exploring freight consolidation pilot for the city centre.	The trial has the potential to link with P&R sites for outward goods.

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18	Click and Collect Hubs at P&R sites	Freight and Delivery Management	Freight Consolidation Centre	2023	2026	Cambridge City Council / Cambridgeshire County Council / CPCA / Greater Cambridge Partnership	Cambridge City Council / Cambridgeshire County Council / CPCA / Greater Cambridge Partnership	NO	Not Funded	< £10k	Planning	This measure is to reduce the number of domestic and business deliveries, thus reducing traffic and emissions	n/a	The GCP is exploring freight consolidation pilot for the city centre.	The trial has the potential to link with P&R sites for outward goods.
19	Unified consolidation Centres	Freight and Delivery Management	Freight Partnerships for city centre deliveries	2023	2026	Cambridge City Council / Cambridgeshire County Council / CPCA / Greater Cambridge Partnership	Cambridge City Council / Cambridgeshire County Council / CPCA / Greater Cambridge Partnership	NO	Not Funded	< £10k	Planning	This measure is to reduce the number of domestic and business deliveries, thus reducing traffic and emissions	n/a	The GCP is exploring freight consolidation pilot for the city centre.	The CPCA LTP policy to promote sustainable urban freight distribution is under development. This would have a regional emphasis but would benefit all areas. A Pilot is planned for implementation in the next 12 months
20	City Centre restrictions	Freight and Delivery Management	Quiet & out of hours delivery	2014	2015	Cambridgeshire County Council / Cambridge City Council	Cambridgeshire County Council / Cambridge City Council	NO	Funded	£50k - £100k	Completed	This measure is to reduce the number of domestic and business deliveries, thus reducing traffic and emissions	n/a	HGV, vans and private vehicles not permitted in Cambridge Core Area 10am - 4pm. Public consultation on initial ideas for further city centre vehicular restrictions undertaken in Summer 2022	The GCP-led review of the city road network user hierarchy proposes extending vehicular access restrictions across a wider part of the city centre to prioritise walking and cycling and reduce traffic levels and emissions
22a	Cycle Delivery Services	Freight and Delivery Management	Other	2014	2015	Cambridgeshire County Council / Cambridge City Council	Commercial operators	NO	Funded	£50k - £100k	Completed	This is to reduce traffic and keeping levels below NAQO in future.	n/a	GCP considering further incentives for cycle deliveries	Zedify (Cambridge) use specialist cargo-bikes and electric vehicles. Cycle deliveries are used for home delivery of take-away food.
22b	Provision of e-cargo bikes to local businesses and deliveries	Freight and Delivery Management	Other	2020	2022	Cambridgeshire County Council / Cambridge City Council	eCargo Bike grant fund, GCP, City Changer Cargo Bike (Horizon 2020 project)	NO	Funded	£100k - £500k	Completed	This is to reduce traffic and keeping levels below NAQO in future.	n/a	4 new bikes in use in the City Centre and trial scheme set up for business to "try before you buy"	Scheme continues to be built upon and significant learning around insurance, storage, charging, locking and booking systems has been made. Scheme continues to attract interest.

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23	Air Quality Policy in Joint Local Plan	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2023	2030	Environmental Health / Planning / Joint Team City and SCDC	Environmental Health / Planning / Joint Team City and SCDC	NO	Funded	< £10k	Planning	This is to reduce traffic and emissions and keeping levels below NAQO in future.	Air Quality policies in Joint Local Plan	Plan in preparation, policies to be prepared in 2023	Issues and Options report has been consulted upon. The preferred options plan is now in preparation which shows a joint approach to air quality in the emerging policy.
24	Air Quality Policy in Local Plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2018	2024	Environmental Health / Planning / Joint Team City and SCDC	Environmental Health / Planning / Joint Team City and SCDC	NO	Funded	< £10k	Completed	This is to reduce traffic and emissions and keeping levels below NAQO in future	Air Quality policies in Local Plan	IN use	Completed
25	Adopt / revise a Low Emissions Strategy	Policy Guidance and Development Control	Low Emissions Strategy	2018	2024	Environmental Health / Planning / Joint Team City and SCDC	Environmental Health / Planning / Joint Team City and SCDC	NO	Funded	< £10k	Planning	This is about keeping levels below NAQO	Completion of new LES	SCDC have a Low Emissions Strategy in place. Cambridge City Council could adopt similar LES or work with SCDC on joint guidance.	To be considered with Joint Local Plan discussions.
26	Supplementary Planning Documents	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2018	2024	Environmental Health / Planning / Joint Team City and SCDC	Environmental Health / Planning / Joint Team City and SCDC	NO	Funded	< £10k	Completed	This is about keeping levels below NAQO	Completion of Sustainable Construction and Development SPD.	City and SCDC committees approved in 2020	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 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	2018	2019	Environmental Health / Planning / Joint Team City and SCDC	Environmental Health / Planning / Joint Team City and SCDC	NO	Not Funded	< £10k	Aborted	n/a	Update of Air Quality in Cambridge: Developers Guide	Not yet started	Not taken forward. Detail included in SPD. 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	2019	2020	Environmental Health / Planning / Joint Team City and SCDC	Environmental Health / Planning / Joint Team City and SCDC	NO	Not Funded	< £10k	Implementation	This is about keeping levels below NAQO	Production of new guidance to support policy 36	Included in SPD and used since adoption in 2020	Useful for larger sites.
29	Sustainable Procurement Guidance	Policy Guidance and Development Control	Sustainable Procurement Guidance	2021	2021	Environmental Health - Cambridge City Council / SCDC	Environmental Health - Cambridge City Council / SCDC	NO	Not Funded	< £10k	Completed	n/a	n/a	Environmental factors are included in the Council's tender documents to ensure all procurements consider economic, social and environmental issues.	Completed

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30	Develop policies to require Health Impact Assessments (HIA) at pre-application stage.	Policy Guidance and Development Control	Other policy	2023	2024	Environmental Health / Planning / Joint Team City and SCDC / CPCA - health team	Environmental Health / Planning / Joint Team City and SCDC / CPCA - health team	NO	Not Funded	< £10k	Planning	This is about reducing exposure	n/a	Early discussion phase	To ensure healthy communities are part of the design, and not an add on to a development.
31	Air Quality Joint Strategic Needs Assessment for Transport and Built Environment	Policy Guidance and Development Control	Other policy	2023	2024	Environmental Health / Planning / Joint Team City and SCDC / CPCA - health team	Environmental Health / Planning / Joint Team City and SCDC / CPCA - health team	NO	Not Funded	< £10k	Completed	This is about reducing exposure	To ensure that Healthy Community Strategies are embedded in JSNA	n/a	Complete
32	Public Health to be consulted on in preparation of SPDs	Policy Guidance and Development Control	Other policy	2023	2024	Environmental Health / Planning / Joint Team City and SCDC / CPCA - health team	Environmental Health / Planning / Joint Team City and SCDC / CPCA - health team	NO	Not Funded	< £10k	Implementation	This is about reducing exposure	n/a	ongoing	Public Health Representative present at AQAP Steering Group Meetings and in discussions with officers about updates to AQ Policy.
33a	Require a site wide EV charging strategy for all large-scale Major development sites.	Policy Guidance and Development Control	Other policy	2019	2030	Cambridge City Environmental Health / Planning	Cambridge City Environmental Health / Planning	NO	Not Funded	< £10k	Completed	Will reduce the impact of additional development	n/a	In place	Planning requirement in AQAP V2 and included in SPD.
33b	Require a minimum of one slow EV charger for each dwelling with allocated parking (100% coverage)	Policy Guidance and Development Control	Other policy	2019	2030	Cambridge City Environmental Health / Planning	Cambridge City Environmental Health / Planning	NO	Not Funded	< £10k	Completed	Will reduce the impact of additional development	n/a	In place	Planning requirement in AQAP V2 and included in SPD.
34a	Require Minimum of one slow EV charge point for 2 dwellings with communal parking (50 coverage)	Policy Guidance and Development Control	Other policy	2019	2030	Cambridge City Environmental Health / Planning	Cambridge City Environmental Health / Planning	NO	Not Funded	< £10k	Completed	Will reduce the impact of additional development	n/a	In place	Planning requirement in AQAP V2 and included in SPD.
34b	Require a minimum of one slow EV charger for every two parking spaces in non-residential developments (50% coverage)	Policy Guidance and Development Control	Other policy	2019	2030	Cambridge City Environmental Health / Planning	Cambridge City Environmental Health / Planning	NO	Not Funded	< £10k	Completed	Will reduce the impact of additional development	n/a	In place	Planning requirement in AQAP V2 and included in SPD.

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35a	Require one fast EV charging point for 1,000m2 non-residential floor space	Policy Guidance and Development Control	Other policy	2019	2030	Cambridge City Environmental Health / Planning	Cambridge City Environmental Health / Planning	NO	Not Funded	< £10k	Completed	Will reduce the impact of additional development	n/a	In place	Planning requirement in AQAP V2 and included in SPD.
35b	Require one rapid EV charger for 1,000m2 non-residential floor space	Policy Guidance and Development Control	Other policy	2019	2030	Cambridge City Environmental Health / Planning	Cambridge City Environmental Health / Planning	NO	Not Funded	< £10k	Completed	Will reduce the impact of additional development	n/a	In place	Planning requirement in AQAP V2 and included in SPD.
35c	Require at least one rapid charge point for large-scale major developments	Policy Guidance and Development Control	Other policy	2019	2030	Cambridge City Environmental Health / Planning	Cambridge City Environmental Health / Planning	NO	Not Funded	< £10k	Completed	Will reduce the impact of additional development	N/a	In place	Planning requirement in AQAP V2 and included in SPD.
36a	Any new or replacement car park to have EV charge points	Policy Guidance and Development Control	Other policy	2019	2030	Cambridge City Environmental Health / Planning	Cambridge City Environmental Health / Planning	NO	Not Funded	< £10k	Completed	Will reduce the impact of additional development	n/a	In place	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 policy	2019	2030	Cambridge City Environmental Health / Planning	Cambridge City Environmental Health / Planning	NO	Not Funded	< £10k	Completed	Will reduce the impact of additional development	n/a	In place	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 policy	2019	2030	Cambridge City Environmental Health / Planning	Cambridge City Environmental Health / Planning	NO	Not Funded	< £10k	Completed	Will reduce the impact of additional development	n/a	In place	Planning requirement in AQAP V2 and included in SPD.
37	CHP Emission Standards	Promoting Low Emission Plant	Emission control equipment for small and medium sized stationary combustion sources / replacement of combustion sources	2014	2015	Cambridge City Environmental Health / Planning	Cambridge City Environmental Health / Planning	NO	Not Funded	< £10k	Completed	Will reduce the impact of additional development	n/a	In place	All gas CHP to meet low emissions standards, Spark ignition engine: less than 150 mgNOx/Nm3; Gas turbine: less than 50mgNOx/Nm3

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38	Low Nox Boilers	Promoting Low Emission Plant	Emission control equipment for small and medium sized stationary combustion sources / replacement of combustion sources	2014	2015	Cambridge City Council Environmental Health / Planning	Cambridge City Council Environmental Health / Planning	NO	Not Funded	< £10k	Completed	Will reduce the impact of additional development	n/a	In place	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 Areas	Promoting Low Emission Plant	Regulations for fuel quality for low emission fuels for stationary and mobile sources	2022	2024	Cambridge City Council Environmental Health	Defra AQG	YES	Not Funded	£50k - £100k	Planning	Reduce impact from particulates	n/a	Defra AQG funding won to undertake consultation into City wide SCA and monitoring to provide evidence base for consultation.	Environmental act 2021 in place and guidance for SCA's released in 2023. Monitoring expected to be complete in 2023. Consultation in 2023/24.
43	Restriction on fuel types used on dwellings moored on the river	Promoting Low Emission Plant	Regulations for fuel quality for low emission fuels for stationary and mobile sources	2018	2022	Cambridge City Council Environmental Health	Cambridge City Council Environmental Health	NO	Not Funded	< £10k	Implementation	Reduce impact from particulates	n/a	Regulations already in place to cover smoke nuisance. All licensees informed about new fuel buying regulations.	Boaters have limited heating options. Continue to liaise with boaters to look at alternatives.
44	Encourage use of zero-emission heating sources such as electric heating, ground source or air source heat pumps	Promoting Low Emission Plant	Shift to installations using low emission fuels for stationary and mobile sources	2018	2025	Cambridge City Council Environmental Health	Cambridge City Council Environmental Health	NO	Not Funded	< £10k	Completed	This is about keeping levels below NAQO / target levels	n/a	An alternative to low Nox boilers suggested in the Sustainable Design and Construction SPD	
46	"Clean Air Zone"	Promoting Low Emission Transport	Low Emission Zone (LEZ)	2018	2030	Cambridge City Council / Cambridgeshire County Council / Greater Cambridge Partnership / CPCA	GCP	NO	Not Funded	£1 million - £10 million	Planning	This is about keeping levels below NAQO / target levels	CAZ in place	GCP undertook feasibility study in 2019. Road user charging option taken forward for consultation in 2022 as a key demand management tool to reduce traffic levels and vehicular emissions	Significant vehicle emissions reduction to be achieved through road user charging with exemptions for local buses and zero emission taxis
47	LEV discount as part of policy for residents parking permits	Promoting Low Emission Transport	Priority parking for LEV's	2019	2019	Cambridgeshire County Council	Cambridgeshire County Council	NO	Not Funded	< £10k	Completed	This measure is to support uptake of alternative fuels	Discount offered on residents parking permits for Low Emission Vehicles	Completed	A vehicle of emissions less than 75gkms CO2 will attract a 20% discount of the full cost of the permit.
48	Installation of rapid and fast EV charge points for taxis	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018	2023	Cambridge City Council / Cambridgeshire County Council / Greater Cambridge Partnership	Funding from OLEV, Greater Cambridge Partnership, Cambridge City Council	NO	Funded	£500k - £1 million	Implementation	1.5 - 4.5 % reduction in Nox emissions	Installation of 18 Rapid and 3 fast EV charge points in Cambridge	17 charge points installed by end of 2022. Remaining charge points installed in 2023 at 2 sites.	Delays in 20/21 because of covid restricting works. Delay in 2022 due to site access issues.

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49a	Installation of EV charge points for residents - on street	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2023	Cambridge City Council / Cambridgeshire County Council / UKPower Networks	OZEV / Cambridge City Council / UK Power Networks	NO	Funded	£500k - £1 million	Completed	This measure is to support uptake of alternative fuels	Installation of 16 EVCP in residential Areas with no off street parking.	Charge points in place	Completed – This project has delivered 4 x 50kW rapid and 38 X 7kW sockets
49b	Installation of EV charge points for residents - slot drains	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2020	2025	Cambridge City Council / Cambridgeshire County Council	Cambridgeshire County Council	NO	Not Funded	£10k - 50k	Planning	This measure is to support uptake of alternative fuels	TBC	Discussion phase to find a suitable methodology	AQAP partners are looking at technical specifications for this and awaiting government guidance with possibility of a pilot scheme in the future.
49c	Installation of EV charge points for residential areas with communal car parks	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2020	2025	Cambridge City Council Environmental Health and Housing	Cambridge City Council	NO	Not Funded	£10k - 50k	Planning	This measure is to support uptake of alternative fuels	TBC	Discussion phase to find a suitable methodology	Discussions with Parking to see if their contract for EV charging services can be used for this.
49d	Installation of EV charge points for residents - adjacent to taxi charge point bays	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018	2023	Cambridge City Council / Cambridgeshire County Council / Greater Cambridge Partnership	Funding from OLEV, Greater Cambridge Partnership, Cambridge City Council	NO	Funded	£500k - £1 million	Implementation	This measure is to support uptake of alternative fuels	Installation of 18 Rapid and 3 fast EV charge points in Cambridge	Where possible charge points have been installed for use by both taxis and residents with dedicated taxi bays alongside.	All charge points expected to be installed by end of 2023/24 financial year.
49e	Installation of EV charge points in car parks for overnight charging for residents	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2020	2025	Cambridge City Council	Cambridge City Council	NO	Not Funded	£50k - £100k	Implementation	This measure is to support uptake of alternative fuels	Installation of EVCP in car parks for overnight charging	Contract agreed with company to provide EV charge points in Cambridge City car parks	Needs to align with Parking EV Strategy
49f	Installation of EV charge points on lamp posts for residents and non-residents	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018	2025	Cambridge City Council / Cambridgeshire County Council	Cambridge City Council / Cambridgeshire County Council / Balfour Beatty	NO	Not Funded	£50k - £100k	Planning	This measure is to support uptake of alternative fuels	Installation of 6 EV CP on lamp posts	Project on hold whilst Cambridgeshire County Council works with lighting contractor	This project has not been progressed with alternative options now being investigated.

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50	Installation of EV charge points for non-residents in car parks	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018	2025	Cambridge City Council	Cambridge City Council	NO	Not Funded	£50k - £100k	Planning	This measure is to support uptake of alternative fuels	Installation of EVCP in car parks	Contract agreed with company to provide EV charge points in Cambridge City car parks	Needs to align with Parking EV Strategy
51	Installation of roadside EV charge points for residents and non-residents	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2020	2023	Cambridge City Council / Cambridgeshire County Council / National Grid	OZEV / Cambridge City Council / Cambridgeshire County Council / National Grid	NO	Funded	£500k - £1 million	Completed	This measure is to support uptake of alternative fuels	Installation of 16 EVCP in residential parking zones and pay and display parking areas.	Charge points in place	Complete
53	Procuring low emissions vehicles for own fleet where possible	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2019	2030	Cambridge City Councils / Shared Services	Cambridge City Council / Shared Services	NO	Not Funded	£50k - £100k	Implementation	This is about keeping levels below NAQO / target levels	All fleet is low emission vehicle	Purchase of Shared waste service low emission vehicles. New depot for fleet designed to allow low emission vehicles through installation of charging infrastructure.	Decarbonising Cambridge City Council Vehicle Fleet - internal document
54	Fee reduction for low emission taxis	Promoting Low Emission Transport	Taxi emission incentives	2018	2019	Cambridge City Council	Cambridge City Council	NO	Funded	£10k - 50k	Completed	1.5-4.5% reduction in NOx emissions	All taxis are low emission by 2028	45 taxis have zero emission exemption	Concerns amongst taxi drivers to source low emission vehicles. Agreed emission rate at 75gkm CO2 for taxis until 2025. Review policy in 2025.
55	Licensing conditions to require low emission taxis	Promoting Low Emission Transport	Taxi Licensing conditions	2018	2019	Cambridge City Council	Cambridge City Council	NO	Funded	£10k - 50k	Completed	1.5-4.5% reduction in NOx emissions	All taxis are low emission by 2029	55 EV and 65 petrol hybrid out of a fleet of 452	Concerns amongst taxi drivers to source low emission vehicles. Agreed emission rate at 75gkm CO2 for taxis until 2025. Review policy in 2025.
56a	Lowering emissions from public service vehicles (buses and coaches)	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2012	2019	Cambridge City Council / Cambridgeshire County Council . Greater Cambridge Partnership / CPCA	Operator	NO	Not Funded	< £10k	Planning	This is about keeping levels below NAQO / target levels	100% buses Euro 6 or better. No increase in emissions from additional services	Target set by CPCA to have zero emission bus fleet by 2030.	30 new zero emission buses due on P&R routes and 2 city routes in 2023. Charging Infrastructure complete. Some of the buses as of May 2023 have been received and are operational on P&R routes with the remainder expected later this year
56b	Lowering emissions from public service vehicles (buses and coaches) - trial electric only fleet	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2012	2021	Cambridge City Council / Cambridgeshire County Council . Greater Cambridge Partnership / CPCA	Operator	NO	Partially Funded	> £10 million	Completed	This is about keeping levels below NAQO / target levels	Trial complete	GCP co-funded with Stagecoach 2 electric buses which have operated on Citi 6 and P & R services since Feb 2020.	Trail has led to successful bid for ZEBRA money and 30 new electric buses in 2023.
56c	Electric vehicle charging strategy	Promoting Low Emission Transport	Other	2018	2020	Cambridge City Council	Cambridge City Council	NO	Not Funded	< £10k	Completed	This measure is to support uptake of alternative fuels	Strategy complete	Strategy Complete in 2019, new strategy being incorporated into the CPCA Local Transport and Connectivity Plan	Position Statement to make aware relevant authorities and departments their role in EV charging infrastructure.

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56d	Electric vehicle charging strategy	Promoting Low Emission Transport	Other	2022	2023	CPCA	CPCA	NO	Not Funded	< £10k	Implementation	This measure is to support uptake of alternative fuels	Strategy complete	CPCA developing EV Strategy as part of the Local Transport and Connectivity Plan	First draft has been produced further work being undertaken towards final version by the end of 2023
57a	Home Working policies	Promoting Travel Alternatives	Encourage / Facilitate home-working	2016	2030	Cambridge City Council	Cambridge City Council	NO	Not Funded	< £10k	Completed	This measure is to reduce the need to travel to work	n/a	Home working policies are in place	Home working policies have been revised to reflect hybrid working
58a	Active Travel Infrastructure via GCP measures	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2016	2030	Greater Cambridge Partnership	Greater Cambridge Partnership	NO	Not Funded	£10k - 50k	Planning	This measure is to support alternative forms of travel	Scheme completion	Funding allocated for further improvements to active travel networks. 1st 2 routes for works chosen in December 21 following consultation.	Integral part of other measures - new routes, junction upgrades, cycle parking, promotion of cycling and walking etc.
58b	Active Travel Infrastructure via GCP measures and County Measures	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2020	2022	Greater Cambridge Partnership / Cambridgeshire County Council / CPCA	DfT	NO	Partially Funded	£1 million - £10 million	Implementation	This measure is to support alternative forms of travel	Scheme completion	No specific measure is in place	Emergency Active Travel Infrastructure in place for Tranche 1 and Tranche 2.
59	Travel for Cambridgeshire	Promoting Travel Alternatives	Personalised Travel Planning	2016	2030	Cambridgeshire County Council	Cambridgeshire County Council	NO	Funded	< £10k	Implementation	This measure is to support alternative forms of travel	n/a	Not recorded	Can be required for major sites at point of residents moving in to ensure they are aware of all travel options.
60	Refresh Cambridge City Council Travel Plan	Promoting Travel Alternatives	Workplace Travel Planning	2016	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to support alternative forms of travel	n/a	Adoption of refreshed Travel Plan each year	Ongoing routine.
61	Workplace Travel Plan	Promoting Travel Alternatives	Promote use of rail and inland waterways	2016	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to support alternative forms of travel	n/a	n/a	Ongoing routine, promotion of discounts available for TfC partners.
62	Workplace Travel Plan	Promoting Travel Alternatives	Promotion of cycling	2016	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to support alternative forms of travel	n/a	n/a	Ongoing routine
63	S106 agreements for cycling and walking infrastructure	Promoting Travel Alternatives	Promotion of cycling	2016	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Completed	This measure is to support alternative forms of travel	n/a	n/a	Part of development / planning contributions
64	Cycle Parking design guide	Promoting Travel Alternatives	Promotion of cycling	2013	2015	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Completed	This measure is to support alternative forms of travel	n/a	In place	https://www.cambridge.gov.uk/media/6771/cycle-parking-guide-for-new-residential-developments.pdf
65	Schemes and Grants	Promoting Travel Alternatives	Promotion of cycling	2013	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to support alternative forms of travel	n/a	In place	https://www.cambridge.gov.uk/cycling-and-walking-promotion-grants
66	Schemes and Grants	Promoting Travel Alternatives	Promotion of walking	2013	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to support alternative	n/a	In place	https://www.cambridge.gov.uk/cycling-and-walking-promotion-grants

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												forms of travel			
67	Travel for Cambridgeshire Travel Plan Services	Promoting Travel Alternatives	School Travel Plans	2013	2030	Cambridgeshire County Council	Cambridgeshire County Council	NO	Funded	< £10k	Implementation	This measure is to support alternative forms of travel	n/a	In place	Travel Plan Services offer help with writing, developing, maintaining and monitoring as well as support for Travel Plan implementation
68	Travel for Cambridgeshire Travel Plan Services	Promoting Travel Alternatives	Workplace Travel Planning	2013	2030	Cambridgeshire County Council	Cambridgeshire County Council	NO	Funded	< £10k	Implementation	This measure is to support alternative forms of travel	n/a	In place	Travel Plan Services offer help with writing, developing, maintaining and monitoring as well as support for Travel Plan implementation
69	Travel for Cambridgeshire Travel Plan Services	Promoting Travel Alternatives	Other	2013	2030	Cambridgeshire County Council	Cambridgeshire County Council	NO	Funded	< £10k	Implementation	This measure is to support alternative forms of travel	n/a	TfC (now Smart journeys) offers employers a range of tools, services and resources to support sustainable travel choices	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	Via leaflets	2013	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to promote air quality awareness	n/a	Air quality articles in most quarters	Delivered to every household in the district
71	Twitter and Facebook	Public Information	Via the Internet	2013	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to promote air quality awareness	n/a	Ongoing	Ongoing routine
72	Provide Information on request	Public Information	Via radio	2013	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to promote air quality awareness	n/a	Ongoing	Ongoing routine
73	Provide Information on request	Public Information	Via television	2013	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to promote air quality awareness	n/a	Ongoing	Ongoing routine
74	Provide Information on request via website	Public Information	Via the Internet	2013	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to promote air quality awareness	n/a	Ongoing	Ongoing routine
75	Clean Air Day	Public Information	Other	2013	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to promote air quality awareness	n/a	Ongoing	Annual national campaign to provide information about air quality and raise awareness.
76	Campaigns to provide information about the impacts of air pollution on health	Public Information	Other	2013	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to promote air quality awareness	n/a	As required	Prepare and disseminate information about health impacts
78	Campaign to provide information about the impacts of wood burning, what type of wood to burn and how to burn it efficiently.	Public Information	Other	2013	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to promote air quality awareness	n/a	As required	Prepare and disseminate information about health impacts

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79	Publicity Campaign	Traffic Management	Anti-idling enforcement	2013	2030	Cambridge City Council	Cambridge City Council	NO	Funded	< £10k	Implementation	This measure is to promote air quality awareness	n/a	As required	Anti-idling information in Cambridge Matters
80	Penalty notices for non-compliance	Traffic Management	Anti-idling enforcement	2013	2030	Cambridge City Council	Cambridge City Council	NO	Not Funded	< £10k	Planning	This is about keeping levels below NAQO / target levels	n/a	On hold	Not currently a priority to seek anti-idling powers
81	Expansion of residents parking schemes	Traffic Management	Other	2013	2030	Cambridgeshire County Council	Cambridgeshire County Council	NO	Funded	< £10k	Implementation	This measure is to support alternative forms of travel	Number of spaces in car parking schemes	Ongoing annual programme of schemes resumed in 2022. 4 further schemes being developed/delivered in 2023.	Parking schemes to prioritise residents parking, prevent commuter parking and provide additional on-street cycle parking.
83	Congestion charging or road user charging	Traffic Management	Road User Charging (RUC)/ Congestion charging	2018	2030	Cambridgeshire County Council / Cambridge City Council . Greater Cambridge Partnership	Cambridgeshire County Council	NO	Not Funded	£500k - £1 million	Planning	This is about keeping levels below NAQO / target levels	Charging scheme in place	Consultation on preferred option undertaken in 2022. County Council decision in 2023	Work on refining initial consultation proposals in hand. Will improve air quality, reduce carbon emissions, and provide reliable public transport.
84	Road space re-configuration in Cambridge	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2018	2030	Cambridgeshire County Council / Cambridge City Council . Greater Cambridge Partnership	Cambridgeshire County Council	NO	Not Funded	£500k - £1 million	Planning	This is about keeping levels below NAQO / target levels	Agreement and implementation of schemes	GCP consulted on road network user hierarchy scheme in Summer 2022. Next steps determined in December 2023.	Cambridge City Council consulted on the vision, aims, objectives and strategies for a Space and Movement SPD in 2019. GCP now looking at road hierarchy in Cambridge and seeking to update it. Suggestions made to restrict vehicular access to some roads in the City, only allow some roads to have public transport and some to be for active travel only.
85	Creation of better cycling and walking infrastructure on key routes	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2018	2030	Cambridgeshire County Council / Cambridge City Council . Greater Cambridge Partnership	Cambridgeshire County Council	NO	Not Funded	£500k - £1 million	Planning	This measure is to support alternative forms of travel	Agreement and implementation of schemes	See below for specific schemes	https://www.sustrans.org.uk/bike-life/bike-life-greater-cambridge
86	Extension of Core Area schemes - limiting access to City Centre	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including	2018	2030	Cambridgeshire County Council / Cambridge City Council . Greater Cambridge Partnership	Cambridgeshire County Council	NO	Not Funded	£500k - £1 million	Planning	This measure is to support alternative forms of travel	TBC	Vehicular access restrictions expected to apply to a wider area of the city centre as proposed in the ongoing review of the road network user hierarchy in the City.	Consultation on road user hierarchy proposals took place in Summer 2022.

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			Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane												
88	Review of traffic signals in Cambridge	Traffic Management	UTC, Congestion management, traffic reduction	2018	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership	Cambridgeshire County Council	NO	Funded	£500k - £1 million	Implementation	This is about keeping levels below NAQO / target levels	TBC	GCP and Cambridgeshire County Council are currently piloting smart signals technology at selected junctions in the south of the city. Assessment report expected in early 2024.	GCP study to review existing infrastructure and consider future technology which may improve traffic flow and reduce idling and could include greater priority for walking, cycling and public transport.
89	Workplace Parking Levy for employers with more than 300 employees in an area to be specified	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	2018	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership	Cambridgeshire County Council	NO	Not Funded	£500k - £1 million	Aborted	This is about keeping levels below NAQO / target levels	TBC	n/a	Workplace Parking Levey was not an option taken forward by GCP committee in 2022
91a	CAM, Cambridge Area Mtro	Transport Planning and Infrastructure	Other	2018	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Not Funded	> £10 million	Aborted	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion of Project	n/a	Learning and Expertise from the CAM work to date will inform a developing transition plan, and that this will come back to the CPCA Board.
91b	Whittlesford Railway Station Travel Hub - bus, cycling, walking improvement and station upgrade	Transport Planning and Infrastructure	Public transport improvements - interchange stations and services	2016	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Partially Funded	> £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion of Project	Draft Delivery Plan being developed through further stakeholder engagement	https://www.greatercambridge.org.uk/transport/transport-projects/rural-travel-hubs/whittlesford-transport-master-planning-exercise
91c	New on road bus routes for Cambourne to Cambridge Corridor	Transport Planning and Infrastructure	Bus route improvements	2016	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Partially Funded	> £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion of Project	Off road bus route agreed	TWAO application to be submitted in 2023.
91d	Cambridge South East Transport Project	Transport Planning and Infrastructure	Bus route improvements	2016	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	> £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion	Completion of Project	EIA consultation completed. Recommended to Exec Board GCP for approval to TWAO. Currently preparing TWAO with submission in 2023 and Public Inquiry to take place after.	www.greatercambridge.org.uk/transport/transport-projects/cambridgesoutheast

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91e	Cambourne to Cambridge corridor offroad busway	Transport Planning and Infrastructure	Bus route improvements	2016	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	> £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion of Project	Currently undertaking work for the EIA. Consultation on EIA in Summer 2023.	www.greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambridge
91f	Improvements to bus routes - Histon Road	Transport Planning and Infrastructure	Bus route improvements	2016	2021	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	> £10 million	Completed	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion of Project	Completed September 2021	www.greatercambridge.org.uk/transport/transport-projects/histon-road
91g	Improvements to bus routes - Milton Road	Transport Planning and Infrastructure	Bus route improvements	2016	2024	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	> £10 million	Implementation	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion of Project	Works began in 2022, completion expected in 2024.	www.greatercambridge.org.uk/transport/transport-projects/milton-road
91h	Improvements to bus routes - City Access	Transport Planning and Infrastructure	Bus route improvements	2016	2024	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Partially Funded	> £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion of Project	Consultation on options in Autumn 2021. Preferred option consulted on in 2022. Exec Committee GCP making decision on preferred option in 2023.	https://www.greatercambridge.org.uk/city-access
91i	Cambridge Eastern Access	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2022	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	> £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion of Project	Approval of Strategic Business Case in Dec 21. Proceeding with works for short term gains (cycling improvements, P&R relocation by 2025), Longer term improvements (Upgrade to Newmarket to Cambridge train line)	£50 million estimate https://greatercambridge.org.uk/public-transport-schemes/cambridge-eastern-access
91j	Waterbeach to Cambridge	Transport Planning and Infrastructure	Bus route improvements	2022	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	> £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion of Project	Consultation on options carried out in early 2023. Decision on preferred option to be taken late 2023.	£50 million estimate https://greatercambridge.org.uk/public-transport-schemes/waterbeach-to-cambridge

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92a	New cycling routes - Chisholm Trail	Transport Planning and Infrastructure	Cycle network	2019	2025	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	> £10 million	Implementation	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Opening	Phase 1 complete. Phase 2 works have started.	https://greatercambridge.org.uk/transport/transport-projects/chisholm-trail
92b	Cambridge South East cycle route	Transport Planning and Infrastructure	Cycle network	2019	2025	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£1 million - £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Opening	EIA consultation completed. Recommended to Exec Board GCP for approval to submit TWA with submission in 2023 and public inquiry to take place after.	https://greatercambridge.org.uk/transport/transport-projects/cambridgesoutheast
92c	Cambourne to Cambridge cycle route	Transport Planning and Infrastructure	Cycle network	2019	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£1 million - £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Opening	Currently undertaking work for the EIA. Consultation on EIA in Summer 2023.	https://greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambridge
92d	Improved cycle routes - Histon Road	Transport Planning and Infrastructure	Cycle network	2020	2021	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£1 million - £10 million	Completed	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Completed September 2021	https://greatercambridge.org.uk/transport/transport-projects/histon-road
92e	Improved cycle routes - Milton Road	Transport Planning and Infrastructure	Cycle network	2022	2023	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£1 million - £10 million	Implementation	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Works began in 2022, completion expected in 2024.	https://greatercambridge.org.uk/transport/transport-projects/milton-road
92g	New and/or improved cycle routes - Rural Travel Hubs	Transport Planning and Infrastructure	Cycle network	2020	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	> £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Consultation required with local residents	https://greatercambridge.org.uk/transport/transport-projects/rural-travel-hubs
92h	Improved cycle routes - Cross City Cycling	Transport Planning and Infrastructure	Cycle network	2020	2020	Cambridgeshire County Council / Cambridge City Council / Greater	Cambridgeshire County Council	NO	Funded	£1 million - £10 million	Completed	This measure is to accommodate long term travel	Completion of 5 schemes	Completed	Cross City Cycling https://www.greatercambridge.org.uk/transport/transport-projects/cross-city-cycling/

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						Cambridge Partnership / CPCA						demand and reduce congestion in Cambridge			
92i	New Cycle Routes - Greenways	Transport Planning and Infrastructure	Cycle network	2019	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	> £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion of 12 routes	Routes prioritised for implementation Construction on some routes to begin in 2023	Greenways https://www.greatercambridge.org.uk/transport/transport-projects/greenways/
92j	New and/or improved cycle routes - Madingley Road	Transport Planning and Infrastructure	Cycle network	2019	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£1 million - £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Detailed Designs being worked on	Madingley Road https://www.greatercambridge.org.uk/transport/transport-projects/madingley-road/
92k	New Cycling Routes -A10 Royston to Cambridge	Transport Planning and Infrastructure	Cycle network	2015	2019	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£500k - £1 million	Completed	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Cycle Link between Melbourn and Shepreth	Further link is the Melbourn Greeway Project
92l	Cambridge Eastern Access	Transport Planning and Infrastructure	Cycle network	2016	2026	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	> £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Approval of Strategic Business Case in Dec 21. Proceeding with works for short term gains (cycling improvements, P&R relocation by 2025), Longer term improvements (Upgrade to Newmarket to Cambridge train line)	£50m estimate https://www.greatercambridge.org.uk/public-transport-schemes/cambridge-eastern-access
92m	Waterbeach to Cambridge	Transport Planning and Infrastructure	Cycle network	2016	2026	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	> £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Consultation on options held in early 2023. Decision on preferred option late 2023.	£50m estimate https://www.greatercambridge.org.uk/public-transport-schemes/waterbeach-cambridge
93a	New Walking Routes - Chisholm Trail	Transport Planning and Infrastructure	Other	2019	2025	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£500k - £1 million	Implementation	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Opening	Phase 1 complete. Phase 2 works have started.	https://www.greatercambridge.org.uk/transport/transport-projects/chisholm-trail

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
93b	Cambridge South East	Transport Planning and Infrastructure	Other	2019	2025	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£1 million - £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	EIA Consultation completed. Recommended to Exec Board GCP for approval to submit TWOA. TWOA being Drafted and planned to submit in 2023.	https://www.greatercambridge.org.uk/transport/transport-projects/cambridge-south-east
93c	Cambourne to Cambridge	Transport Planning and Infrastructure	Other	2019	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£1 million - £10 million	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Currently undertaking work for the EIA. Consultation on EIA in Summer 2023.	https://www.greatercambridge.org.uk/transport/transport-projects/cambourne-to-cambridge
93d	Improved Walking Routes - Histon Road	Transport Planning and Infrastructure	Other	2019	2021	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£1 million - £10 million	Completed	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Completed September 2021	https://www.greatercambridge.org.uk/transport/transport-projects/histon-road
93e	New and/or improved Walking Routes - Milton Road	Transport Planning and Infrastructure	Other	2022	2024	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£1 million - £10 million	Implementation	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Initial works began in Spring 2022. Completion by 2024.	https://www.greatercambridge.org.uk/transport/transport-projects/milton-road
93g	New and/or improved walking routes - Rural Hubs	Transport Planning and Infrastructure	Other	2017	2019	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Not Funded	< £10k	Aborted	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Consultation required with local residents	https://greatercambridge.org.uk/transport/transport-projects/rural-travel-hubs
93i	New Walking Routes - Greenways	Transport Planning and Infrastructure	Other	2017	2024	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Partially Funded	£50k - £100k	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion of 12 routes	Routes prioritised for implementation Construction to begin in 2023.	https://greatercambridge.org.uk/transport/transport-projects/greenways
93j	New and/or improved walking routes - Madingley Road	Transport Planning and Infrastructure	Other	2017	2024	Cambridgeshire County Council / Cambridge City Council / Greater	Cambridgeshire County Council	NO	Partially Funded	£50k - £100k	Planning	This measure is to accommodate long term travel	Completion	Detailed Designs being worked on	Madingley Road https://www.greatercambridge.org.uk/transport/transport-projects/madingley-road/

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
						Cambridge Partnership / CPCA						demand and reduce congestion in Cambridge			
93k	New and/or improved Walking Routes - A10 Royston to Cambridge	Transport Planning and Infrastructure	Other	2017	2019	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£50k - £100k	Completed	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Cycle Link between Melbourn and Shepreth	Further link is the Melbourn Greeway Project
93l	Cambridge Eastern Access	Transport Planning and Infrastructure	Other	2017	2026	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£50k - £100k	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	December 2021 approval of Business Case. Improvements to walking network on Newmarket Road planned for completion in 2025.	£50m estimate https://www.greatercambridge.org.uk/public-transport-schemes/cambridge-eastern-access
93m	Waterbeach to Cambridge	Transport Planning and Infrastructure	Other	2017	2030	Cambridgeshire County Council / Cambridge City Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Funded	£50k - £100k	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion	Consultation on options held in early 2023. Decision on preferred option late 2023.	£50m estimate https://www.greatercambridge.org.uk/public-transport-schemes/waterbeach-to-cambridge
94a	Bike Hire Schemes	Transport Planning and Infrastructure	Public cycle hire scheme	2018	2030	Cambridge City Council, hire operators	Operators	NO	Not Funded	< £10k	Implementation	A measure to reduce congestion and facilitate modal shift	Schemes in Operation	n/a	Mobike are trialling bike hire schemes in Cambridge replacing Ofo
94b	E-Scooter Hire	Alternatives to private vehicle use	Other	2020	2023	COCA	VOI/DfT	NO	Funded	< £10k	Implementation	A measure to reduce congestion and facilitate modal shift	Continuation of Scheme	Voi research found that 27% riders in Cambridge said their e-scooter journey replaced a journey they would have taken by car, ride-share or taxi previously. Trial continuing. Initially trial operated in some of the villages outside Cambridge but the extension has not allowed for this. Discussions are ongoing to see if the trial can be extended to include these areas again.	Voi/DfT 1 year trial with 400 e-scooters and 100 e-bikes for hire in Cambridge. 80% users between 18 and 32. No cost to the Authority.
95	Improvements to P&R sites	Transport Planning and Infrastructure	Public transport improvements stations and services	2020	2023	Cambridgeshire County Council / Greater Cambridge Partnership / CPCA	Cambridgeshire County Council	NO	Partially Funded	< £10k	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Completion		
96	Piloting Rural Hubs	Transport Planning and Infrastructure	Public transport improvements interchange	2016	2027	Cambridgeshire County Council / Greater Cambridge	Cambridgeshire County Council	NO	Not Funded	< £10k	Aborted	This measure is to accommodate long term travel	Completion	Project Cancelled following consultations	

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
			s stations and services			Partnership / CPCA						demand and reduce congestion in Cambridge			
97	New Station (Cambridge South) to serve the Hospital; (Addenbrookes and Papworth) and the Cambridge biomedical campus	Transport Planning and Infrastructure	Public transport improvements - interchange stations and services	2016	2030	Network Rail / Cambridge City Council / Cambridgeshire County Council / Greater Cambridge Partnership / CPCA / CBC 2020 Campustbc	tbc	NO	Not Funded	< £10k	Planning	This measure is to accommodate long term travel demand and reduce congestion in Cambridge	Station fully operational	Planning and consultation completed. Construction underway.	Unlikely to be completed in the lifetime of this plan but vital for the future to accommodate the expansion of the CBC campus.
103	Improve air quality by increasing tree cover	Other	Other	2020	2030	Cambridge City Council	Cambridge City Council	NO	Funded	£500k - £1 million	Implementation	A measure to improve air quality		Launched the neighbourhood Canopy Campaign in 2020 to encourage those areas of Cambridge with fewer trees to plant more in their neighbourhood. Now on its third area of Cambridge. Around 17 tonnes of nitrogen dioxide and 3 tonnes of PM2.5 removed by trees in Cambridge baseline.	Jointly funded by EDRF and Cambridge City Council. https://www.cambridge.gov.uk/cambridge-canopy-project
104	No car zones trial	Other	Other	2021	2022	Cambridgeshire County Council / Medical Research Council / Cambridge City Council	Cambridgeshire County Council / MRC	NO	Funded	£10k - 50k	Completed	A measure to improve air quality and encourage modal shift	Report on findings	Trial concluded in 2021. Findings found safety improvement outside schools during the trial. Cambridgeshire County Council would consider running further schemes if funding were available	Trial of no car zones around 2 schools at peak hours concluded in 2021. Found that there were safety improvements as a result of the schemes but little change in pupils using active travel modes to access school. Recommend wider shift in travel across the City is required to make changes to mode. No discernible improvement in air quality during the trial.
105	School Streets	Other	Other	2021	2022	Cambridgeshire County Council / Medical Research Council / Cambridge City Council	Cambridgeshire County Council	NO	Funded	£10k - 50k	Completed	A measure to improve air quality and encourage modal shift	Report on findings	As part of the Experimental Traffic Orders brought in during the pandemic several schools became school streets and erected barriers to prevent traffic outside their school during peak times. Findings found that schools felt the entry and exit to school was safer and less idling vehicles.	Schemes run by the schools themselves with support from road safety team at Cambridgeshire County Council. Data collected by MRC on effectiveness of Scheme.

2.3 PM_{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of PM_{2.5} (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM_{2.5} has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Cambridge City council is taking the following measures to address PM_{2.5}:

PM_{2.5} Levels in Cambridge

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

PM_{2.5} is measured at two locations in Cambridge – Gonville Place (a busy junction) and Newmarket Road (an arterial route). Recent measurements of PM_{2.5} at Newmarket Road indicate that there is a very small roads component in this location (measurements at the site are similar or just below estimated background with a measured level of 10 micrograms per cubic metre annual mean in 2019 dropping to 8 microgrammes per cubic metre annual mean in 2020 during the pandemic). Whilst Gonville Place saw a similar reduction in 2020 due to the pandemic reducing from 14 microgrammes per cubic metre annual mean in 2019 to 11 microgrammes per cubic metre annual mean in 2020, levels remained above background suggesting there is an additional contribution of up to 4 micrograms per cubic metre PM_{2.5} due to vehicle emissions. Most parts of Cambridge have ‘background’ levels of PM_{2.5}, but it is likely that hotspots are present in locations of high traffic density, such as Gonville Place.

The results measured in 2022 are inconsistent and should be used with caution. Levels measured at Gonville Place increased in 2022 back to pre COVID levels (15µg/m³); however the data from Gonville Place was annualised with levels only recorded up to May 2022 due to the monitoring station having to be decommissioned pending a suitable relocation. Further to this the data sets it was annualised against did not achieve greater than 85% data capture as recommended. In contrast to this increase Newmarket Road saw a reduction compared with 2020 and 2021 which is unexpected given the increase in vehicle movements during 2022. There are questions about the reliability of this monitoring station given its age

and also in relation to its existing location. It will be interesting to see how levels compare when the new monitor is installed later in 2023.

The Public Health Outcomes Framework measurement [D01 Fraction of Mortality attributable to Particulate Air Pollution data](#) shows that shows that 48 deaths in Cambridge could be attributed to air pollution in 2021 (latest data available).

Measures in place specific to reducing Particulate Matter levels

- Demolition and construction dust is controlled by planning conditions requiring demolition and construction management plans.
- Smoke Control Areas cover the central part of Cambridge. We are considering extending the SCA to cover the whole district.
- New regulations limiting the sale of house coal and wet wood should have a small impact on localised particulate matter levels. These will be publicised in the Cambridge Matters magazine that is delivered to every household in Cambridge.
- Publicity campaigns to provide information about impacts of wood burning/what type of wood to burn and how to burn it efficiently.
- Boats moored on the river are not allowed to 'emit smoke' as part of their mooring agreement. Smokeless coal is encouraged in preference to wood. Boat dwellers will be informed by hand-delivered letter about the new purchasing regulations.
- Monitoring of relative levels of particulates at a range of Cambridge non-roadside locations to understand the local variations in particulate levels at different times of the day and year is continuing using funding awarded in 2021 through the Air Quality Grant fund. The results will inform any projects brought forward in response to the changes in the Environment Act and feed into the decision making process of whether to consult on expanding the SCA to include the whole city including moored boats.

Nitrogen Dioxide measures in place that benefit particulate Matter levels

There are measures in the Action Plan (or being considered for inclusion in the revised AQAP due out later in 2023) and in place through the Development Control process that address the sources of nitrogen dioxide (for which we have a designated AQMA) that will also help to reduce particulate matter (PM₁₀ and PM_{2.5}); these 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.
- Given the scale of population increase and subsequent development coming forward in the next 10 years the challenge faced by Cambridge City Council is to ensure that we do not begin to see a 'creep' in pollutant levels. This can be achieved through development control, working with planners to deliver air quality 'neutral' developments and minimising impact on air quality during the construction phase.
- Where appropriate, the use of planning conditions to control non-road mobile machinery emissions. This is something we are giving more consideration to as the new AQAP is developed given the continuing high levels of development across the city
- Publicity campaigns about traffic idling.

Measure specific to reducing Particulate Matter Levels - under consideration

- Cambridge City Council is considering incorporating the recently adopted PM_{2.5} targets into its AQAP and/or Air Quality Strategy which is due to be updated in 2023, although it recognises that 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_{2.5} produced locally. Regional, national and international measures will be more effective.
- Consideration of extension of the Smoke Control Area to cover the whole district.

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

This section sets out the monitoring undertaken within 2022 by Cambridge City Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

➤ *Amendments to the Monitoring Network*

Tube 13, East Road was relocated at Kerbside as the vegetation within the vicinity of the existing tube had grown up and the site was no longer considered appropriate. This has led to an increase in monitored levels.

The automatic monitors were due to be replaced in 2022 (excluding Regent Street which forms part of the AURN network). This replacement programme included the relocation of the Gonville Place monitor due to redevelopment of the land it was located on. The monitor had to be removed from site in May 2022. The programme of replacement has been delayed due to supply issues of both the cabinets and monitors and further to this we have been struggling to identify a viable location for the new Gonville Place monitor. This has meant that we have lost data from a key location within the city for 7 months of 2022. We hope that all the monitors will be replaced during 2023. The first monitor was replaced at Montague Road in March 2023.

Gonville Place is a key monitoring location within the city and also the monitor where we had our triplicate diffusion tubes for calculating the local bias adjustment factor. For the first time since we have been producing an ASR we will be using a national bias adjustment factor due to insufficient data (we have collocated triplicate tubes at Montague for future years but have insufficient data for 2022).

We have redeployed these three tubes (one was retained at Gonville Place on this busy junction) and reviewed the location of the tubes across the wider diffusion tube network in response to changes across the city including major developments coming forward in the next few years. Any changes will come into place in 2023 and be available in the 2024 ASR.

➤ *Nitrogen Dioxide (NO₂)*

Only two of the monitors achieved data capture above 95% (Montague Road 99.6% & Regent Street 96.3%). Both Parker Street (92.9%) and Newmarket Road (89.1%) were

below this due to issues relating to the age of the monitors, with the replacement project delayed during 2022. We had to remove Gonville Place (36.2%) from its existing location in May due to redevelopment of the site and are still to identify a suitable new location. This data required annualization. In addition to the Gonville Place automatic monitoring site both sets of triplicate tubes plus a further single tube required annualization.

The levels of NO₂ recorded both inside and outside the AQMA in 2022 showed a consistently marked increase when compared with both 2020 and 2021 data.

Analysis of traffic data shows that week day vehicle movements within the city have been slow to return to pre COVID levels but began to pick up in the latter part of 2022 and have continued to increase into 2023 suggesting that people have been continuing to work from home where the option exists. Figures for the weekend were closer to pre COVID levels suggesting that people were returning to the city for leisure activities during 2022, especially on Sundays. However, Mondays show lower levels of traffic when compared to pre-pandemic levels.

Discussions with colleagues at Cambridgeshire County Council suggest that an increase in vehicle movements closer to pre COVID levels was seen in the latter part of 2022 (excluding December which was due to cold and icy weather leading up to Christmas). One hypothesis is that where the option to WFH exists people have been slower to return to the office.

Measured levels of NO₂ continue to remain well below 2019 levels however with levels in 2021 remaining stable to 2020 it is unclear at this time whether this trajectory will continue into 2023 or plateau off.

Given the lower levels of NO₂ that are now being recorded, and the windier weather that has been experienced in recent years it becomes harder to quantify the impact that COVID and intervention measures that have been implemented is having on levels in comparison with the impact of the more turbulent weather. There are some tubes where annual averages are not felt to reflect the increased vehicle movements along the adjacent roads. In response to this we have secured funding from Cambridgeshire County Council to undertake a small wind cap diffusion tube project for a period of three years to compare tubes (with and without wind cap) at a variety of site classifications and pollutant levels. We hope the results will help give greater understanding and confidence in the data we are currently collecting.

➤ Particulate Matter (PM₁₀ & PM_{2.5})

Both Montague Road (99.0%) and Parker Street (98.9%) achieved data capture for PM₁₀ above 95%. Newmarket Road achieved 82.3% data capture for PM_{2.5}. The loss of Gonville Place (33.4% & 32.0%) represents a significant loss to the PM monitoring network across Cambridge during 2022 making it harder to draw strong conclusions from the results which have been annualised. Monitored levels of PM₁₀ increased at all sites in 2022 but in comparison Newmarket Road saw a drop in PM_{2.5} levels.

No changes to the Air Quality Management Area are proposed at this time due to a range of uncertainties across the monitoring network. These include uncertainties relating to changing traffic data following the COVID pandemic and impact on the upwards trajectory of pollutant levels measured in 2022 and where these may plateau off, potential impact should the proposed Sustainable Travel Zone be implemented in Cambridge (decision to made in 2023), impact on wider road network from changes to up and coming road closures (e.g. closure of Mill Road) and lack of confidence in some of the monitoring results.

More detail is set out in Appendix A.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Cambridge City undertook automatic (continuous) monitoring at 4 sites during 2022. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The data for Gonville Place has been retained and presented in the report for completeness although it is acknowledged that the valid data capture is for too short a time period to offer any real comparison value from previous years. All data from this site has been annualised. The [Air pollution measurements - Cambridge City Council](#) page presents automatic monitoring results for Cambridge City Council, with automatic monitoring results also available through the UK-Air website .

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 (i.e. passive) monitoring of NO₂ at 70 sites during 2022. Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided in Appendix D and on the 'Air Quality Monitoring Stations' map located at [Air pollution measurements - Cambridge City Council](#).

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.

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 measured in Cambridge was 0.49micrograms per cubic metre in 2022.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. Note that the concentration data presented 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 2022 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.

Figure A.1 – Trends in Annual Mean NO₂ Concentrations between 2018 and 2022 for continuous Automatic Monitors

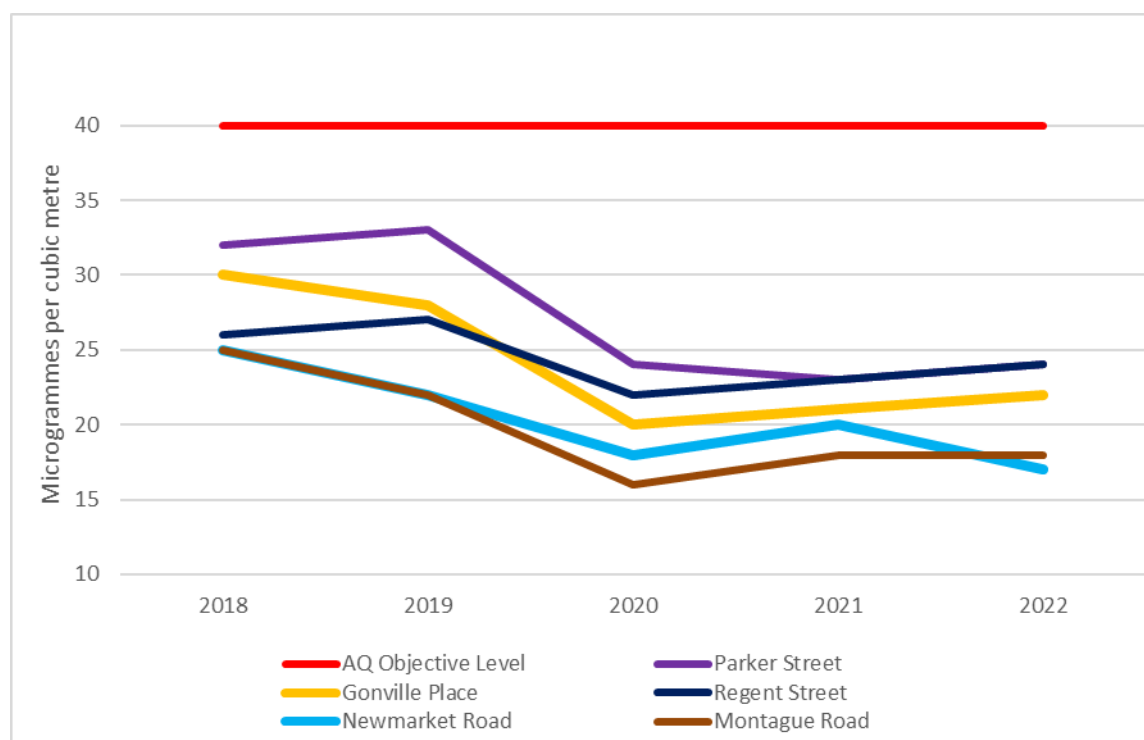


Figure A.1 presents NO₂ annual mean concentrations for the continuous monitoring sites between 2018 and 2022. There are no exceedences of the annual mean objective in 2022 with levels continuing to remain fairly stable when compared with both 2020 and 2021 following the significant drop in 2020 due to the COVID pandemic, impact of lockdown and continuing COVID restrictions. Some monitoring sites have seen a small increase which is supported by the increasing vehicle and bus movements in the latter part of 2022. Montague Road has remained the same as 2021, which is easily accountable to the ongoing cycle & bus lane improvement work on Milton Road with the disruption significantly reducing the number of vehicles entering the city via Elizabeth Way Bridge. The reduction measured at the Newmarket Road monitor remains unexplained and is contradictory to both the levels recorded on all diffusion tubes along Newmakret Road and the increase in vehicle movements seen in the latter part of the year. There is uncertainty about the reliability of the monitoring equipment due to age (although it has been both serviced and audited) and the suitability of the location due to the proximity of both a hedgerow and trees. We are in the process of investigating the relocation of this monitor prior to the scheduled replacement of the equipment.

Unlike the automatic monitors, results from the diffusion tube monitoring network typically saw a marked increase across all areas of the city. Given that we have an extensive network

of diffusion tubes across the city we have split the results into groups based on the type of location or specific area of interest (typically in response to areas of major development). We have incorporated more of the tubes into these trend graphs however given the number of tubes we do not feel it is practical to provide trend data for each of the individual tubes.

Figure A.2 – Trends in Annual Mean NO₂ concentrations between 2018 and 2022 for Background and Urban Background sites

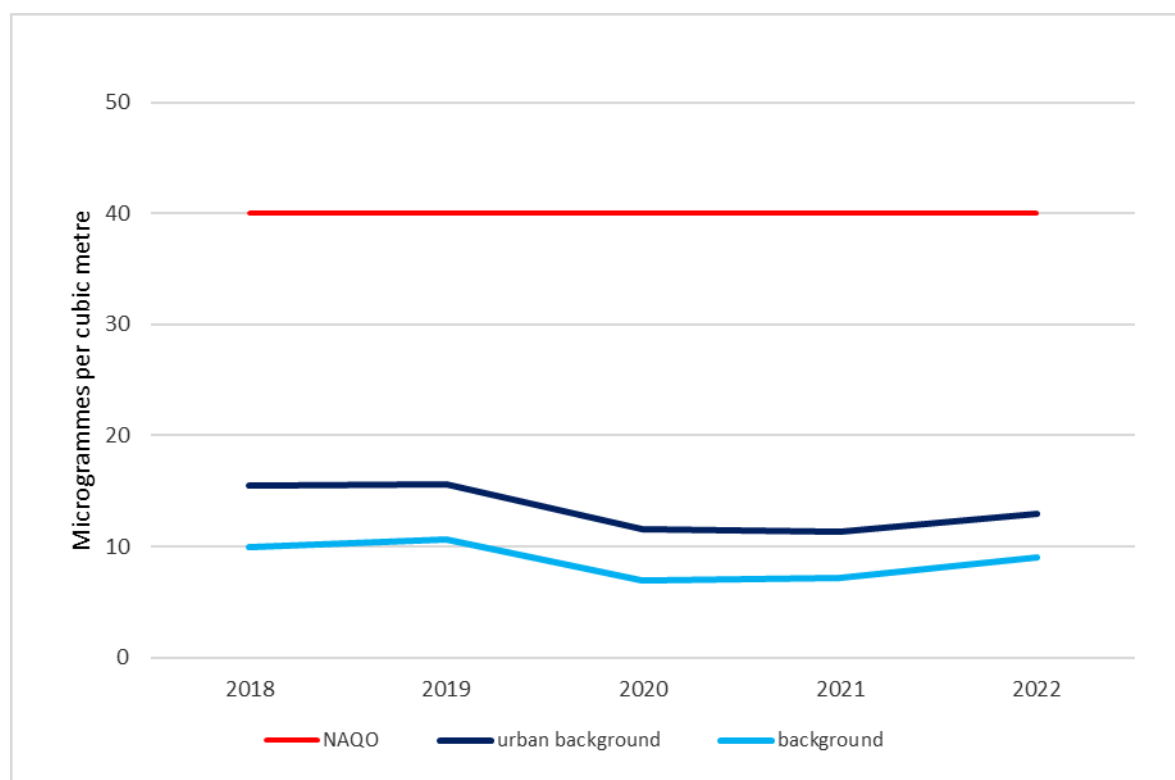


Figure A2 presents the trends in NO₂ annual averages for Background and Urban Background sites between 2018 and 2022. All sites show a small increase when compared with 2020 and 2021.

Figure A.3 – Trends in Annual Mean NO₂ concentrations between 2018 and 2022 for Radial Roads, Inner Ring Roads and Inner City Streets

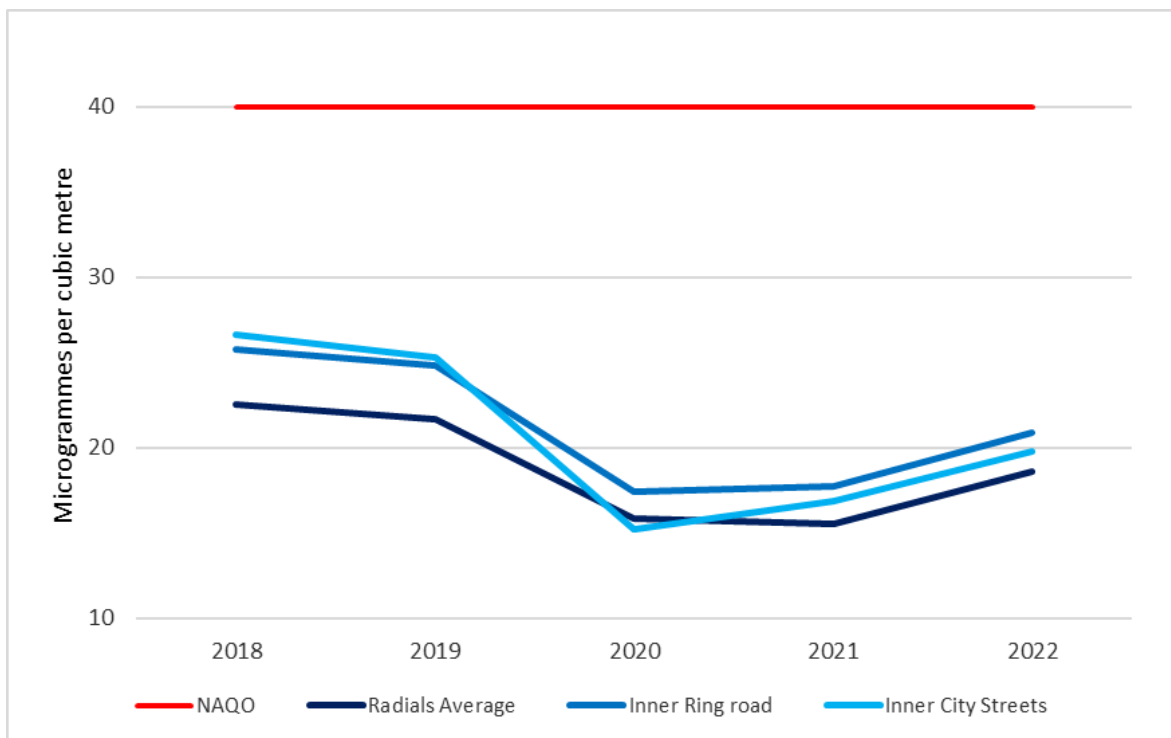


Figure A3 presents the trends in NO₂ averages for the roads classified as Radials, Inner Ring and Inner City Streets. There is an upwards trend for all roads across these groupings with the average increase of 3µg/m³ for all three groups with increases ranging between 1 and 5µg/m³. The only tube to remain the same as last year was Northampton Street (Tube 4). Northampton Street was annualised for 2022.

Figure A.4 - Trends in Annual Mean Concentrations between 2018 – 2022 for the roads around Drummer Street Bus Station

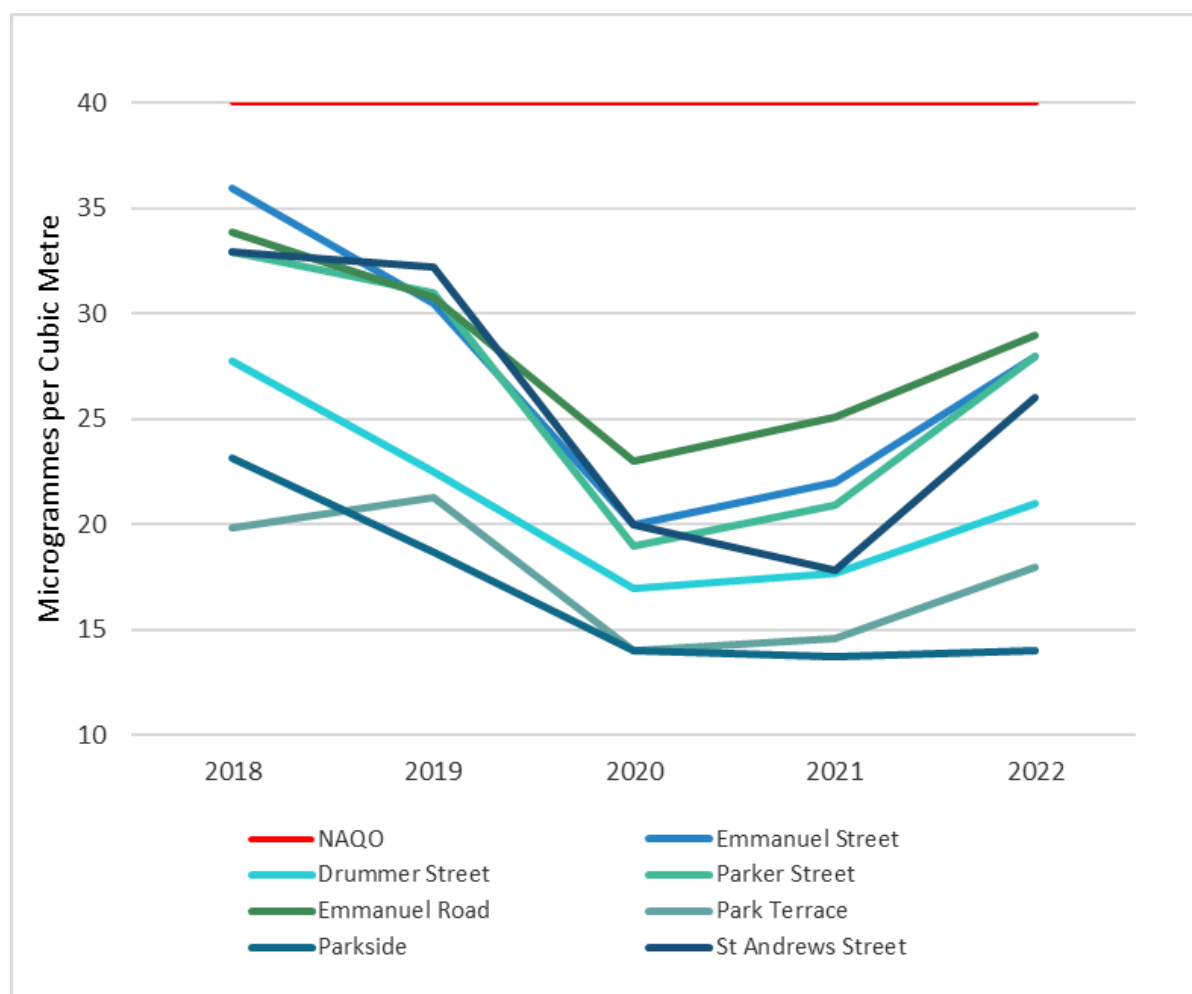
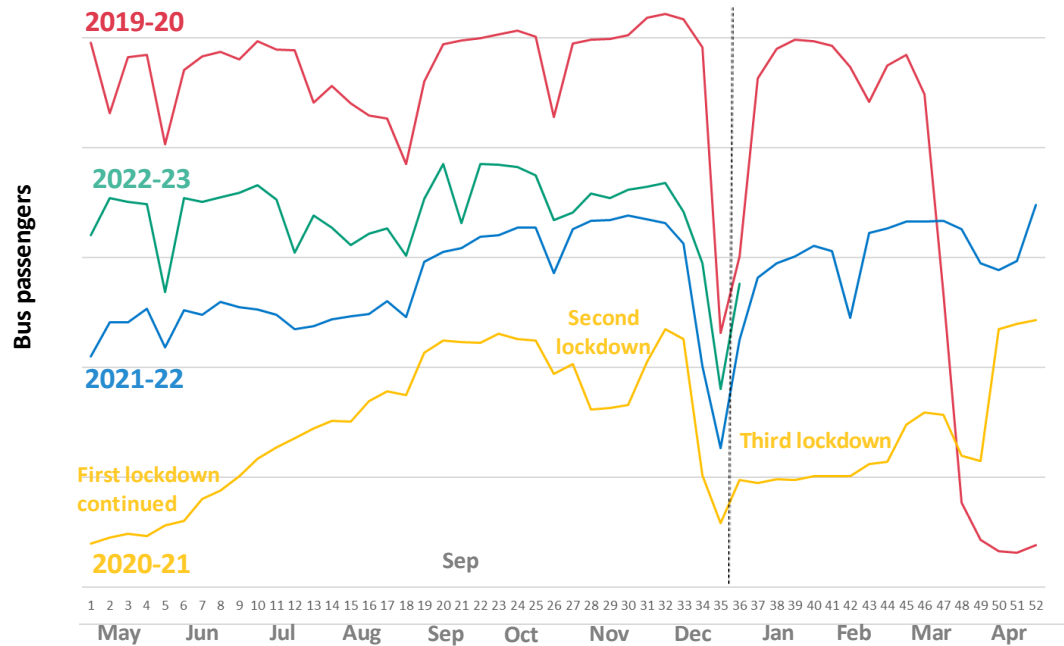


Figure A4 presents the trends in NO₂ annual averages for the roads around Drummer Street Bus Station. There is an large upwards trend for all the roads with the exception of Parkside which stayed the same when compared with 2021. Parkside is where national long distance coaches drop off and pick up. Whilst not verified it is expected that the number of coaches associated with these services will have remained fairly stable when compared with 2021. Further to this Parkside is located adjacent to Parkers Piece (a large open grassed area) and the windier weather during 2022 will have aided greater dispersion .

The average increase in the annual NO₂ concentration across all the roads is 5 µg/m³. This increase is expected given that both the private vehicles and the number of bus movements within the city has continued to increase during 2022, following a slow return in 2021. In 2022 bus passenger numbers were 27% below pre-covid levels, however passenger numbers have slowly been increasing over 2022. Bus usage is also lower during the school holidays and over the Christmas period. This is shown by the graph below.



Due to the commercially sensitive nature of the data no numbers are shown on the y-axis. Data is provided by Stagecoach to GCP.

Figure A.5 – Trends in Annual Mean NO₂ Concentrations between 2018 – 2022 for the roads around Cambridge Central Train Station

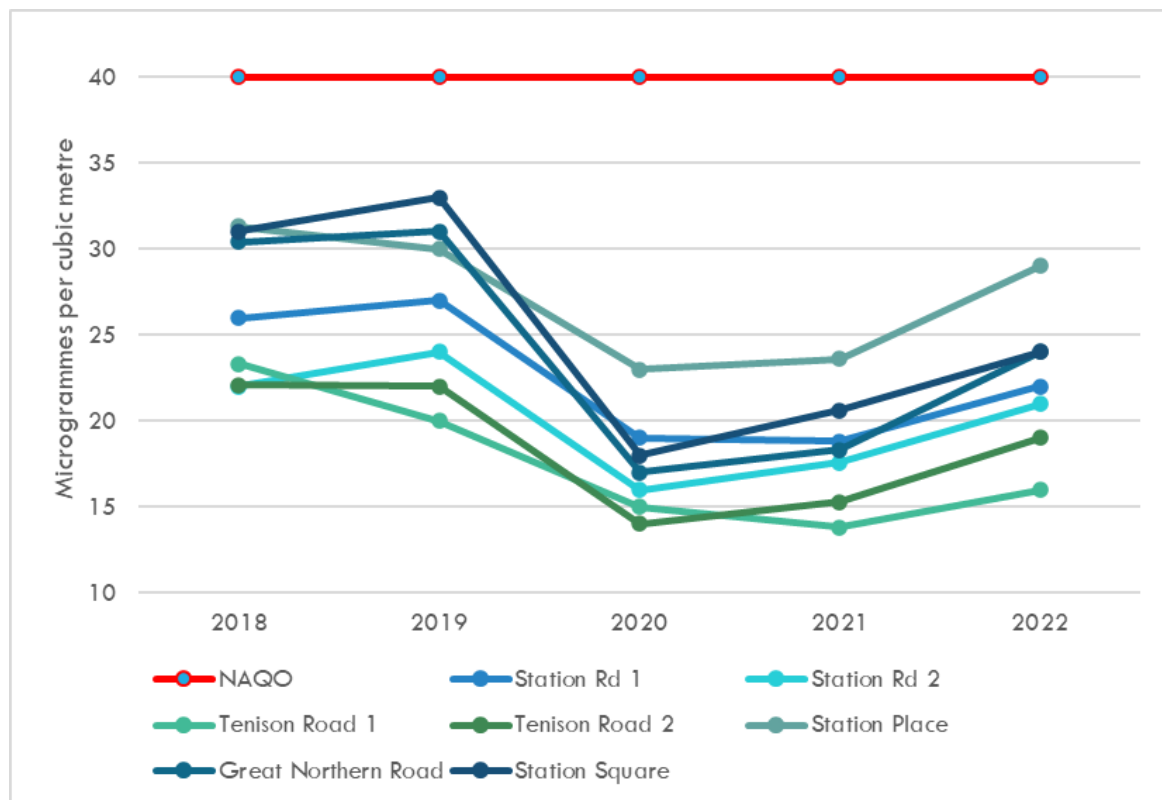


Figure A5 presents the trends in NO₂ annual averages for the roads around Cambridge Central Train Station. An increase was seen across all streets with an average increase of 4µg/m³. The CB1 area around the station is a major development site and a number of large developments have been completed and occupied during 2022 which could account for some of the increase as it is understood that train use has been slow to return to pre COVID levels.

Figure A.6 – Trends in Annual Mean NO₂ Concentrations between 2018 and 2022 on the Roads in South Cambridge around Addenbrookes Hospital

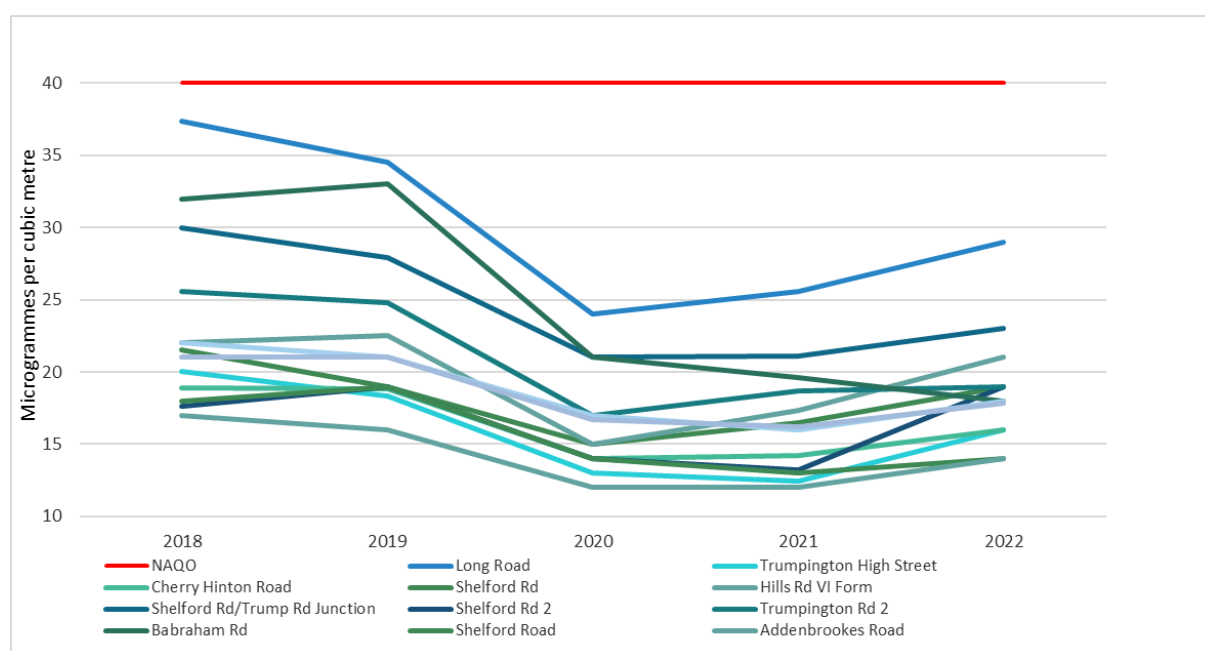


Figure A6 presents the trends in NO₂ annual averages for the roads within south Cambridge and around Addenbrookes Hospital both of which are major growth sites. There is an upwards trend in measurements, with an average increase of 2.5µg/m³. The exception of this is Babraham Road which saw a small decrease. This is the only diffusion tube across the entire network to show a decrease. On discussion it turns out that this tube was relocated to a new lamp column as the street lights were renewed during 2022. This is slightly further away from the road and can account for this decrease.

Table A.5 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past five years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

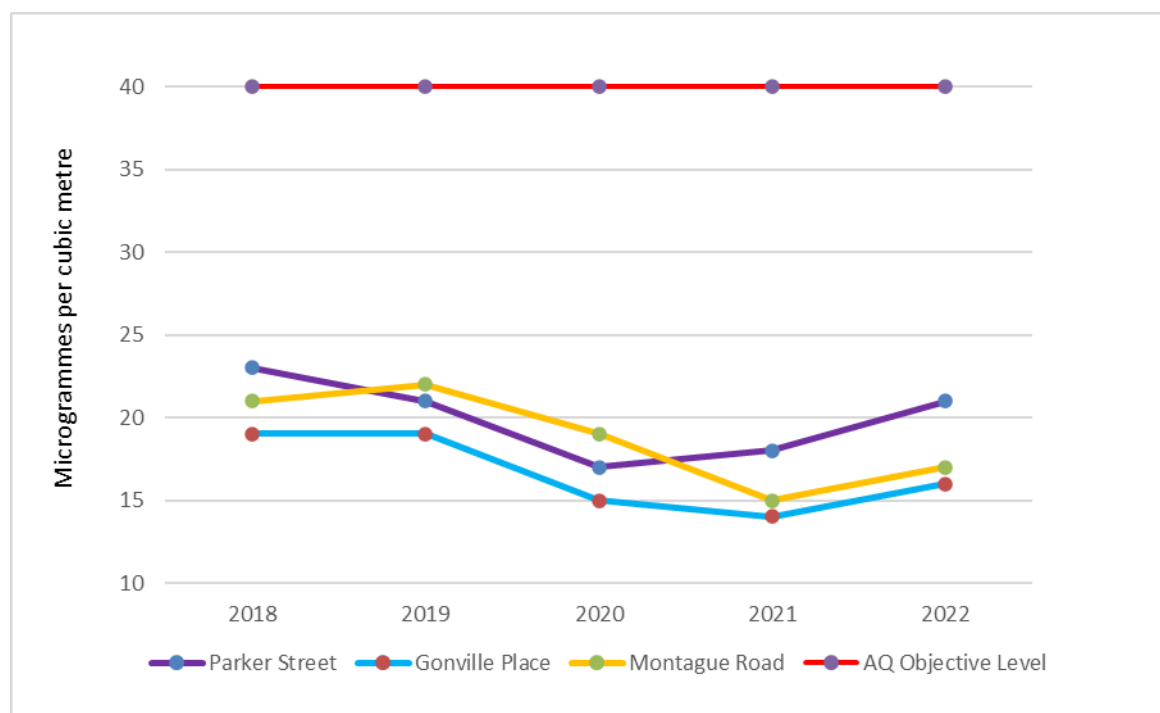
No exceedences of the NO₂ hourly mean concentrations against the air quality objective of 200µg/m³ were measured in 2022, compared with a single exceedence in 2021.

➤ Discussion of the Results

The measured levels across the automatic monitors are inconsistent and conflict with the levels measured from the diffusion tubes which all saw a marked increase when compared with 2021. The decrease at Montague can in part be explained by the major roadworks being completed along Milton Road which would have impacted access from this route from the north of Cambridge and therefore impacted on Montague as a route on the inner ring road. Transport figures show that traffic levels along Milton Road in 2022 were lower than during 2021, which suggests people are avoiding this route due to the ongoing roadworks. For the rest of the network, traffic levels have increased slowly across 2022 but have yet to return to 2019 (pre-covid levels). Newmarket Road remains an anomaly as a marked decrease has been seen in both measured levels of NO₂ and PM_{2.5} which is conflicting with the wider results across the city. This may be attributed to the age of the equipment and / or growth in recent years of adjacent tree crown and hedge. We look forward to seeing how measured levels compare when the new automatic monitor is installed later in 2023.

3.2.2 Particulate Matter (PM₁₀)

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. There were no exceedances of this air quality objective in 2022.

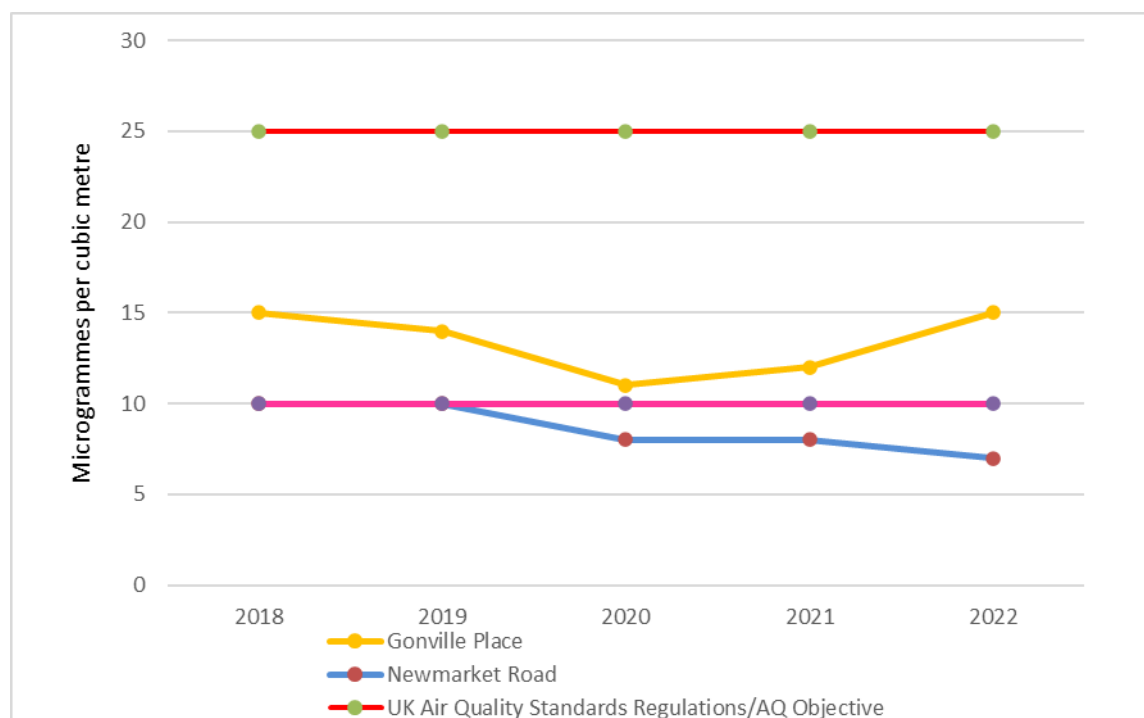
Figure A.7 – Trends in Annual Mean PM₁₀ levels between 2018 and 2022

There was an increase in measured levels at all three locations in 2022 when compared with 2021, most notably with Parker Street returning to pre COVID levels. All measurements remain well below the air quality objective of 40µg/m³ but above the WHO guidelines of 15µg/m³.

Table A.7 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past five years with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year. Despite an increase in the annual average at all three sites there were no recorded exceedances in 2022.

3.2.3 Particulate Matter (PM_{2.5})

Table A.8 in Appendix A presents the ratified and adjusted monitored PM_{2.5} annual mean concentrations for the past five years.

Figure A.8 – Trends in Annual Mean PM_{2.5} levels between 2018 and 2022

PM_{2.5} is only monitored at two locations within the city. Levels have remained fairly stable even during the COVID pandemic (the reduction seen was not as marked during lockdown as was seen with NO₂ levels) however the results from 2022 should be used with caution. Gonville Place was only operational between January and May with results from this site being annualised. Further to this it was problematic finding suitable sites with data capture greater than 85% for the annualisation process. Newmarket Road showed a marked decrease which is contradictory to all other results in this area. There is lack of confidence in the results this monitor is producing due to age and location.

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? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
CM1	Gonville Place	Roadside	545508	257828	NO ₂ , PM ₁₀ , PM _{2.5}	Yes, AQMA 1	Chemiluminescent, BAMs	1.8	3.2	2
CM2	Montague Road	Roadside	546057	259487	NO ₂ , PM ₁₀	Yes, AQMA 1	Chemiluminescent, BAM	1.4	3.9	2
CM3	Newmarket Road	Roadside	546317	258900	NO ₂ , PM _{2.5}	Yes, AQMA 1	Chemiluminescent, TEOM	0.5	3.3	2
CM4	Parker Street	Roadside	545366	258391	NO ₂ , PM ₁₀	Yes, AQMA 1	Chemiluminescent, BAM	0.5	3.3	2.5
CM5	Regent Street	Roadside	545289	258118	NO ₂	Yes, AQMA 1	Chemiluminescent	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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
1	Emmanuel Street	Roadside	545220	258357	NO2	Cambridge AQMA	0.0	2.4	No	2.5
2	Histon Road 2	Roadside	544299	261204	NO2	NO	20.0	1.7	No	2.5
3	Magdalene Street	Roadside	544677	258992	NO2	Cambridge AQMA	0.0	2.0	No	2.5
4	Northampton Street	Roadside	544492	259008	NO2	Cambridge AQMA	0.0	2.0	No	2.5
5	Silver Street	Roadside	544770	258112	NO2	Cambridge AQMA	0.0	1.0	No	2.5
6	Long Road	Kerbside	544867	255709	NO2	NO	20.0	0.1	No	2.0
7	Newmarket Road	Roadside	546181	258886	NO2	Cambridge AQMA	2.0	1.7	No	2.0
8	Milton Road	Roadside	545978	260355	NO2	NO	3.0	8.0	No	2.0
9	Drummer Street	Kerbside	545235	258485	NO2	Cambridge AQMA	0.0	2.1	No	2.5
10	Gilbert Road	Roadside	545314	259777	NO2	NO	10.0	1.0	No	2.0
11	Latham Road	Urban Background	544811	256744	NO2	NO	10.0	20.0	No	2.0
12	Newmarket Road 2	Roadside	547998	259349	NO2	Cambridge AQMA	30.0	3.7	No	2.0

Diffusio n Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co- located with a Continuous Analyser?	Tube Heigh t (m)
13	East Road - New	Kerbside	545904	258431	NO2	Cambridge AQMA	4.5	0.5	No	2.5
14	Mill Road	Roadside	546080	257944	NO2	Cambridge AQMA	0.0	2.0	No	2.0
15	Eddington	Urban Background	542734	260040	NO2	NO	2.0	0.4	No	2.0
16	Regent Street	Roadside	545279	258135	NO2	Cambridge AQMA	0.5	2.3	No	5.5
17	Coldhams Lane	Roadside	547216	258286	NO2	NO	10.0	3.5	No	2.0
18	Pembroke Street	Roadside	544884	258098	NO2	Cambridge AQMA	0.0	1.2	No	2.0
19	Huntingdon Road 2 west	Roadside	543100	260344	NO2	NO	25.0	2.5	No	2.0
20	Elizabeth Way	Roadside	546083	259150	NO2	Cambridge AQMA	N	1.6	No	2.5
21	Victoria Road (outside 208a)	Roadside	544425	259560	NO2	Cambridge AQMA	0.0	1.8	No	2.0
22	Madingley Road	Kerbside	543784	259093	NO2	NO	20.0	0.8	No	2.0
23	Huntingdon Road 1	Roadside	543761	259813	NO2	NO	15.0	1.0	No	2.0
24	Histon Road 1	Kerbside	544308	259664	NO2	NO	2.0	0.5	No	2.0
25	Barton Road	Roadside	544100	257473	NO2	NO	20.0	2.2	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
26	Fen Causeway	Roadside	544943	257567	NO2	Cambridge AQMA	50.0	2.1	No	2.0
27	Trumpington Road	Roadside	544575	255307	NO2	NO	5.0	2.7	No	2.0
28	Babraham Road	Roadside	546961	255132	NO2	NO	20.0	1.2	No	2.0
29	Cherry Hinton Road	Kerbside	548331	256252	NO2	NO	10.0	0.8	No	2.5
30	Arbury Road	Kerbside	545693	260473	NO2	NO	5.0	0.8	No	2.0
31	Newnham Road	Roadside	544529	257730	NO2	Cambridge AQMA	0.0	1.6	No	2.0
32	Hills Road 2 VI form	Roadside	545893	257234	NO2	NO	2.0	3.6	No	2.5
33	Victoria Avenue	Roadside	545333	259439	NO2	Cambridge AQMA	0.0	1.4	No	2.0
34	Parker Street	Roadside	545390	258390	NO2	Cambridge AQMA	0.0	1.4	No	2.5
35	Abbey Road	Roadside	546163	258983	NO2	Cambridge AQMA	1.0	1.7	No	2.0
36	Cockburn Street	Urban Background	546596	257594	NO2	Cambridge AQMA	0.0	1.5	No	2.0
37	Oaktree Avenue	Urban Background	545885	260088	NO2	Cambridge AQMA	10.0	1.0	No	2.0
38	Chesterton Road	Roadside	545566	259579	NO2	Cambridge AQMA	2.0	2.7	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
39	Maids Causeway	Kerbside	545710	258782	NO2	Cambridge AQMA	5.0	0.8	No	2.0
40	Emmanual Road	Roadside	545405	258521	NO2	Cambridge AQMA	0.0	1.5	No	2.0
41	Downing Street	Roadside	545162	258240	NO2	Cambridge AQMA	0.0	1.3	No	2.0
42	Trumpington Street	Roadside	544981	257890	NO2	Cambridge AQMA	2.0	1.4	No	2.0
43	Lensfield Road	Roadside	545271	257675	NO2	Cambridge AQMA	5.0	1.8	No	2.0
44	Park Terrace	Roadside	545430	258271	NO2	Cambridge AQMA	3.0	1.9	No	2.5
45	St Andrew's St	Kerbside	545135	258391	NO2	Cambridge AQMA	1.0	0.8	No	2.5
46	Parkside	Kerbside	545549	258283	NO2	Cambridge AQMA	5.0	0.5	No	2.0
47, 48, 49	Gonville Place	Roadside	545508	257828	NO2	Cambridge AQMA	0.0	3.3	Yes	2.0
50	Hills Road 3	Roadside	545854	257229	NO2	Cambridge AQMA	3.0	3.0	No	2.0
51	Shelford Road	Roadside	544960	254220	NO2	Cambridge AQMA	5.0	2.0	No	2.0
52	Station Road 2 East - Station	Kerbside	546019	257300	NO2	NO	10.0	0.4	No	2.0
53	Station Road 1 West - Jupiter	Kerbside	545897	257325	NO2	NO	10.0	0.4	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
54	Tenison Road 1 96	Kerbside	546034	257683	NO2	Cambridge AQMA	4.0	0.2	No	2.5
55	Tenison Road 2 Ravensworth	Kerbside	546005	257405	NO2	Cambridge AQMA	4.0	0.3	No	2.5
56	Coldhams Lane 2 Silverwood	Roadside	546602	258796	NO2	Cambridge AQMA	8.0	1.7	No	2.5
57	Great Northern Road	Kerbside	546060	257389	NO2	Cambridge AQMA	3.0	0.2	No	2.5
58	Station Place	Kerbside	546080	257092	NO2	Cambridge AQMA	3.0	0.5	No	2.0
59	Coldhams Lane 3	Roadside	548858	257162	NO2	NO	7.5	2.5	No	2.5
60	Barnwell Road	Kerbside	547917	258942	NO2	MO	7.5	0.2	No	2.5
61	Newmarket Road 3	Roadside	546341	258882	NO2	NO	10.0	2.0	No	2.5
62	Mill Road 2	Roadside	547181	257566	NO2	NO	0.0	2.5	No	2.5
63	Station Square	Roadside	546177	257309	NO2	Cambridge AQMA	3.0	1.0	No	2.5
64	Park Street	Roadside	544952	258856	NO2	NO	8.0	2.0	No	2.5
65	Brooklands Avenue	Roadside	545896	257025	NO2	Cambridge AQMA	3.0	1.0	No	2.5
66	Shelford/Trumpington	Roadside	544580	254692	NO2	Cambridge AQMA	15.0	1.0	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
67	Shelford 2	Kerbside	544614	254646	NO2	NO	15.0	0.5	No	2.5
68	Addenbrookes Road	Roadside	545211	254217	NO2	NO	10.0	3.0	No	2.5
69	Fendon Road	Kerbside	546854	255405	NO2	NO	20.0	0.5	No	2.5
70	Hills Road 4	Roadside	546693	255379	NO2	NO	30.0	3.0	No	2.5
71	Trumpington Road 2	Kerbside	545245	256860	NO2	NO	20.0	0.5	No	2.5
72, 73, 74	Montague 3	Roadside	546057	259487	NO2	Cambridge AQMA	1.4	3.9	Yes	2.0

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 NO₂ Monitoring Results: Automatic Monitoring (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
CM1 Gonville Place	545508	257828	Roadside	92.13	36.23	30	28	20	21	22
CM2 Montague Road	546057	259487	Roadside	99.62	99.62	25	22	16	18	18
CM3 Newmarket Road	546317	258900	Roadside	89.16	89.16	25	22	18	20	17
CM4 Parker Street	545366	258391	Roadside	92.93	92.93	32	33	24	23	24
CM5 Regent Street	545289	258118	Roadside	96.32	96.32	26	27	22	23	24

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

☒ **Reported concentrations are those at the location of the monitoring site (annualised, as required), i.e. prior to any fall-off with distance correction**

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(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%).

Table A.4 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
1	545220	258357	Roadside	92.3	92.3	36.0	35.0	20.2	22.0	28.5
2	544299	261204	Roadside	100	100.0	24.0	21.0	13.8	12.0	15.1
3	544677	258992	Roadside	100	100.0	22.0	20.0	12.4	13.6	16.6
4	544492	259008	Roadside	65.4	65.4	31.0	31.0	20.1	19.8	20.1
5	544770	258112	Roadside	100	100.0	26.0	24.0	13.0	13.7	16.8
6	544867	255709	Kerbside	82.7	82.7	37.0	34.0	24.3	25.6	28.7
7	546181	258886	Roadside	82.7	82.7	33.0	31.0	26.0	22.7	27.4
8	545978	260355	Roadside	100	100.0	18.0	18.0	14.0	12.7	15.3
9	545235	258485	Kerbside	100	100.0	28.0	23.0	16.7	17.7	21.2
10	545314	259777	Roadside	100	100.0	20.0	24.0	15.7	13.9	16.9
11	544811	256744	Urban Background	100	100.0	10.0	11.0	7.4	7.2	8.6
12	547998	259349	Roadside	100	100.0	25.0	23.0	20.4	19.1	21.1
13	545904	258431	Kerbside	92.3	92.3					25.4

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
14	546080	257944	Roadside	92.3	92.3	23.0	21.0	15.8	14.9	17.7
15	542734	260040	Urban Background	92.3	92.3		18.0	12.7	11.6	14.6
16	545279	258135	Roadside	73.1	73.1	27.0	26.0	17.0	18.8	22.1
17	547216	258286	Roadside	100	100.0	21.0	22.0	15.1	17.6	18.6
18	544884	258098	Roadside	100	100.0	30.0	30.0	17.9	17.9	21.0
19	543100	260344	Roadside	100	100.0	20.0	18.0	11.7	12.1	15.5
20	546083	259150	Roadside	100	100.0	27.0	26.0	19.3	20.2	23.6
21	544425	259560	Roadside	82.7	82.7	24.0	22.0	15.8	15.5	18.2
22	543784	259093	Kerbside	92.3	92.3	30.0	30.0	18.1	17.5	21.2
23	543761	259813	Roadside	100	100.0	17.0	17.0	11.7	10.7	15.0
24	544308	259664	Kerbside	92.3	92.3	24.0	25.0	19.0	16.5	20.2
25	544100	257473	Roadside	100	100.0	19.0	18.0	11.2	11.9	13.8
26	544943	257567	Roadside	100	100.0	19.0	18.0	12.0	12.5	14.0
27	544575	255307	Roadside	76.9	76.9	20.0	18.0	13.0	12.4	15.7

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
28	546961	255132	Roadside	80.8	80.8	32.0	33.0	21.5	19.6	18.1
29	548331	256252	Kerbside	100	100.0	19.0	19.0	14.4	14.2	16.2
30	545693	260473	Kerbside	84.6	84.6	17.0	18.0	14.9	14.9	17.6
31	544529	257730	Roadside	92.3	92.3	31.0	29.0	20.3	21.3	25.7
32	545893	257234	Roadside	75	75.0	22.0	22.0	15.3	17.3	21.1
33	545333	259439	Roadside	100	100.0	35.0	31.0	21.4	23.5	27.9
34	545390	258390	Roadside	73.1	73.1	33.0	31.0	19.3	20.9	28.0
35	546163	258983	Roadside	84.6	84.6	17.0	17.0	13.5	13.2	14.3
36	546596	257594	Urban Background	90.4	90.4	16.0	15.0	11.1	10.9	14.7
37	545885	260088	Urban Background	92.3	92.3	15.0	15.0	11.0	11.4	13.0
38	545566	259579	Roadside	100	100.0	21.0	23.0	15.9	14.4	18.3
39	545710	258782	Kerbside	92.3	92.3	30.0	27.0	18.7	18.1	22.0
40	545405	258521	Roadside	73.1	73.1	34.0	31.0	23.0	25.1	28.6
41	545162	258240	Roadside	82.7	82.7	31.0	27.0	16.3	16.9	22.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
42	544981	257890	Roadside	100	100.0	20.0	20.0	13.1	13.0	16.4
43	545271	257675	Roadside	100	100.0	29.0	27.0	18.6	19.6	22.9
44	545430	258271	Roadside	100	100.0	20.0	21.0	13.9	14.6	18.0
45	545135	258391	Kerbside	90.4	90.4	33.0	32.0	20.6	17.8	26.0
46	545549	258283	Kerbside	84.6	84.6	23.0	19.0	13.9	13.7	13.6
47, 48, 49	545508	257828	Roadside	84.6	32.7	31.0	29.0	20.1	19.8	21.5
50	545854	257229	Roadside	84	84.6	25.0	23.0	15.9	17.6	21.3
51	544960	254220	Roadside	100	100.0	22.0	25.0	14.9	16.5	18.7
52	546019	257300	Kerbside	75	75.0	22.0	24.0	15.8	17.6	20.9
53	545897	257325	Kerbside	82.7	82.7	23.0	27.0	19.2	18.8	22.1
54	546034	257683	Kerbside	92.3	92.3	23.0	20.0	15.1	13.8	16.5
55	546005	257405	Kerbside	82.7	82.7	22.0	22.0	14.4	15.3	18.9
56	546602	258796	Roadside	80.8	80.8	23.0	20.0	17.3	16.9	19.9
57	546060	257389	Kerbside	100	100.0	30.0	31.0	17.6	18.3	24.1

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
58	546080	257092	Kerbside	90.4	90.4	31.0	30.0	23.1	23.6	29.1
59	548858	257162	Roadside	92.3	92.3	15.0	16.0	12.1	11.3	14.7
60	547917	258942	Kerbside	100	100.0	23.0	22.0	16.4	17.5	20.5
61	546341	258882	Roadside	84.6	84.6	33.0	34.0	21.8	26.3	30.7
62	547181	257566	Roadside	92.3	92.3		20.0	14.6	15.1	18.6
63	546177	257309	Roadside	92.3	92.3	31.0	33.0	17.9	20.6	23.8
64	544952	258856	Roadside	76.9	76.9	24.0	23.0	15.4	15.3	18.6
65	545896	257025	Roadside	90.4	90.4	24.0	22.0	16.1	16.1	19.6
66	544580	254692	Roadside	92.3	92.3	30.0	28.0	20.9	21.1	23.5
67	544614	254646	Kerbside	92.3	92.3	18.0	19.0	13.8	13.2	14.1
68	545211	254217	Roadside	90.4	100.0	17.0	16.0	12.5	12.2	14.1
69	546854	255405	Kerbside	92.3	100.0	22.0	21.0	15.4	17.2	19.7
70	546693	255379	Roadside	100	100.0	21.0	21.0	16.7	16.2	17.8
71	545245	256860	Kerbside	92.3	92.3	26.0	25.0	14.5	18.7	18.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
72, 73, 74	546057	259487	Roadside	88.9	69.2					16.6

☒ Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22

☒ Diffusion tube data has been bias adjusted

☒ 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 correction

Notes:

The annual mean concentrations are presented as $\mu\text{g}/\text{m}^3$.

Exceedances of the NO₂ annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO₂ annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(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%).

Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
CM1 Gonville Place	545508	257828	Roadside		36.23	0	0	0	0	0
CM2 Montague Road	546057	259487	Roadside	99.62	99.62	1	0	0	1	0
CM3 Newmarket Road	546317	258900	Roadside	89.16	89.16	0	0	0	0	0
CM4 Parker Street	545366	258391	Roadside	92.92	92.92	0	0	0	0	0
CM5 Regent Street	545289	258118	Roadside	96.32	96.32	0	0	0	0	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m³ have been recorded.

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

(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%).

Table A.6 – Annual Mean PM₁₀ Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
CM1 Gonville Place	545508	257828	Roadside	99.91	33.41	19	19	15	14	16
CM2 Montague Road	546057	259487	Roadside	99.06	99.06	21	22	19	15	17
CM4 Parker Street	545366	258391	Roadside	98.93	98.93	23	21	17	18	21

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in **bold**.

All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(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%).

Table A.7 – 24-Hour Mean PM₁₀ Monitoring Results, Number of PM₁₀ 24-Hour Means > 50µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
CM1 Gonville Place	545508	257828	Roadside		33.41	1	2	0	0	1
CM2 Montague Road	546057	259487	Roadside	99.06	99.06	1	6	0	0	0
CM4 Parker Street	545366	258391	Roadside	98.93	98.93	1	5	0	2	2

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m³ have been recorded.

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

(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%).

Table A.8 – Annual Mean PM_{2.5} Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
CM1 Gonville Place	545508	257828	Roadside	88.45	32.08	15	14	11	12	15
CM3 Newmarket Road	546317	258900	Roadside	82.35	82.35	10	10	8	8	7

☒ Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22

Notes:

- The annual mean concentrations are presented as µg/m³.
- All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.
- (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%).

Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO₂ 2022 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	545220	258357	49.4		44.0	44.0	26.0	32.5	29.6	28.9	30.3	38.6	44.0	44.7	37.5	28.5	-	
2	544299	261204	29.5	15.0	26.9	16.9	13.5	16.1	15.3	11.4	19.6	23.0	25.6	25.2	19.8	15.1	-	
3	544677	258992	33.0	17.9	29.3	19.9	16.2	16.7	18.1	20.2	21.2	20.9	20.4	28.1	21.8	16.6	-	
4	544492	259008	47.2		12.7		24.7	28.6	24.6	26.9	25.6			34.4	28.1	20.1	-	
5	544770	258112	32.1	21.9	23.2	19.1	17.4	19.7	16.9	16.3	19.3	22.9	28.0	29.1	22.2	16.8	-	
6	544867	255709	54.7		39.8	34.4	31.8	33.1	31.0	34.5	39.1		40.4	39.3	37.8	28.7	-	
7	546181	258886	51.6	38.9	33.1	23.4	45.5	30.5	25.9		29.6	40.3	42.3		36.1	27.4	-	
8	545978	260355	33.0	21.7	26.1	14.2	11.1	16.5	13.2	14.3	16.8	24.9	24.7	25.1	20.1	15.3	-	
9	545235	258485	36.0	23.6	40.5	31.2	18.9	20.6	21.8	29.1	24.3	25.6	28.3	34.8	27.9	21.2	-	
10	545314	259777	32.6	20.9	19.5	18.2	13.5	15.5	15.9	17.1	19.8	28.0	32.6	32.7	22.2	16.9	-	
11	544811	256744	16.5	13.0	16.9	7.9	6.9	6.9	6.7	7.1	9.8	12.2	15.1	17.5	11.4	8.6	-	
12	547998	259349	41.5	30.5	37.1	20.2	23.7	22.3	23.3	21.0	22.8	29.8	31.6	29.5	27.8	21.1	-	
13	545904	258431	41.0	31.0	29.8	22.0	21.4	33.2	32.0	34.9		37.9	44.5	39.8	33.4	25.4	-	
14	546080	257944	39.5		35.3	22.7	16.7	16.6	12.5	20.8	22.7	22.4	28.0	18.3	23.2	17.7	-	
15	542734	260040	28.6	19.3	24.6	14.1	11.2	11.2		11.6	16.9	21.6	24.9	27.3	19.2	14.6	-	
16	545279	258135	42.0	28.9	30.0	24.6	23.0	24.6	26.1		28.9		34.0		29.1	22.1	-	
17	547216	258286	41.5	27.4	30.0	21.0	16.1	14.9	16.9	16.7	21.4	22.9	29.4	35.0	24.4	18.6	-	
18	544884	258098	34.1	27.9	37.1	26.5	22.9	25.2	25.4	24.2	23.6	25.4	35.0	25.0	27.7	21.0	-	
19	543100	260344	34.9	20.9	25.6	19.3	13.1	13.5	13.8	12.2	17.3	20.9	23.5	30.3	20.4	15.5	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
20	546083	259150	40.8	27.0	44.6	26.9	20.5	23.2	24.3	26.8	28.7	32.7	34.7	42.1	31.0	23.6	-	
21	544425	259560	33.7	22.5	28.9		16.5	19.3	17.8	20.0	22.6	26.0		32.6	24.0	18.2	-	
22	543784	259093	40.4	25.6	39.8	25.8	22.0	26.2	24.7	24.1		17.0	30.6	30.4	27.9	21.2	-	
23	543761	259813	26.0	15.9	25.7	16.1	13.6	13.3	14.8	14.4	26.9	28.5	18.9	23.5	19.8	15.0	-	
24	544308	259664		29.0	34.1	21.0	19.1	23.1	19.8	16.1	22.6	32.1	40.6	35.5	26.6	20.2	-	
25	544100	257473	30.7	15.3	22.9	17.8	12.5	12.3	12.7	14.0	17.1	17.6	20.1	25.3	18.2	13.8	-	
26	544943	257567	27.8	17.4	23.5	20.1	12.5	12.3	14.8	17.5	19.3	17.0	19.6	19.5	18.4	14.0	-	
27	544575	255307		20.0	30.5	16.2	12.1	13.1			18.1	22.6	27.1	25.8	20.6	15.7	-	
28	546961	255132	29.9	20.5	33.4		17.6	14.3	24.4	24.8	22.7		20.9	30.0	23.9	18.1	-	
29	548331	256252	36.4	24.0	25.8	17.7	14.1	15.0	17.1	14.8	19.3	22.5	25.6	24.0	21.4	16.2	-	
30	545693	260473	40.2	25.1	27.0	17.0	13.5	15.6		15.6	19.4	23.9		34.6	23.2	17.6	-	
31	544529	257730	45.1	33.9	41.8	28.7	26.5	33.0		28.5	29.6	33.2	33.6	37.9	33.8	25.7	-	
32	545893	257234	39.2		32.7		19.2	20.4		24.5	26.0	27.3	29.6	31.3	27.8	21.1	-	
33	545333	259439	45.8	30.2	50.9	32.8	24.7	33.2	32.3	36.6	35.9	36.6	42.2	40.1	36.8	27.9	-	
34	545390	258390	48.8	33.6	45.7		27.0	29.8		28.0	33.6		36.2	48.8	36.8	28.0	-	
35	546163	258983		23.5	21.7	14.3	14.6	14.4		11.2	16.9	21.6	28.2	21.5	18.8	14.3	-	
36	546596	257594	33.4	19.6	22.0	14.5	12.2	9.2	10.0	11.7	14.4	11.5	54.3		19.3	14.7	-	
37	545885	260088	28.9	19.4	18.6	12.7	10.5	11.8	10.7	10.6		18.1	22.3	25.2	17.2	13.0	-	
38	545566	259579	45.5	27.0	26.7	19.2	16.6	21.8	16.9	16.0	21.8	26.0	28.1	22.7	24.0	18.3	-	
39	545710	258782	44.1	30.0	38.4	28.0	23.0		23.8	22.4	27.9	26.6	32.0	22.8	29.0	22.0	-	
40	545405	258521	51.8	33.8	50.6	34.0			28.0	35.8	30.7	36.2	37.8		37.6	28.6	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
41	545162	258240	42.5	28.6	39.1	27.0	22.1	22.5		28.1	28.1		30.6	32.6	30.1	22.9	-	
42	544981	257890	32.4	21.8	30.6	15.7	14.2	14.2	15.2	14.3	17.6	21.5	28.4	33.2	21.6	16.4	-	
43	545271	257675	38.2	31.1	38.2	30.5	25.1	24.3	24.0	25.1	30.0	30.2	30.5	34.8	30.2	22.9	-	
44	545430	258271	33.1	24.6	37.0	21.1	18.2	20.6	16.9	17.9	20.6	21.5	23.2	29.9	23.7	18.0	-	
45	545135	258391	42.1	30.8	40.9		22.9	27.5	28.2	24.2	32.1	39.4	43.6	45.0	34.2	26.0	-	
46	545549	258283		22.3		17.2	11.7	11.9	13.7	15.1	18.0	19.6	22.8	26.8	17.9	13.6	-	
47	545508	257828	38.1	28.3	45.3	30.6									-	-	-	Triplicate Site with 47, 48 and 49 - Annual data provided for 49 only
48	545508	257828	37.4	28.3	44.7	30.5									-	-	-	Triplicate Site with 47, 48 and 49 - Annual data provided for 49 only
49	545508	257828	37.0	27.8	41.5	28.4									34.8	21.5	-	Triplicate Site with 47, 48 and 49 - Annual data provided for 49 only
50	545854	257229	35.1	27.8	35.1	27.5	19.8	18.5	21.7			26.9	32.4	35.3	28.0	21.3	-	
51	544960	254220	37.1	23.8	29.3	20.9	17.0	18.3	21.1	20.8	22.3	25.1	27.4	31.6	24.6	18.7	-	
52	546019	257300	35.1	26.0	37.6	21.1	18.3	19.7	18.2				38.1	33.3	27.5	20.9	-	
53	545897	257325	44.5	29.1	41.5	27.9	18.7	22.7	23.5	22.1	27.5			33.8	29.1	22.1	-	
54	546034	257683	32.5	24.8		19.5	16.2	14.5	15.6	14.4	19.0	22.0	28.2	32.0	21.7	16.5	-	
55	546005	257405	31.0	24.4	34.4		18.2		19.3	20.7	24.3	24.7	27.8	24.0	24.9	18.9	-	
56	546602	258796	39.3	27.0	38.5	27.8		16.7	20.9	21.7	21.2	20.9	27.9		26.2	19.9	-	
57	546060	257389	41.7	31.5	35.1	25.4	28.0	27.3	30.5	23.6	28.2	36.9	40.3	32.8	31.8	24.1	-	
58	546080	257092	54.4	48.2	34.1	36.7	37.3	29.1	38.5	32.1	34.0		32.8	43.6	38.3	29.1	-	
59	548858	257162	30.9	19.8	24.9	15.4	13.8	12.9		13.1	17.3	19.9	24.8	20.2	19.4	14.7	-	
60	547917	258942	41.1	25.2	32.5	23.6	21.4	20.3	21.4	19.9	25.7	28.2	31.7	33.3	27.0	20.5	-	
61	546341	258882			57.4	34.6	30.7	29.1	33.2	31.7	40.0	47.7	53.0	46.4	40.4	30.7	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
62	547181	257566	28.5		31.5	19.7	17.4	20.8	18.6	18.8	23.8	28.7	32.3	29.6	24.5	18.6	-	
63	546177	257309		40.3	36.8	28.8	26.1	24.3	27.2	26.8	29.3	28.4	35.5	41.2	31.3	23.8	-	
64	544952	258856	38.8	25.3		20.9	16.6	20.7		18.2	21.6	25.2		33.1	24.5	18.6	-	
65	545896	257025	36.0	27.2	40.7		20.3	17.5	19.5	20.5	21.8	22.7	28.7	29.4	25.8	19.6	-	
66	544580	254692	37.7	19.5		27.5	27.4	30.6	27.4	26.3	32.1	32.3	37.6	41.7	30.9	23.5	-	
67	544614	254646		22.1	23.8	16.4	15.0	12.8	12.6	13.5	17.6	23.0	25.3	22.2	18.6	14.1	-	
68	545211	254217	31.3	30.4	24.0	12.1	10.3	11.6	12.1	13.7	16.7	19.2	20.7	20.0	18.5	14.1	-	
69	546854	255405	42.5	32.5	29.5	18.8	16.5	19.2	17.1	19.9	22.7	28.0	33.6	31.0	25.9	19.7	-	
70	546693	255379	35.8	27.4	30.6	20.1	13.6	15.9	18.4	19.4	23.0	21.8	26.4	28.2	23.4	17.8	-	
71	545245	256860	30.2	29.4		30.6	23.8	22.7	14.5	15.9	27.1	22.5	26.7	30.2	24.9	18.9	-	
72	546057	259487				22.2	14.4	16.7	14.8	17.9		21.9	26.2	28.8	-	-	-	Triplicate Site with 72, 73 and 74 - Annual data provided for 74 only
73	546057	259487				20.4	15.0	16.7	14.6	17.3		21.8	26.3	29.5	-	-	-	Triplicate Site with 72, 73 and 74 - Annual data provided for 74 only
74	546057	259487				22.0	14.8	16.5	15.7	18.3		20.0	22.6	25.6	20.0	16.6	-	Triplicate Site with 72, 73 and 74 - Annual data provided for 74 only

☒ All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1

☒ Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22

☐ Local bias adjustment factor used

☒ National bias adjustment factor used

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

☒ Cambridge City Council confirm that all 2022 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Cambridge City Council During 2022

Cambridge City Council has not identified any new sources relating to air quality within the reporting year of 2022.

Additional Air Quality Works Undertaken by Cambridge City Council During 2022

Cambridge City Council has not completed any additional works within the reporting year of 2022.

QA/QC of Diffusion Tube Monitoring

Socotec UK Ltd 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 auto-analyser with ultraviolet detection. Socotec UK Ltd, Didcot is one of the laboratories that follows the AIR PT inter-comparison 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 NO₂ 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.

Monitoring was completed in adherence with the Diffusion Tube Monitoring Calendar in 2022.

Diffusion Tube Annualisation

Both sets of triplicate tubes plus a further single diffusion tube (Tube 4, Northampton Street) failed to achieve 75% data capture and required annualization. The Diffusion Tube Data Entry System template was used to annualise the tube.

Table C.1 – Annualisation Summary (concentrations presented in $\mu\text{g}/\text{m}^3$)

Table C1a – Annualisation Summary – Nitrogen Dioxide

Annualisation was completed for the automatic monitoring site at Gonville Place (NO_2 , PM_{10} & $\text{PM}_{2.5}$) plus the relevant diffusion tubes. Two suitable background sites with data capture above 85% were found for the annualisation for both the automatic monitoring site (Gonville Place) and Diffusion Tubes as per the recommended guidance.

Site ID	Annualisation Factor Wicken Fen	Annualisation Factor Boreham Wood	Annualisation Factor <Site 3 Name>	Annualisation Factor <Site 4 Name>	Average Annualisation on Factor	Raw Data Annual Mean	Annualised Annual Mean
CM1	0.838	0.920			0.879	24.810	21.813
T4	0.9088	0.9739			0.9414	28.1	26.4
T47, T48 & T49	0.7657	0.8599			0.8128	34.8	28.3
	1.1235	1.0602			1.0919	20.0	21.8

Table C1b – Annualisation summary – PM_{10}

No background sites within 50m radius including the sites used above had data capture above 85%. Therefore two of the roadside sites with sufficient data capture in Cambridge were used for the purpose of annualisation of the PM_{10} data.

Site ID	Annualisation Factor Montague Road	Annualisation Factor Parker Street	Annualisation Factor <Site 3 Name>	Annualisation Factor <Site 4 Name>	Average Annualisation on Factor	Raw Data Annual Mean	Annualised Annual Mean
CM1	0.956	0.953			0.955	16.718	15.960

Table C1c – Annualisation summary – PM_{2.5}

We struggled to find any sites either background or roadside within a 50 mile radius that had data capture over 85%. Given the complexities of PM_{2.5} it was felt to be more appropriate to use sites within the region with slightly lower data capture but indicative of regional background levels than those sites outside the region which may achieve slightly higher data capture. All sites used are roadside and have greater than 80% data capture.

Site ID	Annualisation Factor Kings Lynn Buckingham Drive	Annualisation Factor Kings Lynn Stair Lane	Annualisation Factor Sandy Roadside	Annualisation Factor Newmarket Road	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
CM1	1.129	0.825	0.760	0.994	0.927	16.243	15.061

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Cambridge City Council have applied a national bias adjustment factor of 0.76 to the 2022 monitoring data. A summary of bias adjustment factors used by Cambridge City Council over the past five years is presented in

Table C.2.

Cambridge City Council had always previously applied a local bias adjustment figure to its data. This is the first time a national figure has been used. This is due to insufficient data from triplicate tubes co-located with the Gonville Place monitor due to the removal of the monitor from the existing location due to development earlier than expected. Whilst we have deployed triplicate tubes to the Montague Road monitor, we have insufficient data for the 2022 reporting year to apply a local bias adjustment factor.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.76
2021	Local	-	0.67
2020	Local	-	0.68
2019	Local	-	0.68
2018	Local	-	0.71

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

No diffusion tube NO₂ monitoring locations within Cambridge City Council required distance correction during 2022.

QA/QC of Automatic Monitoring

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), Cambridge City Council. 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.

PM₁₀ and PM_{2.5} Monitoring Adjustment

The PM₁₀ monitors have had the BAM Gravimetric Equivalent correction factor applied by the QA/QC contractor.

The PM_{2.5} monitor at Gonville Place does not require correction as it has a heated inlet.

The PM_{2.5} monitor at Newmarket Road has had the conventional TEOM Gravimetric Equivalent correction factor applied by the QA/QC contractor.

Automatic Monitoring Annualisation

Annualisation of all data for Gonville Place was completed as the site was removed and ceased operation in May 2022 so data capture is low. See Tables C1- C3 for an explanation around the methodology applied to the annualisation. Given the difficulties of locating suitable background site within 50 miles with greater than 85% data capture for both the PM₁₀ and PM_{2.5} alternative roadside sites were used. Data capture across all the PM_{2.5} sites we reviewed was very low. Given the regional differences in PM_{2.5} background levels we opted for sites with less than 85% but greater than 80% data capture but within East Anglia. On reflection we considered this the most appropriate methodology given the shortfall in appropriate data. Based on this the data for PM_{2.5} should be used with caution.

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

No automatic NO₂ monitoring locations within Cambridge City Council required distance correction during 2022.

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

Figure D.1 – Map of Non-Automatic Monitoring Sites

The [Cambridge City Council website](https://www.cambridgecitycouncil.gov.uk/) has a map showing the locations of the monitoring stations in Cambridge which can be zoomed in and out to discover the specific locations. A click on the icon will provide the name and number of each site.

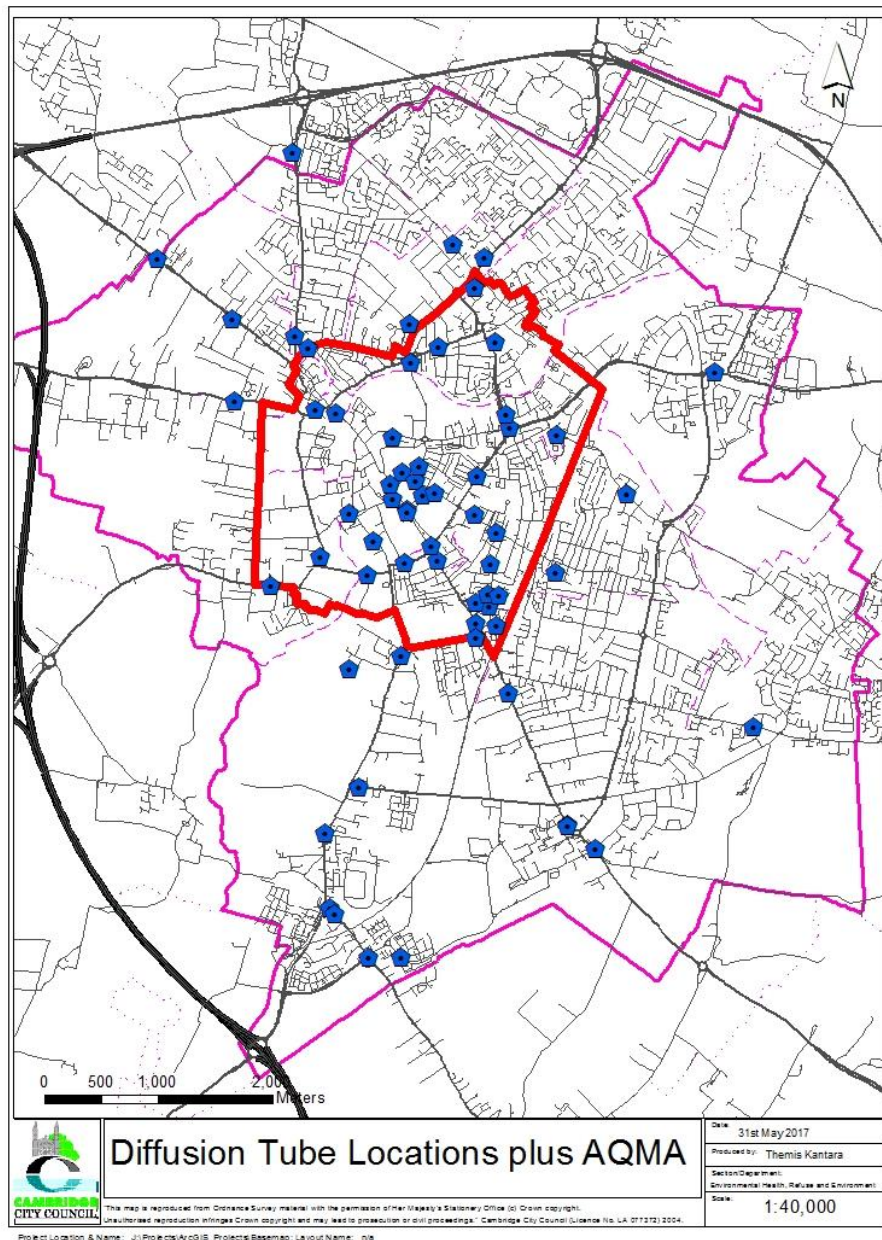


Figure D.2 – Map of Automatic Monitoring Sites

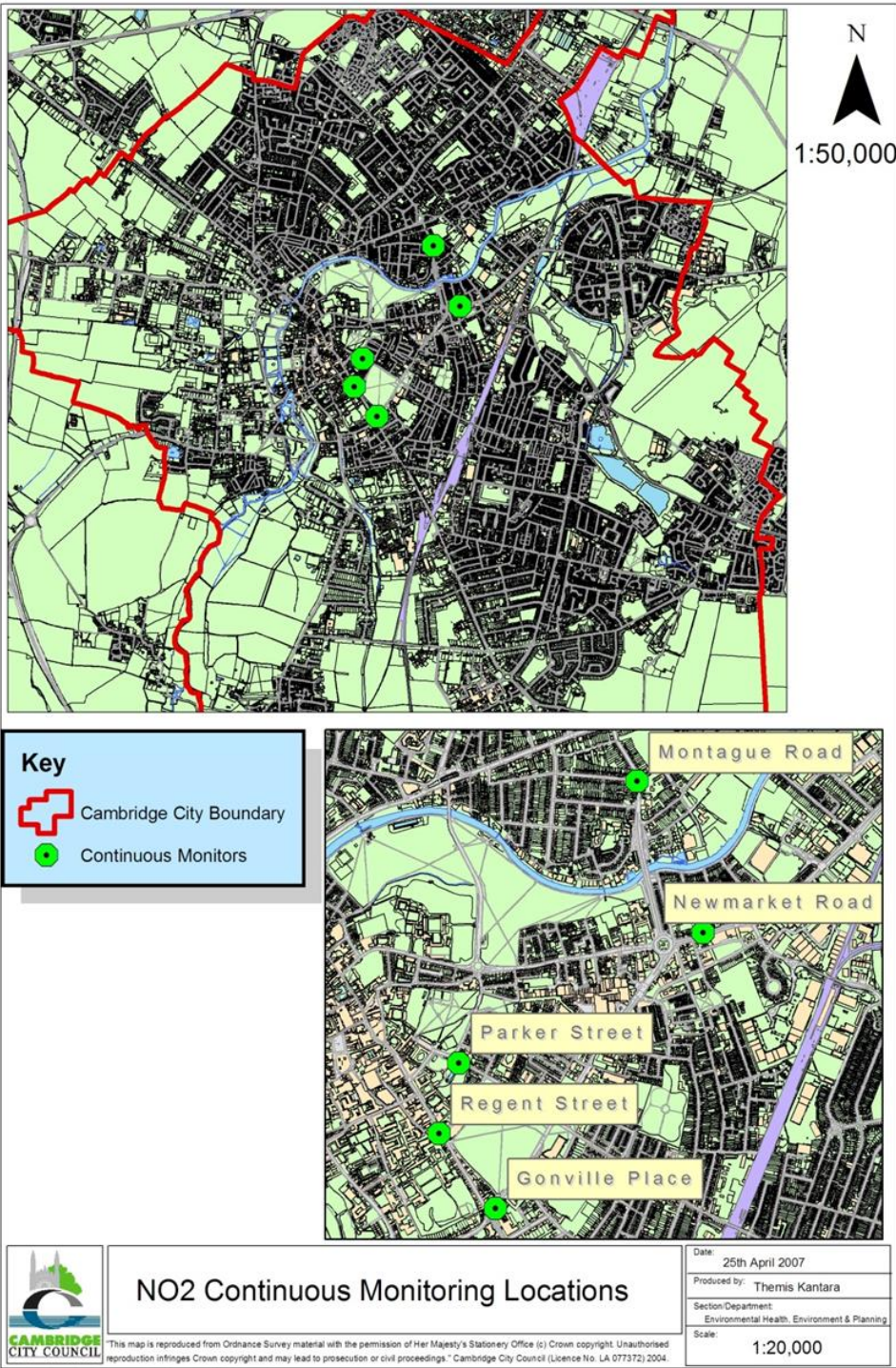
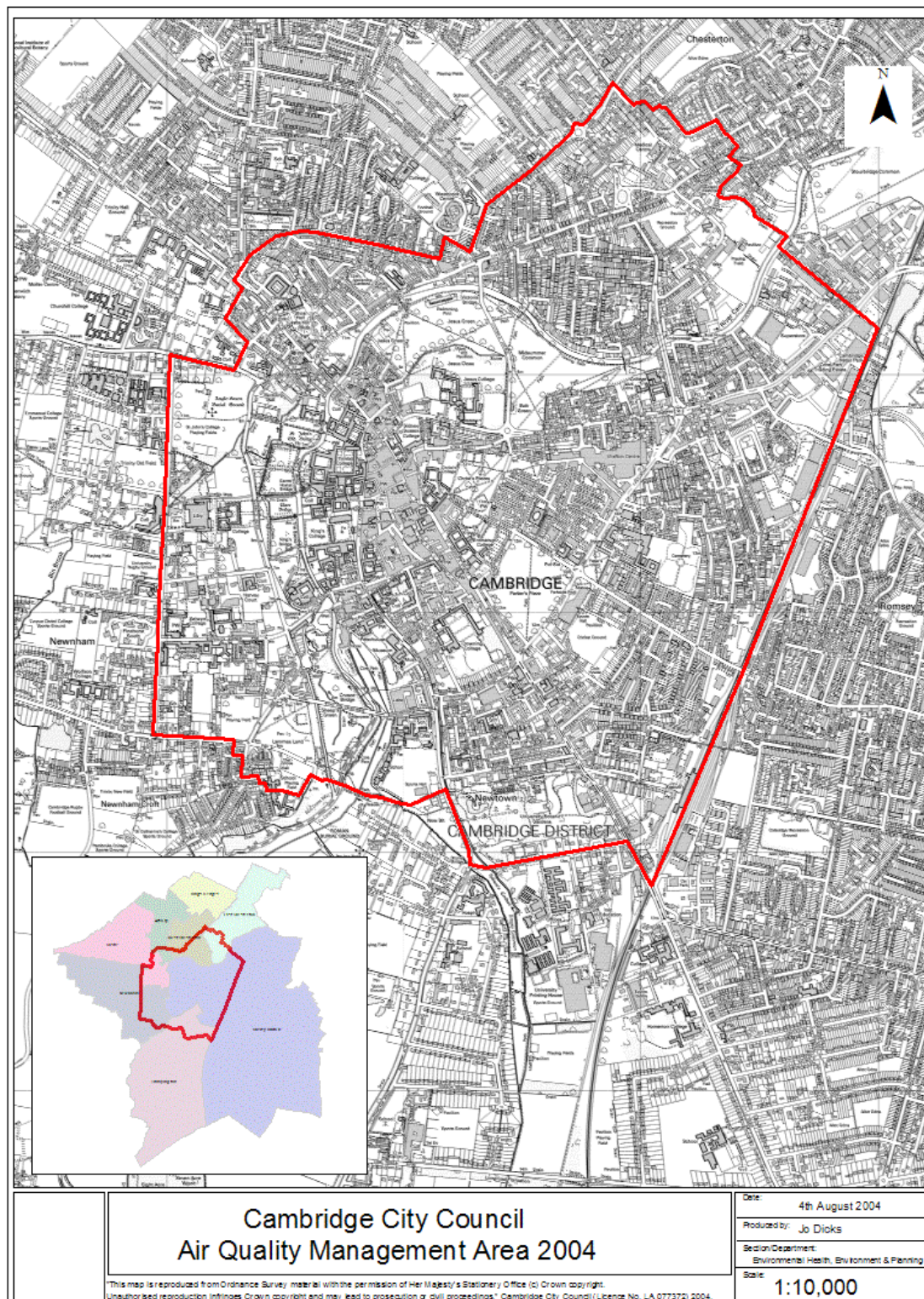


Figure D.3 – Map of Air Quality Management Area

The [Cambridge City Council website](https://www.cambridgecitycouncil.gov.uk/) has a map of the Air Quality Management Area.



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁸

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

⁸ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

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	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022.
Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022.
Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.