2024 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: June, 2024

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Executive Summary: Air Quality in Our Area

The Environment Act 1995 places a duty on Local Authorities to monitor, assess and take action to improve local air quality under the statutory process of Local Air Quality Management (LAQM). The LAQM system places greater emphasis on action planning to improve air quality, as well as requiring 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. This information is then reported via the completion of an air quality Annual Status Report (ASR). This report relates to data gathered between 1st January and 31st December 2023 and forms Huntingdonshire District Councils 2024 ASR, providing a review of air quality in the district during 2023.

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year[1].

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution[2].

Error! Reference source not found. provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.

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[1] UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022.

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

Sulphur Dioxide (SO$_2$)	Sulphur dioxide (SO$_2$) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM$_{10}$ and PM$_{2.5}$)	Particulate matter is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. PM$_{10}$ refers to particles under 10 micrometres. Fine particulate matter or PM$_{2.5}$ are particles under 2.5 micrometres.

Air Quality in Huntingdonshire

Following completion of the A14 relocation works in May 2022, 2023 was the first full year since 2019 where the monitoring data is unlikely to have been affected by traffic restrictions or Covid restrictions.   After the data indicated a sharp reduction in pollution levels from 2019 to 2020, overall results showed a slight rise in 2021 and 2022 as traffic levels stabilised following Covid and local traffic changes during the A14 relocation works. The most recent results show that in 2023 pollution levels were lower at every monitoring location, and the data collected demonstrates that there were no breaches of any of the national objectives in 2023 at any of the measurement locations within Huntingdonshire.

As with previous years, the main air quality concerns within Huntingdonshire continue to be Nitrogen Dioxide (NO$_2$) from vehicle emissions, originating from the A14, A1 and local traffic within the market towns.

Huntingdonshire District Council has discussed in previous ASR's a plan to put forward the revocation of three of our four Air Quality Management Areas (AQMA's) following continued compliance with the national objectives, an approach which has been supported by Defra. The proposed revocations were put to the Licensing and Protection Committee on 25th January 2024, which resolved to commence with the revocation of AQMA's 2, 3 and 4. More information regarding this, including the reports can be found on our website at [Agenda for Licensing and Protection Committee on Thursday, 25 January 2024, 2:00 pm - Huntingdonshire.gov.uk](#) . Subsequently, the revocation notices were completed and are currently with the legal team awaiting sealing prior to submission to Defra.

The final remaining AQMA is AQMA 1 in Huntingdon. This can be viewed on our website at: [Air Quality - Huntingdonshire.gov.uk](#) and on the Defra website at: [Local Authority Details - Defra, UK](#).

Current evidence indicates good compliance within the Huntingdon AQMA, likely due to the relocation of the A14 trunk road away from Huntingdon, and we predict that the 2024 data will again meet the air quality objectives. It is considered that there are unlikely to be any further exceedances in the area, and we will be looking to revoke the whole Huntingdon AQMA. In order to take this to committee, members will rightly require sufficient and robust data to consider the revocation. LAQM Technical Guidance 2022 advises the revocation of an AQMA should be considered following three consecutive years of compliance with the relevant objective as well as consideration of other aspects such as national trends in emissions etc. Following consultation with the LAQM helpdesk the 2022 data has been confirmed as appropriate for use, therefore Huntingdonshire District Council only need the data for 2024 in order to fully assess compliance.

Defra currently have a submission deadline in place for updated Air Quality Action Plans (AQAP's). An AQAP is required where a local authority has an AQMA. Huntingdonshire District Council have therefore submitted an extension request to Defra to delay the requirement for a new AQAP until March 2025 in order to assess if this is a necessary requirement following the collection of the 2024 monitoring data and determination of the Huntingdon AQMA status. If revocation is proposed and no AQMA's remain, an Air Quality Strategy will be developed. In the unlikely scenario results for 2024 exceed $36\mu g/m^3$ in the Huntingdon AQMA, an AQAP will be competed.

Diffusion Tubes (non-continuous monitors for Nitrogen Dioxide (NO$_2$))

Results from previous years have been in line with national trends and shown a predominantly year on year reduction in Nitrogen Dioxide (NO$_2$), however following the expected dip in pollution levels during 2020, overall results increased slightly in 2021 and 2022. The results for 2023 demonstrate that pollution levels decreased at every monitoring site within the district. The smallest reduction was at Earith High Street with a reduction of $0.5\mu g/m^3$ from $10.7\mu g/m^3$ to $10.2\mu g/m^3$. The largest decrease was at Huntingdon 3 (George Street) (reduction of $5.8\mu g/m^3$ from $22.6\mu g/m^3$ to $16.8\mu g/m^3$) and Huntingdon 9 (Ermine Street) (reduction of $5.6\mu g/m^3$ from $21.9\mu g/m^3$ to $16.4\mu g/m^3$). Both of these tubes are located within the Huntingdon AQMA.

The highest concentrations measured by diffusion tube within the district during 2023 continue to be at Pathfinder House (PFH) with the mean result of the triplicate tubes at $24\mu g/m^3$. This compares to a figure of $28.2\mu g/m^3$ in 2022 and remains well within the objective of $40\mu g/m^3$.

Huntingdonshire District Council has considered it necessary to reject diffusion tube data for December 2023 due to unusually low results, with some sites as low as 4µg/m^3, but 28µg/m^3 the month prior. These occurred over most of the district, with no reasonable pattern or explanation. The lab was contacted who confirmed the results had been correctly analysed and reported, however on discussion with neighbouring local authorities it appeared there were similar irregularities. The LAQM helpdesk are aware of this and have requested details which have been submitted. As this related to a large number of our sites it was considered that the most appropriate action was to reject the data for December 2023 as it was considered erroneous in line with TG22.

Due to the inherent uncertainty in diffusion tube monitoring concentration data, government guidance LAQM Technical Guidance 2022 (TG22) requires a bias adjustment factor to be utilised. Huntingdonshire District Council has produced and utilised a localised bias adjustment figure of 0.75. This is similar to the national bias figure of 0.77 gained from the National Diffusion Tube Bias Adjustment Factor Spreadsheet (03/24). The difference in use of the local compared to the national adjustment factor is minor, for example at Pathfinder House, which has the highest result in the district, the concentration is 24µg/m^3 using the local bias figure, compared to 24.6µg/m^3 using the national. However, for the majority of sites once rounding has been completed there will be no difference to the result, and it should be noted that even using the higher figure there still wouldn't be any breaches in the objective, or results within 10%.

The localised figure was utilised due to the data capture, the overall good precision and high quality chemiluminescence results. The methodology for gaining the bias adjustment figure can be found in Appendix C.

The overall trend this year has been a reduction in pollution levels and the data demonstrates that in 2023 all sites met the NO$_2$ objective of 40µg/m^3 and the continuing low trend is likely due to the relocation of the A14, improvements in vehicle emission standards and a change in travel behaviour.

Continuous monitors (Analysers for Particulate Matter (PM) and NO$_2$)

PM$_{10}$, PM$_{2.5}$ and NO$_2$ are continuously monitored at the Air Quality Monitoring Station (AQMS) located near Pathfinder House. Results indicate that there were no exceedances of any of the air quality objectives in 2023 at this location.

Data capture for both the NO_2 analyser and the FIDAS (Particulate Matter (PM) analyser) was excellent and there has been no requirement to annualise the data in line with TG22. Further details regarding this can be found in Section 3.1 and Appendix C.

The results show the annual mean PM_{10} figure decreased slightly from 14.8µg/m^3 in 2022 to 13.54µg/m^3 in 2023. This remains well within the objective level of 40µg/m^3. The results also indicate there were no breaches of the 24-hour objective (50µg/m^3) during 2023.

After climbing slightly in 2022 from 8µg/m^3 to 8.3µg/m^3, $PM_{2.5}$ has fallen to 6.99µg/m^3 in 2023, the lowest level recorded at this site.

The NO_2 analyser measured an annual mean of 24.98µg/m^3, down from 28.2µg/m^3 measured in 2022 and there were no 1-hour means above 200µg/m^3.

Residential Development:

The number of new properties within the Huntingdonshire district continues to increase, with many large-scale long-term developments, both under construction, as well as proposed within the planning process. Extensive development is still taking place around St Neots and Alconbury Weald and other large sites include locations at St Ives, Godmanchester and Buckden. Policy LP 36 of the Huntingdonshire District Council Local Plan outlines the requirements for an air quality assessment, and in line with this, the majority of larger scale and/or potentially polluting proposals are accompanied by an Air Quality Impact Assessment to assess the impact of the proposed development (including during construction) and any mitigation required.

Industrial Development:

Following Cambridgeshire County Council's refusal in early 2023 of permission for the construction of a dry anaerobic digestion facility, pellet fertiliser facility and healthcare waste energy recovery facility at a current waste composting site, the applicants lodged an appeal, resulting in a public inquiry from 20th February – 1st March 2024. The Planning Inspector's report has been sent to the Secretary of State who will be making the decision, which is due to be issued in August. This will be discussed further in next year's ASR.

An application at a different site within Huntingdonshire submitted at the end of 2022 to the County Council for the construction and operation of a Thermal Treatment Facility for the

generation of electricity from non-hazardous, residual waste (post-recycling), including associated plant and infrastructure has stalled and is awaiting the provision of additional information prior to determination. This will be discussed further in next year's ASR.

The Small Waste Incineration Plant near Colne has experienced some technical issues and was not operational for a significant part of 2023, the unit remains within the commissioning phase. This falls under the Industrial Emissions Directive and has an Environmental Permit issued by Huntingdonshire District Council which includes conditions to control pollution.

During 2023 complaints were received regarding smoke from a timber process, which burns offcuts of wood. On investigation it was considered the stack height required increasing to improve dispersion and this is currently going through the planning process prior to implementation.

Partnership working:

Huntingdonshire District Council continue to apply for funding from the County Council's air quality monitoring budget to assist with monitoring provision around the district and are grateful to the County Council for their continued support.

Huntingdonshire District Council are a member of the countywide Cambridgeshire and Peterborough Pollution Group (CPPG) and meet regularly with other local authorities, the County Public Health team, and the Environment Agency to share information and best practise measures, as well as identify and work on specific projects. During 2023 this included a more joined up approach to promoting Clean Air Day and working with the Public Health team to promote this, providing advice and sharing information with a focus on schools.

Huntingdonshire District Council are also involved in the collaboration between Cambridgeshire County Council and the Cambridgeshire and Peterborough Combined Authority for the smart place's initiative – more information on this is provided below.

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 Plan[3] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter ($PM_{2.5}$), the pollutant most harmful to human health. The Air Quality Strategy[4] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero[5] details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel, and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

Locally:

Since formally recognising a Climate Crisis and Ecological emergency, and adopting the Climate Strategy in February 2023, Huntingdonshire District Council has been working hard to reduce its own impact and has taken a number of steps to save energy and reduce emissions, all of which will help to improve air quality within the district.

An impressive project is investigating the feasibility of Hydrotreated Vegetable Oil (HVO), which is discussed below, however in addition to this there have been many other actions Huntingdonshire District Council have taken, including an upgrade to the lighting within the main offices at Pathfinder House. Funding has been applied for and gained from Sport England for £700,000 to provide triple glazed windows and a solar canopy at One Leisure in St Ives. £266,000 has been provided by the Low Carbon Skills Fund to review and provide plans to decarbonise our sites at Pathfinder House, Eastfield House and One

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[3] Defra. Environmental Improvement Plan 2023, January 2023

[4] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

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

Leisure in Huntingdon (dry side). Solar panels have been installed at Eastfield House and all one Leisure sites (with the exception of Ramsey), providing an ongoing saving. Building management systems have been installed to manage the boilers, air handling units and air source heat pumps in the most efficient way.

As well as improving our buildings, Huntingdonshire District Council have installed public EV charging points in a number of our car parks. We have access funding from the Rural Prosperity Fund to support the provision of EV charging infrastructure within the more rural areas of the district, with works anticipated to be complete before April 2025.

Huntingdonshire District Council also continues to support working from home opportunities, helping to reduce vehicle usage and have promoted and provided the Carbon Literacy Course to staff members, with 18 employees becoming carbon literate through the course of 2023. Funding has also been provided for residents within Huntingdonshire to attend these courses to raise awareness and increase local engagement. The Huntingdonshire Community Chest Grant is also available to community organisations to assist in lowering carbon emissions – more information regarding this can be found under the local engagement section below.

Huntingdonshire District Council continues to provide advice to members of the public regarding sustainability and energy saving measures, especially in the current financial climate, more information can be found on our website here: Sustainability & Greener Living - Huntingdonshire.gov.uk and further information regarding the climate strategy can be found here: Climate Strategy - Huntingdonshire.gov.uk

Hydrotreated Vegetable Oil (HVO):

Huntingdonshire District Council's biggest standalone emitter of CO_2 is from its fleet, which produces around 1300 tonnes of CO_2 annually. Decarbonisation of the fleet is therefore a priority and why the council are currently leading a project on the use of Hydrotreated Vegetable Oil (HVO) with the aim of assessing the viability of adopting HVO on a large scale. HVO fuel is a renewable diesel alternative that eliminates up to 90% of net CO_2 and significantly reduces nitrogen oxide (NO_x), particulate matter (PM) and carbon monoxide (CO) emissions and is therefore currently considered one of the cleanest fuels on the market. The trial commenced in November 2023 and will conclude in June 2024 and covers 15 council units (being a mixture of plant, machinery and vehicles). Our operations team also opened the trial up to Cambridgeshire Fire and Rescue and Cambridgeshire

Constabulary who have both included a number of vehicles. Whilst the fuel is more expensive than regular diesel, there is no requirement for infrastructure or operational changes and so far the project looks to have been a success. The results and outcome will be discussed further in next year's ASR.

Monitoring:

The monitoring of air quality within the district is considered an important aspect and Huntingdonshire District Council continues to re-evaluate the monitoring provision within the area on an on-going basis.

The 'Smart Places Initiative' project was discussed in last year's ASR and aims to use data and emerging technology to address common local challenges in areas such as transport, connectivity, and air quality. This data is then processed and analysed, providing information to help influence behaviours and improve economic strength, sustainability, and quality of life for the local residents. The Smart Places initiative is part of the Connecting Cambridgeshire programme, led by Cambridgeshire County Council, which is working in collaboration with the Cambridgeshire and Peterborough Combined Authority, Huntingdonshire District Council and local town and parish councils as well as local community groups, residents, and businesses. As part of this initiative air quality monitors were placed at several locations around St Neots, however these experienced power problems and no air quality data was received and unfortunately the installation company have ceased trading.

The Huntingdonshire District Council project team for Market Towns, who were also liaising with Environmental Health and investigating potential low-cost air monitors for St Neots, Huntingdon, Ramsey and St Ives has had to review the scope and costs of the project in conjunction with the Town Councils, who will be managing the content, and whilst they are moving forward on some aspects, at the present time the provision of low cost air quality monitors isn't considered an immediate priority, however this may be revisited in future.

Planning:

As mentioned above, Policy LP 36 of the Huntingdonshire District Council Local Plan sets out the requirements for an air quality impact assessment, and in line with this most larger scale, or potentially polluting proposals are accompanied by an air quality report. As in

previous years, the Environmental Protection Team continue to provide advice to the Planning Team regarding proposed developments to minimise air pollution impacts, even if there is no risk that air quality objectives will be breached. This approach is supported by both national and local planning policies, promoting air quality improvements and minimisation of impacts. Therefore, even if the effect is judged to be insignificant, consideration of the application of good design and good practice measures is advised, including the following:

• promoting active travel and ensuring good cycling and walking infrastructure (preferably away from roads) to reduce reliance on vehicle use,

• the provision of electric vehicle rapid charge points/infrastructure,

• access to public transport,

• good property insulation,

• low emission design.

Construction Environmental Management Plans (CEMP's) continue to be a requirement for certain developments in order to control and minimise the impact of pollution, especially particulate matter, during construction activities.

Clean Air Day:

During 2023 Huntingdonshire District Council supported the National Clean Air Day public awareness campaign on 15th June 2023 and as part of the work plan for the Cambridgeshire and Peterborough Pollution Group various meetings and correspondence took place providing information to the County Public Health team to provide a more coordinated approach. Information on Clean Air Day was sent to schools centrally from the County Public Health team and website information was shared within the group.
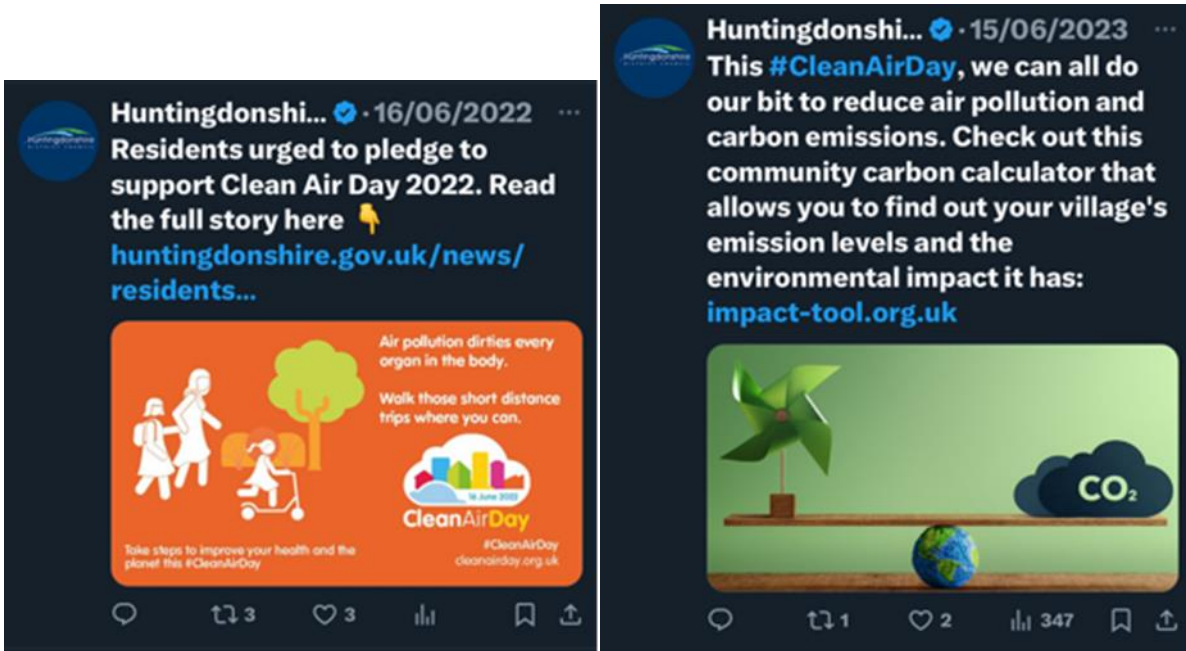
Huntingdonshire District Council provided information and advice to the public on our website and via social media throughout the day:

Website:

Twitter/X:

A14 upgrade:

The re-routing of the A14 and associated works removing the viaduct were completed in May 2022. Whilst the new section of road (green line below) which takes the heavy traffic away from Huntingdon opened at the end of 2019, parts of the remaining road in close proximity to large residential areas in Huntingdon closed whilst works took place to redevelop it into the A1307 (pink/red road through Huntingdon), as indicated below:
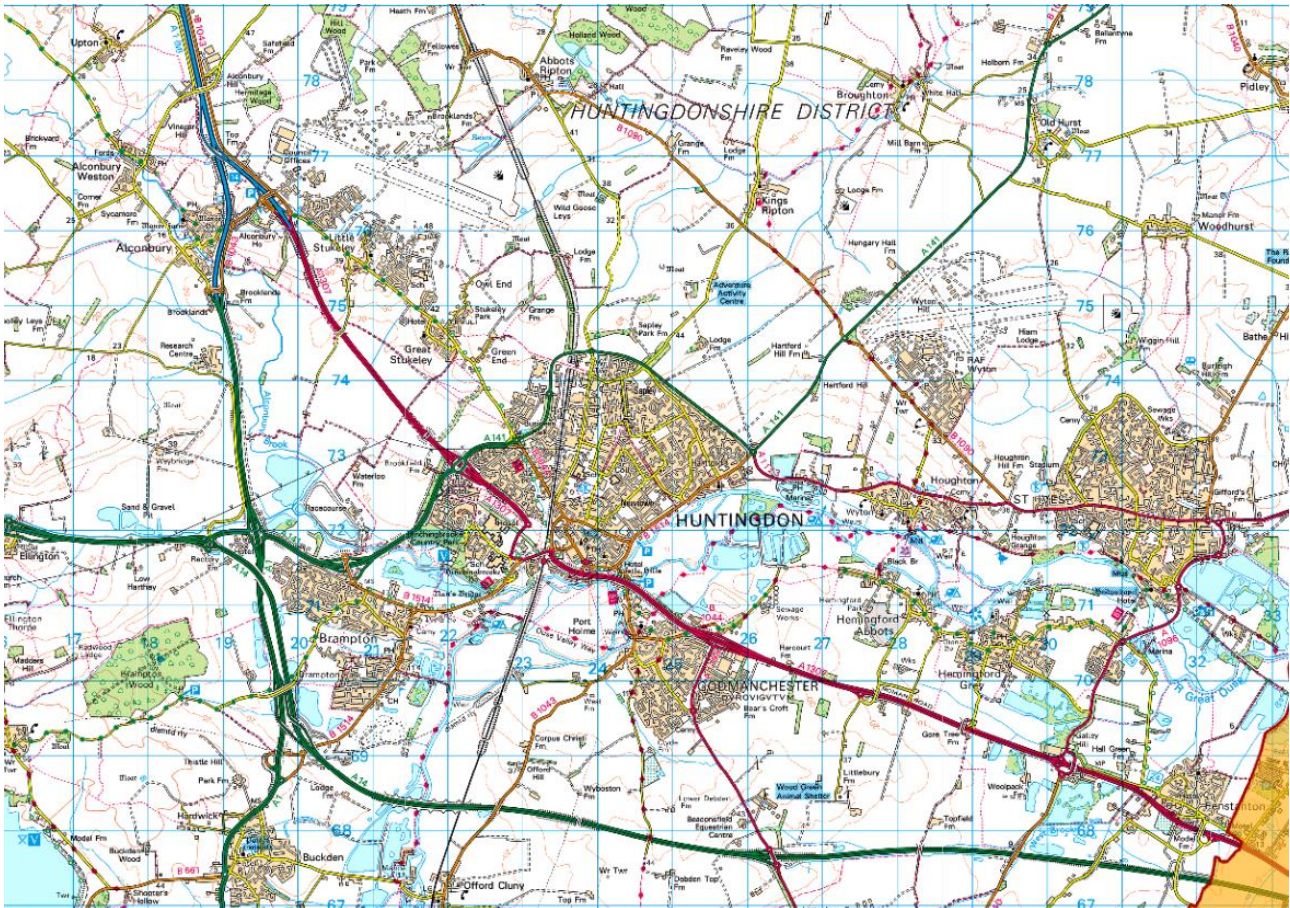
The A14 relocation project has not only improved traffic flows and reduced travel disruption through Huntingdon, but the results also indicate it has had a beneficial impact on NO_2 and particulate matter pollution levels within the Huntingdon AQMA.

A428 upgrade:

A new 10-mile dual carriageway (shown in orange on the plan below) and various junction improvements are taking place on the A428 between the Black Cat roundabout and Caxton Gibbet roundabout, directly affecting traffic flows within and south of St Neots.

Construction commenced during 2023, and the Development Consent Order (DCO) is subject to a number of conditions, including the requirement for management plans to minimise and control dust and air pollution during construction. Regular liaison meetings are being held between the construction team and all local authorities involved, including Huntingdonshire District Council, where matters such as pollution control are discussed to ensure adequate mitigation measures are being utilised.

Further information on the project can be seen at: <u>A428 Black Cat to Caxton Gibbet improvements - National Highways</u>

Conclusions and Priorities

2023 is the first year since 2019 where there is unlikely to have been a significant influence from to road works/closures and travel restrictions on the data collected. This is therefore the first year where we can begin to see the potential impact of relocating the A14. Pollution levels will also be influenced by other factors, such as improved vehicle emission standards, changes in working/driving habits and weather conditions etc, however relocating the A14 away from Huntingdon has improved air quality within the town.

There has been a reduction in NO_2, PM_{10}, and $PM_{2.5}$ compared to 2022. NO_2 levels have decreased at every monitoring location, with the biggest decrease at Huntigndon 3

(George Street) with a reduction of 5.8µg/m^3 from 22.6µg/m^3 to 16.8µg/m^3, equating to an almost 26% reduction. The diffusion tube at Great Stukely had the highest percentage reduction at just over 27% with a decrease of 3µg/m^3 from 11.1µg/m^3 to 8.1µg/m^3.

The highest concentrations measured by diffusion tube within the district during 2023 continue to be at Pathfinder House with the mean result of the triplicate tubes at 24µg/m^3. The AQMS at the same location measured 24.98µg/m^3 as the annual mean for 2023 and remains well within the objective of 40µg/m^3.

The results therefore indicate that within Huntingdonshire there was widespread compliance with the air quality objectives in 2023.

Following the revocation of the St Neots, Fenstanton and Brampton AQMA's, Huntingdonshire District Council will be assessing the feasibility of revoking the Huntingdon AQMA. Whilst the figures currently indicate that objectives are being met, it is considered the data gathered in 2020 and 2021 is unlikely to be representative of long-term trends in pollutant concentrations due to Covid restrictions and roadworks. LAQM Technical Guidance 2022 advises the revocation of an AQMA should be considered following three consecutive years of compliance with the relevant objective as well as consideration of other aspects such as national trends in emissions etc. Therefore, data for 2024 is required to assess this AQMA.

The current Air Quality Action Plan (AQAP) is out of date and Huntingdonshire District Council have submitted a request to Defra to defer submission of a new AQAP for 1 year to enable a robust assessment of the remaining AQMA to ensure a more focussed and appropriate action plan is produced, if required. If it is not required, an Air Quality Strategy (AQS) will be produced for the district.

The main priorities for 2024 and beyond for Huntingdonshire District Council in relation to air quality are to:

- Assess the impacts of the relocation of the A14 and if this will require changes to the Huntingdon AQMA – results over the next year will demonstrate if the AQMA is still necessary.

- Once the future of the final AQMA is known, completion of a new AQAP and/or AQS.

- Improve internal partnership working, including with the Operations and Climate teams, to ensure a holistic approach to minimising emissions from the council itself.

- Continue to maintain partnership working with Huntingdonshire District Council planning department and improve partnership working with the County Council Highways team and other relevant stakeholders, for example with considering the provision of low-cost air quality sensors for public education and awareness; and

- Continue to ensure construction impacts are considered and mitigation provided for appropriate development proposals.

These are discussed further in Section 2.2 below.

Challenges:

A continued challenge is to ensure sufficient resources are available for the air quality function, but the main ongoing challenge remains to balance economic growth within Huntingdonshire, whilst ensuring compliance with the air quality objectives and promoting and encouraging best practice to minimise pollution where possible.

Local Engagement and How to get Involved

As a local authority Huntingdonshire District Council continue to receive requests for information regarding air quality within the district as members of the public and action groups query pollution levels within their area. We also take part in the promotion of Clean Air Day and Clean Air Night, in order to highlight air quality issues and provide information and advice.

There are various links below with advice and guidance for improving air quality and members of the public can help to improve local air quality by reducing their emissions. This can be steps such as improving home insultation (which will also help to reduce heating bills), reducing the number of car journeys undertaken, car sharing, using public transport, walking, or cycling wherever possible (active travel), switching off car engines when stationary, purchasing energy efficient goods, improving energy efficiency at home, and choosing to purchase a low emission car. These are all examples of actions that can help to reduce emissions.

Public transport information for Cambridgeshire can be viewed on the County Council website at: Public transport, Park and Ride and Guided Busway - Cambridgeshire County Council.

Wood burning stoves and open fires contribute to air pollution and there are a number of steps members of the public who use these can take to reduce environmental and health impacts. More information can be found on our website at Wood Burning Stoves - Huntingdonshire.gov.uk, where we also signpost to Defra's advice on this aspect.

Huntingdonshire District Council provide further information on energy efficiency on our website under 'Sustainability and greener living' Sustainability & Greener Living - Huntingdonshire.gov.uk. The energy savings trust can also provide further advice at Energy Saving Trust.

The Community Chest Grant is available from Huntingdonshire District Council to community groups whose proposals meet four key priorities, one of which is lowering carbon emissions. More information can be fund on our website here: Grants - Huntingdonshire.gov.uk .

Finally, Huntingdonshire District Council support National Clean Air Day and National Clean Air Night who provide another valuable source of information regarding air quality advice and how to minimise exposure on their Clean Air Day | Action for Clean Air website, which also provides information regarding internal air quality.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Huntingdonshire District Council with the support and agreement of the following officers and departments:

Prepared by	Position	Signature
Claire Braybrook	Environmental Protection Officer, Huntingdonshire District Council	*C.B*

This ASR has been approved by:

Approved by	Position	Signature
Kate Penn	Environmental Health Service Manager, Huntingdonshire District Council	*K Penn*
Michelle Sacks	Chief Executive, Huntingdonshire District Council	
Val Thomas	Acting Director of Public Health, Cambridgeshire County Council	

This ASR has been signed off by a Director of Public Health.

If you have any comments on this ASR please send them to Claire Braybrook at:

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1 Local Air Quality Management

This report provides an overview of air quality in Huntingdonshire during 2023. 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 Huntingdonshire District 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 Huntingdonshire District Council can be found in Table 2.1. The table presents a description of the AQMA that is currently designated within Huntingdonshire. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of the AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objective pertinent to the current AQMA designation is as follows:

- NO_2 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
Huntingdonshire District Council Air Quality Management Area Order No. 1 (Huntingdon: Nitrogen Dioxide)	1st December 2005 - amended 26th October 2007	NO_2 Annual Mean	An area encompassing approximately 2831 domestic properties affected by the A14, A141, B1044, B1514 and Huntingdon Inner Ring Road.	YES	50.2ug/m^3	None (24.98ug/m^3)	4	Cambridgeshire Joint Air Quality Action Plan (2009)	www.huntingdonshire.gov.uk/media/3423/2009-joint-air-quality-action-plan.pdf

☐ **Huntingdonshire District Council confirm the information on UK-Air regarding their AQMA is up to date. Please note: Once the revocation orders for AQMA's 2, 3 and 4 have been sealed they will be submitted to Defra and Huntingdonshire District Council will take the necessary steps to ensure the information on UK-Air regarding their AQMA is up to date.**

☒ **Huntingdonshire District Council confirm that all current AQAPs have been submitted to Defra.**

2.2 Progress and Impact of Measures to address Air Quality in Huntingdonshire

Defra's appraisal of last year's ASR concluded the following:

DEFRA conclusions	Huntingdonshire District Council response
1. The ASR has been signed off by the Director of Public Health. This is welcomed. Collaboration and consultation with those who have responsibility for Public Health is expected to increase support for measures to improve air quality, with co-benefits for all.	Comment welcomed and noted.
2. The Council is currently in the process of revoking the St Neots, Brampton and Fenstanton AQMA's. This is supported due to their continued compliance.	Comment noted.
3. The current AQMA from 2009 is out of date. The Council are urged to update their Air Quality Action Plan as soon as possible. Although, there are three AQMA's due for revocation, AQMA1 Huntingdon is still considered to be an active AQMA and as such requires an up to date AQAP.	Noted. Deferral submitted to Defra as it is considered revocation of the final AQMA is likely following a further years' worth of data.
4. The declaration dates for the AQMA 1, 2 and 3 in the report do not match the declaration dates in the portal. The Council is urged to amend this.	Noted, checked and amended where necessary.
5. The Council have responded to and addressed to comments made following last year's appraisal, this is appreciated and it is encouraged that the Council continue to do this in future years.	Comment welcomed, noted and completed.
6. Huntingdonshire District Council has provided extensive detail on what they are doing to improve PM2.5 emissions/concentrations within their area, discussing	Comment welcomed and noted.

measures that are being undertaken as well as providing the D01 indicator for their area.	
7. Overall, the report is detailed and concise, providing a good overview of the work the Council is undertaking to improve air quality within their area, and satisfies the criteria of the relevant reporting standard. The Council should continue their good work.	Comment welcomed and noted.

Huntingdonshire District Council has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

As stated in previous ASR's, it should be noted that these measures originate from the Cambridgeshire Air Quality Action Plan (2009) and hence have remained the same for several years. Huntingdonshire District Council have now revoked the St Neots, Brampton and Fenstanton AQMA's and have submitted a deferral request to delay the requirement to submit a new AQAP as it is considered highly likely that following the collection and assessment of the monitoring data for 2024, sufficient evidence will be available to put forward a robust proposal to revoke the Huntingdon AQMA. As we will be in a position to assess this in 2025 it is considered delaying the requirement to submit a new AQAP would be the most appropriate approach at this time. In the meantime, the council will be considering the development of an Air Quality Strategy.

Six measures from the 2009 AQAP are included within Table 2.2, with the type of measure and the progress Huntingdonshire District Council have made during the reporting year of 2023 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective Action Plans at Joint Air Quality Action Plan 2009 (huntingdonshire.gov.uk).

Key completed measures are:

Measurement 1: The A14 upgrade and associated works were fully completed at the end of May 2022. The majority of traffic has been relocated onto the new A14 at greater distance from Huntingdon. In line with the LAQM Helpdesk's advice and Technical

Guidance 2022 the Huntingdon AQMA can be re-evaluated following the collection and assessment of 2024's monitoring data.

Measurement 2: Implementation of air quality policies in the local plan is currently on going. The Local Plan for Huntingdonshire to the year 2036 was adopted in 2019 and includes a policy on air quality with a requirement for a low emissions strategy in certain circumstances. The plan also provides advice on the provision of electric vehicles, and it is hoped this will encourage the use of electrically powered vehicles, in line with National Planning Policy.

In an attempt to ensure air quality is fully considered, officers continue to advise the Local Planning Authority, developers, and air quality consultants about current public health advice to minimise the health impacts of air quality even if there is no risk that air quality standards will be breached. Therefore, even if the effect is judged to be insignificant, consideration should be given to the application of good design and good practice measures, including aspects such as electric vehicle rapid charge points, insulation, and active travel provision.

Measurement 3: Smart traffic lights at St Neots have been installed and are operational.

Measurement 4: Inclusion of Huntingdonshire in the Quality Bus Partnership (QBP). Cambridgeshire County Council has not extended the QBP to outside Cambridge City, and currently has no plan to do so, therefore no further action will be taken regarding this measure at this time. This will be reassessed in the next AQAP/AQS.

Measurement 5: The guided bus route is complete and operational.

Measurement 6: Development of an effective freight partnership. Following the relocation of the A14 away from the main residential areas it is not expected that freight will cause a significant issue within Huntingdonshire, therefore it is intended that no further action will be taken regarding this measure at this time. This will be reassessed in the next Air Quality Action Plan (AQAP) / Air Quality Strategy (AQS).

With the exception of measure 2, which is ongoing, none of the other formal six measures from within the AQAP remain outstanding as currently measures 4 and 6 are not intended to be continued and 1, 3 and 5 have been completed.

Huntingdonshire District Council worked to implement these measures in partnership with the following stakeholders during 2023:

• National Highways

• A428 Project Team

• Neighbouring Local Authorities

• District and County Planning and Development Teams

Huntingdonshire District Council's priorities for the coming year are:

• Collect and assess air quality monitoring data for 2024 and determine if there is sufficient evidence to propose revocation of the Huntingdon AQMA.

• Depending on the outcome of the above, consider the development of an Air Quality Action Plan or an Air Quality Strategy. In the unlikely scenario results for 2024 exceed $36\mu g/m^3$ in the Huntingdon AQMA, an AQAP will be competed.   In the meantime, the council will be looking to develop an Air Quality Strategy following the revocation of the three other AQMA's (these have been agreed at committee and are awaiting the Orders to be sealed) and this will include information on the Huntingdon AQMA area.

• Work in partnership with the County Council, Combined Authority, and other relevant stakeholders to review the potential to introduce air quality sensors for public education and awareness.

• Consider the implications on Huntingdonshire District Council of the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 and the Defra Environmental Improvement Plan 2023 and how any requirements will be achieved.

• Continue to utilise funding opportunities to support the air quality monitoring service.

• Continue to maintain partnership working with Planning and encourage more involvement with the councils Climate team, as well as promoting opportunities for collaboration with Highways, the County Public Health team and other interested parties.

• Continue to ensure construction impacts are considered and adequate mitigation utilised for appropriate development proposals (including vehicle idling).

- Continue to regulate industrial processes falling under the Environmental Permitting Regime and provide advice and guidance on additional mitigation measures to minimise pollution as far as possible; and

- Continue to consider what further measures the Council can take to improve its own emissions and work towards improvements in order to achieve the aspiration of a net zero Huntingdonshire by 2040.

Regionally, Cambridgeshire County Council continues to recognise the importance of air quality and it remains a key priority at regional level.

The principal challenges and barriers to implementation that Huntingdonshire District Council anticipates facing are the provision of resources to prioritise this work, availability of partners to collaborate and difficulties in assessing the suitability and data reliability of low-cost sensors should future investment become available.

Huntingdonshire District Council anticipates that the measures stated above and in Table 2.2 will achieve continued compliance and enable the revocation of AQMA 1 Huntingdon, as well as continued compliance in the rest of the district.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	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
1	Re-routing of A14 away from settlements	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2009	2020	Highways England	Highways England	NO	Funded		Completed	AQMA 1 should meet requirements	Monitoring indicates a reduction	**Completed** 30th May 2022.	Lengthy Timescale but expected to improve air quality in the Huntingdon AQMA and the now revoked AQMA 3 (Brampton) and 4 (Hemingford to Fenstanton).
2	Implementation of air quality policies in the local plan.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2009	Ongoing	Huntingdonshire District Council	Huntingdonshire District Council	NO	Funded		Implementation	All	N/A	Included within the HDC Local Plan to 2036 Implementation **On-going**	Highlighting AQ aspects and measures for reduction is ongoing.
3	Change to traffic-light system in St Neots High Street as specified in the St Neots Markets Town Strategy	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2009	Completed	Cambridgeshire County Council	Cambridgeshire County Council	NO	Funded		Completed	Reduction in the now revoked AQMA 2 St Neots	AQ monitoring indicates a reduction	**Completed**	Works completed in 2013. Modelling undertaken in 2017 demonstrates AQ limits are being met and HDC are in the process of revoking the AQMA. See Section 2.2
4	Inclusion of Huntingdonshire in the Quality Bus Partnership	Alternatives to private vehicle use	Other	2009	None	Cambridgeshire County Council	Cambridgeshire County Council	NO	Not Funded		Aborted	All	N/A	None **Suspended**	At present CCC do not consider that it is feasible to run the QBP outside of the city of Cambridge. This is something we will continue to consider.
5	Completion and opening of Cambridgeshire Guided Busway	Transport Planning and Infrastructure	Bus route improvements	2009	Completed	Cambridgeshire County Council	Cambridgeshire County Council	NO	Funded		Completed	All	Unknown	**Completed**	The guided busway was opened in August 2011 from Cambridge Huntingdon and extended to Peterborough in July 2012.

Measure No.	Measure Title	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
6	Development of an effective freight partnership	Freight and Delivery Management	Other	2009	Unknown	Not currently progressing	Not currently progressing	NO	Not Funded		Aborted	All	N/A	None **Suspended**	Now the A14 improvement has been completed and Highways England have applied for improvements on the A428, it is unknown if an effective freight partnership would have any significant effect. This will be re-evaluated once changes have been monitored.

2.3 PM$_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

Particulate Matter (PM)$_{2.5}$ is not a single chemical, but any substance in the air which is not a gas and is a suspension of particulate matter with an aerodynamic diameter of 2.5 micrometres (μm) or less.

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[6], local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM$_{2.5}$)). There is clear evidence that PM$_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Due to its extremely small size, PM$_{2.5}$ can travel for long distances in the air, and it is estimated that as much as up to 50% of the levels found in any given area can be from sources outside a local authority's boundary[7]. Nevertheless, this also means that the contribution of local sources to total PM$_{2.5}$ levels is significant (typically 50% or more), and therefore Defra consider local actions to reduce PM$_{2.5}$ emissions will have a significant beneficial impact with regard to overall PM$_{2.5}$ concentrations.

Two targets for PM$_{2.5}$ have been set under The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023

- Annual Mean Concentration Target ('concentration target') - a maximum concentration of 10μg/m^3 to be met across England by 2040

- Population Exposure Reduction Target ('exposure target') - a 35% reduction in population exposure by 2040 (compared to a base year of 2018).

Defra has published an Environmental Improvement Plan setting interim targets and describing how these will be met. This can be viewed here Environmental Improvement Plan 2023 - GOV.UK (www.gov.uk)

PM$_{2.5}$ has been monitored in Huntingdonshire at Pathfinder House since 2014 and results have indicated a general downward trend over the years. The monitor was replaced in

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[6] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

[7] Defra Local Air Quality Management Technical Guidance (TG22) 2022

2019 to reduce uncertainty in results. The annual mean for $PM_{2.5}$ in 2023 was 6.99µg/m^3, which was a reduction compared to the level of 8.3µg/m^3 recorded in 2022 and 8µg/m^3 in 2021. Table A.8 and Figure A.4 in Appendix A demonstrate the measured annual mean concentration of $PM_{2.5}$ in Huntingdonshire has been steadily reducing, with the lowest recorded level in 2023. This reduction may have been assisted by the relocation of the A14, however it could be due to a number of factors such as meteorological conditions/construction levels/requirement for domestic heating etc.

Huntingdonshire District Council is taking the following measures to address $PM_{2.5}$:

- The measures (1, 2, 3 & 5) discussed above in Section 2.2 and Table 2.2 will have co-benefits on multiple pollutants, including $PM_{2.5}$.

- In 2014 Huntingdonshire District Council joined with Cambridgeshire County Council Public Health and the other Cambridgeshire authorities to develop the transport and health joint strategic needs assessment which focused on $PM_{2.5}$ from transport, see Transport-and-Health-JSNA-2015-Air-Pollution.pdf (cambridgeshireinsight.org.uk)

- Continue to regulate and enforce sites covered by the Environmental Permitting regime and provide advice to minimise emissions and ensure continued environmental improvement.

- Continue to liaise with the Local Planning Authority and developers requesting pre-app advice, to ensure air quality mitigation measures are considered for large developments to minimise any impact (Measurement 2 in Table 2.2).

- Continue to advise planning conditions to require a Construction Environmental Management Plan (CEMP) when necessary, in order to control dust from demolition and construction activities.

- Maintain the provision of advice to members of the public to minimise bonfires and inform them of key advice documents, such as those provided by Defra regarding the reduction of air pollution from the use of wood burning stoves and open fires.

- Continue supporting Clean Air Day and Clean Air Night, signposting members of the public to resources and advice regarding air quality and promotion of air quality information.

- Continue to provide information and guidance to members of the public regarding Solid Fuel Restrictions and work in partnership with the County Trading Standards Team to highlight any issues.

- Attendance at the quarterly Cambridgeshire Pollution Prevention Group meetings where issues such as air quality are discussed with representatives from other adjoining Local Authorities, The County Council, and the Environment Agency to discuss best practice and partnership working.

- Huntingdonshire District Council is intending to review and update the Council's Air Quality Action Plan (AQAP) or provide an Air Quality Strategy (AQS) once the outcome of the current AQMA has been determined. $PM_{2.5}$ will be considered within any new AQAP/AQS, as will the requirements under Defra's Environmental Improvement Plan and the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.

Huntingdonshire does not currently have any Smoke Control Areas within the district.

Public Health Outcomes Framework:

Some of the above ties in with the Public Health Outcomes Framework (PHOF), which includes an indicator for air pollution due to the extensive evidence of the health impacts associated with it. The PHOF aims to increase healthy life expectancy, reduce differences in life expectancy and have healthy life expectancy between communities. The indicators are designed to demonstrate how well public health is being improved and protected and encourage partnership working and involvement.

The Public Health Indicator for $PM_{2.5}$ provides a useful indication as to the burden associated with concentrations of $PM_{2.5}$ within Huntingdonshire.

The method used to estimate the indicator values changed in early 2022 and is now based on recommendations made by the Committee on the Medical Effects of Air Pollutants. Concentrations of total $PM_{2.5}$ are therefore now used as the basis for the air pollution data for this indicator. Modelled concentrations of the anthropogenic component of $PM_{2.5}$ (human-made only) are no longer used because of the uncertainty associated with the assignment to anthropogenic and non-anthropogenic sources, and because non-anthropogenic sources make only a small contribution to total concentrations.

The new indicator is defined as the fraction of annual all-cause adult mortality attributable to particulate air pollution (concentrations of total PM$_{2.5}$). It can be viewed as the mortality burden associated with long-term exposure to particulate air pollution at current levels, expressed as the percentage of annual deaths from all causes in those aged 30 and over. A time series with this new definition is available back to 2018, but it is advised that caution is needed when interpreting trends, and these cannot be compared to the data within ASR's dated prior to and including 2021 under this section, due to the differences in calculation methodology[8].

The Public Health England PHOF indicator D01 *'Fraction of mortality attributable to particulate air pollution'* for Huntingdonshire in 2022 (the most recent year available) was 6%, an increase of 0.7% from 5.3% in 2021. The 2022 values for Huntingdonshire are 0.1% higher than Cambridgeshire (5.9%), 0.2% lower than the East of England region (6.2%) and 0.2% higher than the England values (5.8%).

Public Health Outcomes Framework data trends for Huntingdonshire compared with England:

Public Health Outcomes Framework ▾

Data view ▾	Geography	Topic ▾
Trends	Huntingdonshire Districts & UAs in East of England region (statistical)	D. Health protection

Indicator
D01 - Fraction of mortality attributable to particulate air pollution (new method) Proportion - % ▾

▶ Legend   ▶ Benchmark

Geography version   Districts & UAs (from Apr 2023) ▾

Trends for **Selected area** | All areas (grouped)   Display **Selected indicator** | All indicators

D01 - Fraction of mortality attributable to particulate air pollution (new method)   Proportion - %

Show confidence intervals   Show 99.8% CI values   ▶ More options

Recent trend: Could not be calculated

			Huntingdonshire			East of England	England
Period		Count	Value	95% Lower CI	95% Upper CI		
2018	○	-	7.5%	-	-	7.6%	7.1%
2019	○	-	7.5%	-	-	7.6%	7.1%
2020	○	-	5.7%	-	-	5.8%	5.6%
2021	○	-	5.3%	-	-	5.5%	5.5%
2022	○	-	6.0%	-	-	6.2%	5.8%

Source: Background annual average PM2.5 concentrations for the year of interest are modelled on a 1km x 1km grid using an air dispersion model, and calibrated using measured concentrations taken from background sites in Defra's Automatic Urban and Rural Network (https://uk-air.defra.gov.uk/interactive-map). By approximating LA boundaries to the 1km by 1km grid, and using census population data, population weighted background PM2.5 concentrations for each lower tier LA are calculated. This work is completed under contract to Defra, as a small extension of its obligations under the Ambient Air Quality Directive (2008/50/EC). Concentrations of total PM2.5 are used for estimating the mortality burden attributable to particulate air pollution (COMEAP, 2022).

Indicator Definitions and Supporting Information

Source: Public Health Outcomes Framework - Data - OHID (phe.org.uk)

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[8] Public Health Outcomes Framework: commentary, May 2022 - GOV.UK (www.gov.uk)

Locally Huntingdonshire's figures are similar to the surrounding local authorities:

Fraction of mortality attributable to particulate air pollution in 2022 (%)

Area	Value
ENGLAND	5.8
EAST OF ENGLAND REGION	6.2
CAMBRIDGE CITY	6.3
HUNTINGDONSHIRE	6
PETERBOROUGH	5.8
SOUTH CAMBRIDGESHIRE	5.8
FENLAND	5.6
EAST CAMBRIDGESHIRE	5.5
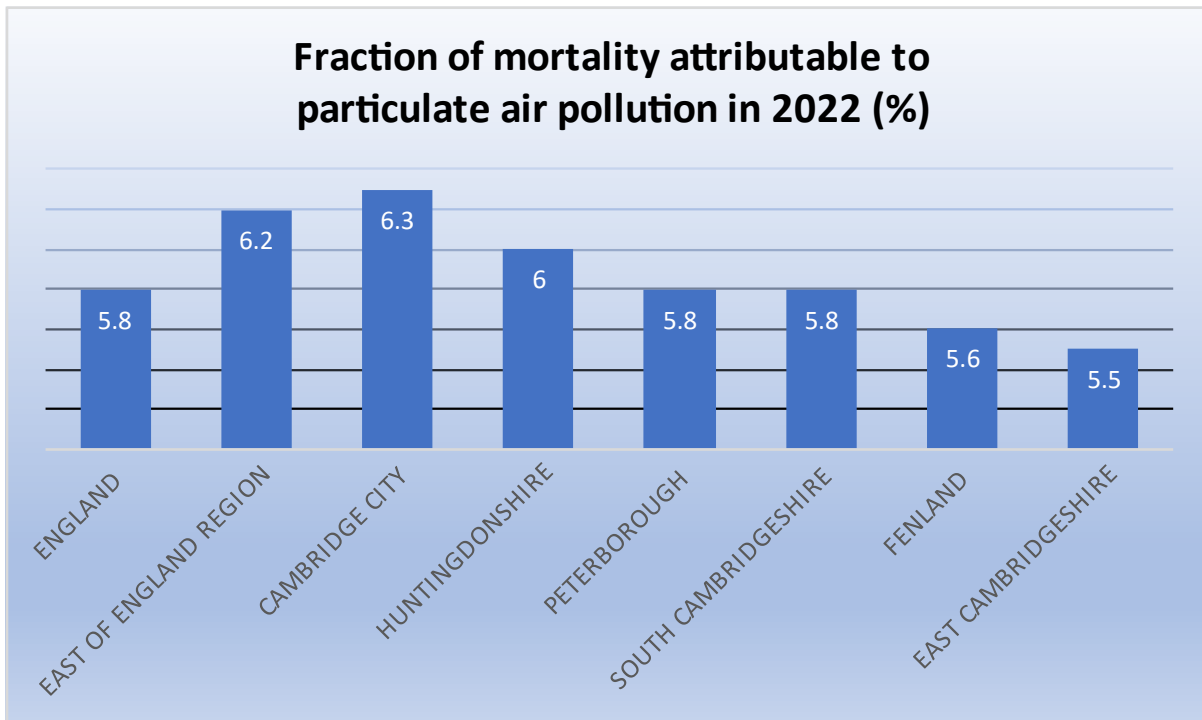
Source: Public Health Outcomes Framework - Data - OHID (phe.org.uk)

The data for 2022 for all districts within Cambridgeshire, as well as that for East of England and England indicates there has been an increase in the fraction of mortality attributable to particulate air pollution since 2021.

The PHOF air pollution indicator links with the physical health indicators and the associated 'Everybody active, every day' framework. This supports all sectors to embed physical activity into the fabric of daily life and make it an easy, cost-effective, and 'normal' choice in every community, including the promotion of active travel, which will help reduce pollution from transport.

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

This section sets out the monitoring undertaken during 2023 by Huntingdonshire District Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2019 and 2023 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Huntingdonshire District Council undertook automatic (continuous) monitoring at one site during 2023. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The Huntingdon Pathfinder House Data Download - Air Quality monitoring service (airqualityengland.co.uk) page presents automatic monitoring results for Huntingdonshire District Council, with automatic monitoring results also available through the UK-Air website at Interactive monitoring networks map - Defra, UK.

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.

The equipment consists of a Serinus S40 NOx analyser and a FIDAS 200 particulate monitor, both of which are MCERTS certified. Following some data collection issues for 2022, the data collection for 2023 exceeded 99%. More information regarding this can be found in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Huntingdonshire District Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 58 sites during 2023. 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. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including

bias adjustments and any other adjustments applied (e.g. annualisation and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, 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 (NO$_2$)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO$_2$ annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. 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 2023 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 (i.e. where results are within 10% of the objective, therefore for 2023 this was not required at any site within Huntingdonshire).

The diffusion tube data for 2023 indicated there were no breaches of the 40µg/m^3 annual mean objective and measured levels decreased at every monitoring site compared to 2022. As discussed in the Executive Summary section, the largest decrease was at Huntingdon 3 (George Street) (reduction of 5.8µg/m^3 from 22.6µg/m^3 to 16.8µg/m^3) and Huntingdon 9 (Ermine Street) (reduction of 5.6µg/m^3 from 21.9µg/m^3 to 16.4µg/m^3). Both of these tubes are located within the Huntingdon AQMA (see Appendix D for locations).

The highest concentrations measured by diffusion tube within the district during 2023 continue to be at Pathfinder House (PFH) with the mean result of the triplicate tubes at 24µg/m^3. This compares to a figure of 28.2µg/m^3 in 2022 and remains well within the objective of 40µg/m^3.

Huntingdonshire District Council has considered it necessary to reject data for the December 2023 diffusion tubes due to unusually low figures. These occurred over most of the district, with no reasonable pattern or explanation. The lab was contacted who

confirmed the results had been correctly analysed and reported, however on discussion with neighbouring local authorities it appeared there were similar irregularities. The LAQM helpdesk are aware of this and have requested details which have been submitted. As this related to a large number of our sites it was considered that the most appropriate action was to reject the data for December 2023 in line with TG22 as it was considered erroneous.

Following the fall in NO_2 in 2020 due to Covid restrictions and the relocation of the A14, the overall trend in 2021 and 2022 was a slight increase, as expected. It is likely traffic flows are now at the 'new' normal and the monitoring data indicates that pollution levels are following the general trend of decreasing.

There have been no changes to the diffusion tube locations during 2023. It is hoped the diffusion tube network will be reviewed towards the end of 2024 with any changes taking place from 2025.

The NO_2 analyser measured an annual mean of 24.98µg/m^3, down from 28.2µg/m^3 measured in 2022. This can be seen in Table A.3, whereas

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year, and demonstrates that there were no 1-hour means above 200µg/m^3. This has remained the case for a number of years. There were also no annual means greater than 60µg/m^3 for any of the diffusion tubes around the district, which (in line with TG22) indicates that an exceedance of the 1-hour mean objective was not likely to have occurred at any of the monitoring locations.

The analyser's data capture was greater than 99% in 2023 and therefore there was no requirement for annualisation.

NO_2 results from the continuous monitor can be viewed online at the Air Quality England website at [Huntingdon Pathfinder House Data Download - Air Quality monitoring service (airqualityengland.co.uk)](airqualityengland.co.uk) where data can be downloaded.

The diffusion tube network achieved greater than 75% data capture and therefore annualisation was not required. All data has been properly ratified and corrected for bias where applicable.

Due to the excellent data capture for the continuous analyser Huntingdonshire District Council have taken part in the diffusion tube co-location study to produce a localised bias

adjustment factor and have recently sent this through to be included within the next round of national bias calculation. The local bias factor of 0.75 is similar to the national bias factor of 0.77 gained from the National Diffusion Tube Bias Adjustment Factor Spreadsheet (03/24). As the difference is considered minor, and the localised factor has not been included within the national spreadsheet, it has been considered the localised factor is more appropriate, especially due to the data capture, the overall good precision and high quality chemiluminescence results. More information regarding this is in Appendix C.

A distance correction calculation is not required and has not been completed as there are not any locations with an annual mean concentration above, or within 10% of the NO_2 annual objective of 40µg/m^3.

To summarise, the data demonstrates that there has been a decrease in NO_2 between 2022 to 2023 at every monitoring location and that all sites met the NO_2 objectives within 2023. The continuing low trend is likely due to the relocation of the A14, changing travel patterns and improved vehicle emission standards.

There are no proposed changes to the monitoring network or plans to declare an AQMA.

3.2.2 Particulate Matter (PM$_{10}$)

PM$_{10}$, is continuously monitored at the Air Quality Monitoring Station (AQMS) located near Pathfinder House.

Table A.6 in Appendix A: Monitoring Results, compares the ratified and adjusted monitored PM$_{10}$ annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

As discussed earlier, the annual mean PM$_{10}$ figure decreased slightly from 14.8µg/m^3 in 2022 to 13.54µg/m^3 in 2023. This remains well within the objective level of 40µg/m^3.

Table A.7 in Appendix A compares the ratified continuous monitored PM$_{10}$ daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year. The results indicate there were no breaches of the 24-hour objective (50µg/m^3) during 2023, an improvement on the one recorded breach during 2022.

As with the NO_x analyser the particulate monitors data capture was in excess of 99% and therefore annualisation was not required.

Tables A.6 and A.7 and the accompanying charts show the general trend over the last five years and indicate that there is an overall reduction in PM_{10}. Results indicate that there were no exceedances of any of the air quality objectives in 2022 at this location.

PM_{10} results can also be viewed online at the Air Quality England website at [Huntingdon Pathfinder House Data Download - Air Quality monitoring service (airqualityengland.co.uk)](#) where data can be downloaded.

There are no proposed changes to the monitoring network or plans to declare an AQMA.

3.2.3 Particulate Matter ($PM_{2.5}$)

$PM_{2.5}$ is continuously monitored at the Air Quality Monitoring Station (AQMS) located near Pathfinder House.

Table A.8 and the associated chart in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years with results indicating a downward trend and a reduction in 2023 from 8.3µg/m^3 to 6.99µg/m^3.

As discussed above in the PM_{10} section, the monitor had good data capture above 99%, so there was no requirement to annualise the data in line with TG22. $PM_{2.5}$ results can also be viewed online at the Air Quality England website at [Huntingdon Pathfinder House Data Download - Air Quality monitoring service (airqualityengland.co.uk)](#) where data can be downloaded.

There are no proposed changes to the monitoring network or plans to declare an AQMA.

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)
PFH	Huntingdon	Roadside	524102	271540	NO2, PM10, PM2.5, PM1	YES No 1. Huntingdon	Chemiluminescent Light Scattering, Light Scattering, Light Scattering.	3	7	2.5

Notes:

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

(2) N/A if not applicable

Table A.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)
St Neots 1	The Paddocks	Kerbside	517869	260132	NO2	NO	22.0	22.0	NO	3.0
St Neots 2	18 Cromwell Gardens	Roadside	519541	260280	NO2	NO	8.0	4.0	NO	3.0
St Neots 3	71 Avenue Road	Urban Background	518925	260503	NO2	NO	4.0	1.0	NO	3.0
St Neots 4	20 Harland Road	Urban Background	518489	260871	NO2	NO	3.0	1.0	NO	3.0
St Neots 5	8-10 High Street (Post Office)	Kerbside	518323	260263	NO2	NO	0.0	1.0	NO	3.0
St Neots 6	35 High Street (Traffic lights)	Kerbside	518433	260321	NO2	NO	0.0	1.0	NO	3.0
St Neots 7	17 Arundel Crescent	Suburban	518424	258556	NO2	NO	0.0	17.0	NO	1.8
St Neots 8	122 Lindisfarne Close	Suburban	518707	258260	NO2	NO	4.0	31.0	NO	3.0
St Neots 9	5 Duchess Close	Suburban	516370	259514	NO2	NO	3.0	5.0	NO	3.0
Southoe 1	2 Lees Lane	Roadside	518714	264308	NO2	NO	24.0	2.0	NO	1.8
Buckden 1	6 Perry Road	Roadside	518981	267370	NO2	NO	0.0	12.0	NO	1.8
Buckden 2	4 High Street (Roundabout)	Roadside	519082	267433	NO2	NO	0.0	1.0	NO	1.8

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)
Buckden 3	34 High Street (shop)	Roadside	519161	267624	NO2	NO	0.0	1.0	NO	2.0
Buckden 4	11 Taylors Lane	Roadside	519197	267955	NO2	NO	3.0	1.0	NO	3.0
Brampton 1	RAF Brampton (Sparrow Close)	Roadside	520734	269623	NO2	NO	10.0	0.5	NO	3.0
Huntingdon 9	Ermine Street Huntingdon	Roadside	523575	272174	NO2	YES AQMA 1	0.0	3.0	NO	2.0
Brampton 3	1 Laws Crescent	Roadside	520155	271561	NO2	NO	32.0	2.0	No	3.0
Brampton 4	25 Dorling Way	Roadside	519956	271461	NO2	NO	6.0	1.5	No	3.0
Brampton 5	7 Hansell Road	Roadside	519839	271061	NO2	NO	18.0	0.5	No	3.0
Catworth 1	1 Thrapston Road	Rural	508409	274876	NO2	NO	42.0	42.0	NO	3.0
PFH 1, PFH 2, PFH 3	Pathfinder House	Roadside	524102	271540	NO2	YES AQMA 1	8.0	6.0	YES	2.5
Huntingdon 1	23 Lodge Close	Suburban	523177	271627	NO2	NO	3.0	2.0	NO	3.0
Huntingdon 2	19 Nursery Road	Kerbside	524198	271949	NO2	YES AQMA 1	0.0	1.0	NO	1.8
Huntingdon 3	6 George Street	Kerbside	523661	271802	NO2	YES AQMA 1	0.0	1.0	NO	3.0
Huntingdon 4	1 St Peters Road	Kerbside	523435	272464	NO2	YES AQMA 1	3.0	1.0	NO	3.0

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)
Huntingdon 5	18 Blethan Drive	Roadside	522293	272909	NO2	YES AQMA 1	3.0	2.0	NO	3.0
Huntingdon 6	40 Hartford Road	Roadside	524274	271939	NO2	YES AQMA 1	4.0	2.0	NO	3.0
Godmanchester 1	25 Cambridge Villas	Roadside	525319	270571	NO2	NO	3.0	12.0	NO	3.0
Wood Green Animal Shelter	Goat enclosure	Rural	526250	268264	NO2	NO	0.0	235.0	NO	3.0
Fenstanton 1	Hilton Road	Roadside	531427	268397	NO2	NO	20.0	2.0	NO	3.0
Earith 1	52-54 High Street	Roadside	538460	274797	NO2	NO	0.0	1.8	NO	2.0
Fenstanton 3	1 Pear Tree Close	Rural	531063	268063	NO2	NO	6.0	1.5	NO	3.0
St Ives 1	2 The Pound	Urban Background	531206	272334	NO2	NO	5.0	1.0	NO	3.0
St Ives 2	59 Greenfields	Suburban	530850	270286	NO2	NO	6.0	1.5	NO	3.0
St Ives 3	6 Goldie Close	Roadside	529866	272285	NO2	NO	11.0	6.0	NO	3.0
Ramsey 1	5 Blenheim Road	Urban Background	528433	284936	NO2	NO	4.0	2.0	NO	3.0
Yaxley 1	2 London Road	Roadside	517480	292309	NO2	NO	13.0	2.0	NO	3.0
Stibbington 1	7 Great North Road	Roadside	508326	298684	NO2	NO	22.0	2.0	NO	3.0

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)
Alwalton 1	2 Royce Road	Roadside	513132	295723	NO2	NO	11.0	4.0	NO	3.0
Sawtry 1	81 Fen Lane	Suburban	517440	283443	NO2	NO	4.0	2.0	NO	3.0
Alconbury 1	54 Manor Lane	Roadside	518954	276010	NO2	NO	6.0	2.0	NO	3.0
Great Stukeley 1	Church of Jesus Christ - Ermine Street	Roadside	522000	274607	NO2	NO	33.0	1.0	NO	3.0
Huntingdon 7	6 Brampton Road	Roadside	523432	271760	NO2	YES AQMA 1	10.0	2.0	NO	3.0
Huntingdon 8	Main Road	Roadside	525289	272525	NO2	NO	27.0	2.0	NO	3.0
Hilton 1	1 Westbrook Close	Suburban	528836	266538	NO2	NO	10.0	1.0	NO	3.0
Fenstanton 4	25 High Street	Roadside	531729	268370	NO2	NO	1.5	1.0	NO	3.0
Alconbury 2	Lords Ways	Suburban	518955	275520	NO2	NO	10.0	1.0	NO	3.0
Brampton 6	Parish Hall Church Road	Roadside	521487	270803	NO2	NO	19.0	1.0	NO	3.0
Brampton 7	52 Elizabethan Way	Suburban	519874	270948	NO2	NO	7.0	1.5	NO	3.0
Offord D'Arcy 1	42 Gravely Road	Suburban	522127	266105	NO2	NO	11.0	3.0	NO	3.0
Offord Cluny 2	168 High Street	Roadside	521947	267178	NO2	NO	11.0	3.0	NO	3.0

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)
St Neots 10	81 Great North Road	Roadside	516921	258382	NO2	NO	15.0	1.7	NO	2.0
St Neots 11	119 Cambridge Road	Roadside	519925	260291	NO2	NO	0.0	11.0	NO	2.0
St Ives 4	1 Hill Rise	Kerbside	530529	272357	NO2	NO	6.0	1.0	NO	2.0
St Ives 5	93 Needingworth Road	Roadside	531963	272142	NO2	NO	5.0	1.5	NO	2.0
Bluntisham	B1040	Roadside	533719	275865	NO2	NO	15.0	3.0	NO	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 2023 (%) [2]	2019	2020	2021	2022	2023
PFH	524102	271540	Roadside	99.53	99.53	37	25	27	28.2	24.98

☒ **Annualisation has not been required as data capture is >75% (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.**

☒ **Where exceedances of the NO₂ annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2023 – this has not been required.**

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 2023 (%) [2]	2019	2020	2021	2022	2023
St Neots 1	517869	260132	Kerbside	84.61538462	84.6	18.1	12.2	13.7	13.9	12.1
St Neots 2	519541	260280	Roadside	92.30769231	92.3	21.4	13.7	14.8	17.0	14.7
St Neots 3	518925	260503	Urban Background	84.61538462	84.6	15.8	10.9	10.8	11.5	9.8
St Neots 4	518489	260871	Urban Background	92.30769231	92.3	14.7	10.0	10.2	11.2	9.9
St Neots 5	518323	260263	Kerbside	92.30769231	92.3	28.8	18.6	21.0	23.2	20.8
St Neots 6	518433	260321	Kerbside	92.30769231	92.3	29.0	20.4	20.2	22.9	21.0
St Neots 7	518424	258556	Suburban	92.30769231	92.3	18.7	14.2	13.9	14.1	11.9
St Neots 8	518707	258260	Suburban	92.30769231	92.3	19.9	12.7	12.4	14.6	11.9
St Neots 9	516370	259514	Suburban	92.30769231	92.3	23.0	15.5	15.8	17.6	14.2
Southoe 1	518714	264308	Roadside	92.30769231	92.3	15.5	10.9	10.4	11.1	9.4
Buckden 1	518981	267370	Roadside	92.30769231	92.3	21.8	13.0	14.3	18.1	14.6
Buckden 2	519082	267433	Roadside	92.30769231	92.3	22.2	14.4	15.6	16.1	14.6
Buckden 3	519161	267624	Roadside	92.30769231	92.3	25.7	17.5	17.8	20.8	16.8

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 2023 (%) [2]	2019	2020	2021	2022	2023
Buckden 4	519197	267955	Roadside	92.30769231	92.3	17.1	12.0	12.1	13.0	11.5
Brampton 1	520734	269623	Roadside	92.30769231	92.3	14.1	10.8	10.1	12.3	9.5
Huntingdon 9	523575	272174	Roadside	92.30769231	92.3	28.2	18.3	21.2	21.9	16.4
Brampton 3	520155	271561	Roadside	92.30769231	92.3	21.0	13.3	14.5	14.7	13.0
Brampton 4	519956	271461	Roadside	92.30769231	92.3	16.6	11.2	11.9	12.2	10.2
Brampton 5	519839	271061	Roadside	92.30769231	92.3	13.6	14.9	11.0	12.3	9.2
Catworth 1	508409	274876	Rural	92.30769231	92.3	16.4	11.7	11.7	13.2	11.8
PFH 1, PFH 2, PFH 3	524102	271540	Roadside	92.30769231	92.3	**40.1**	24.8	26.3	28.2	24.0
Huntingdon 1	523177	271627	Suburban	92.30769231	92.3	16.5	9.8	9.8	10.6	9.1
Huntingdon 2	524198	271949	Kerbside	92.30769231	92.3	23.6	14.9	17.0	17.7	14.6
Huntingdon 3	523661	271802	Kerbside	92.30769231	92.3	35.6	20.5	23.9	22.6	16.8
Huntingdon 4	523435	272464	Kerbside	92.30769231	92.3	27.2	15.4	17.0	17.9	16.0
Huntingdon 5	522293	272909	Roadside	92.30769231	92.3	23.0	11.0	11.7	12.9	11.0
Huntingdon 6	524274	271939	Roadside	92.30769231	92.3	22.4	14.8	14.9	17.6	14.9

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 2023 (%) [2]	2019	2020	2021	2022	2023
Godmanchester 1	525319	270571	Roadside	92.30769231	92.3	19.9	9.3	10.9	11.8	10.9
Wood Green Animal Shelter	526069	268254	Rural	92.30769231	92.3	12.6	9.6	10.4	10.6	9.1
Fenstanton 1	531427	268397	Roadside	92.30769231	92.3	25.2	11.0	11.0	13.0	10.3
Earith 1	538460	274797	Roadside	92.30769231	92.3	16.6	10.6	10.3	10.7	10.2
Fenstanton 3	531063	268063	Rural	92.30769231	92.3	14.0	9.6	9.4	10.6	9.7
St Ives 1	531206	272334	Urban Background	92.30769231	92.3	16.0	11.3	11.3	12.9	11.0
St Ives 2	530850	270286	Suburban	92.30769231	92.3	19.3	12.0	13.0	13.4	12.6
St Ives 3	529866	272285	Roadside	92.30769231	92.3	15.8	10.6	10.6	11.9	9.9
Ramsey 1	528433	284936	Urban Background	92.30769231	92.3	17.7	11.7	12.8	13.4	12.0
Yaxley 1	517480	292309	Roadside	92.30769231	92.3	27.1	18.0	19.3	19.9	17.4
Stibbington 1	508326	298684	Roadside	92.30769231	92.3	23.6	14.7	14.0	15.9	11.6
Alwalton 1	513132	295723	Roadside	92.30769231	92.3	19.1	12.7	12.6	13.1	10.9
Sawtry 1	517440	283443	Suburban	92.30769231	92.3	18.0	11.9	13.1	14.2	11.9
Alconbury 1	518954	276010	Roadside	92.30769231	92.3	17.4	13.4	13.9	15.3	12.5

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 2023 (%) [2]	2019	2020	2021	2022	2023
Great Stukeley 1	522000	274607	Roadside	92.30769231	92.3	17.0	10.7	10.2	11.1	8.1
Huntingdon 7	523432	271760	Roadside	92.30769231	92.3	33.5	18.8	21.4	21.5	18.9
Huntingdon 8	525289	272525	Roadside	92.30769231	92.3	22.6	14.6	15.1	16.2	14.0
Hilton 1	528836	266538	Suburban	92.30769231	92.3	12.9	8.5	8.3	9.1	7.9
Fenstanton 4	531729	268370	Roadside	92.30769231	92.3	20.9	11.5	11.9	12.7	11.9
Alconbury 2	518955	275520	Suburban	82.69230769	82.7	13.2	9.1	8.8	9.7	8.2
Brampton 6	521487	270803	Roadside	92.30769231	92.3	22.5	15.1	16.8	16.8	15.6
Brampton 7	519874	270948	Suburban	92.30769231	92.3	14.9	11.0	11.3	12.2	10.3
Offord D'Arcy 1	522127	266105	Suburban	92.30769231	92.3	13.2	8.8	8.8	9.5	7.9
Offord Cluny 2	521947	267178	Roadside	92.30769231	92.3	19.3	10.7	12.0	13.5	12.7
St Neots 10	516921	258382	Roadside	92.30769231	92.3	24.7	16.9	17.8	20.3	17.9
St Neots 11	519925	260291	Roadside	92.30769231	92.3	18.7	11.8	12.2	13.9	12.9
St Ives 4	530529	272357	Kerbside	92.30769231	92.3	27.6	18.6	19.8	21.9	19.1
St Ives 5	531963	272142	Roadside	92.30769231	92.3	28.1	21.3	24.3	24.5	23.4

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 2023 (%) [2]	2019	2020	2021	2022	2023
Bluntisham	533719	275865	Roadside	92.30769231	92.3	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	17.5	15.5

☒ **Annualisation has not been required as data capture is >75% (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 $\mu g/m^3$.

Exceedances of the NO_2 annual mean objective of $40\mu g/m^3$ are shown in **bold**.

NO_2 annual means exceeding $60\mu g/m^3$, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **<u>bold and underlined</u>**.

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%).

Figure A.1 – Trends in Annual Mean NO₂ Concentrations

The presentation of the following charts has been completed in line with Defra's requirements to take account of readers who are colour blind. If you have any issues viewing the charts, please contact us on the details at the top of this report and we can provide the information in another format.

Diffusion tube network - Huntingdon

Diffusion tube network - St Neots

Diffusion tube network - old A14

Diffusion tube network - A1

Diffusion tube network - rural/small towns
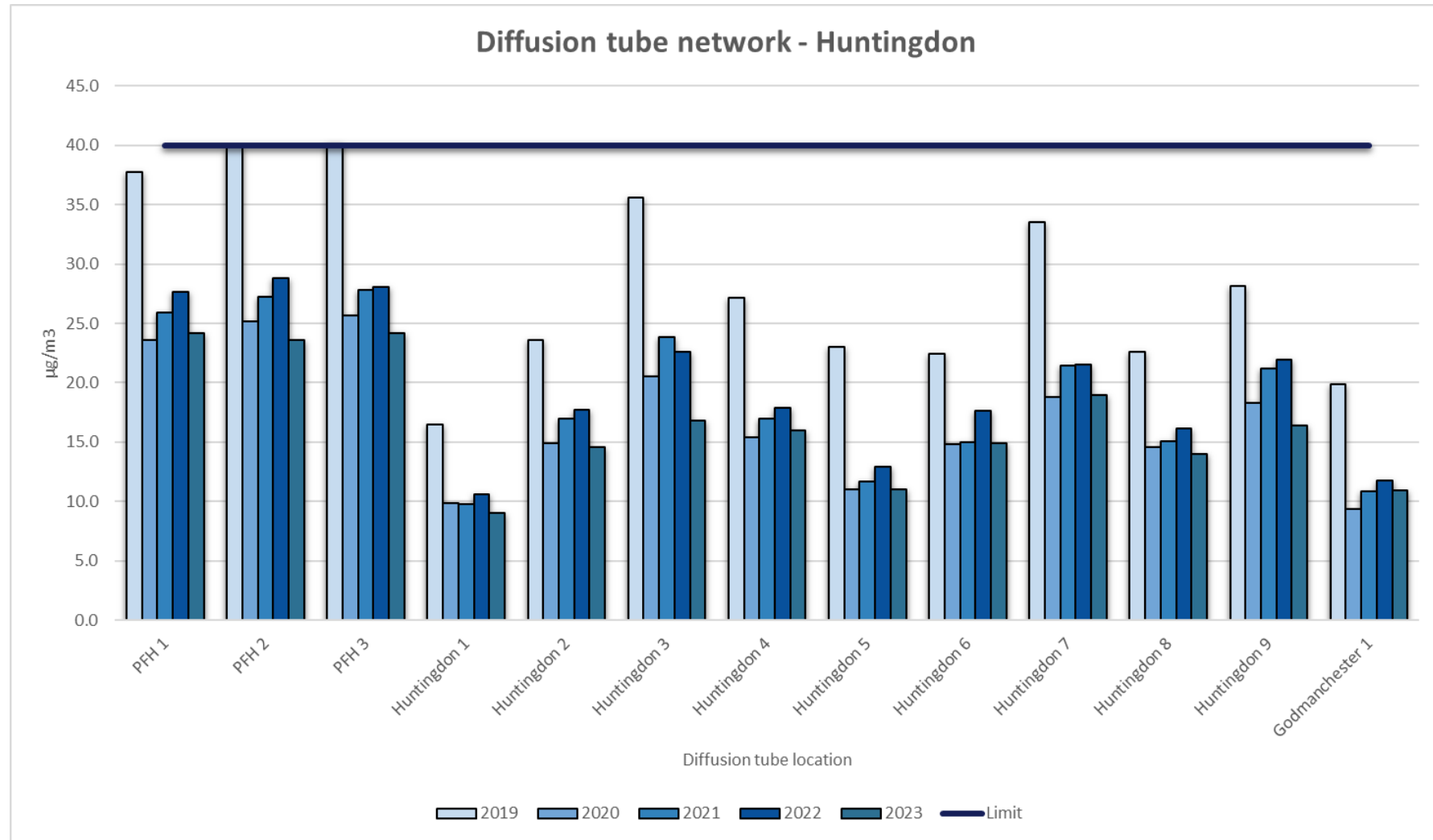
Table A.5 – 1-Hour Mean NO$_2$ Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
PFH	524102	271540	Roadside	99.53	99.53	0	0	0	0 (86.4µg/m3)	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m^3 have been recorded.

Exceedances of the NO$_2$ 1-hour mean objective (200µg/m^3 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.
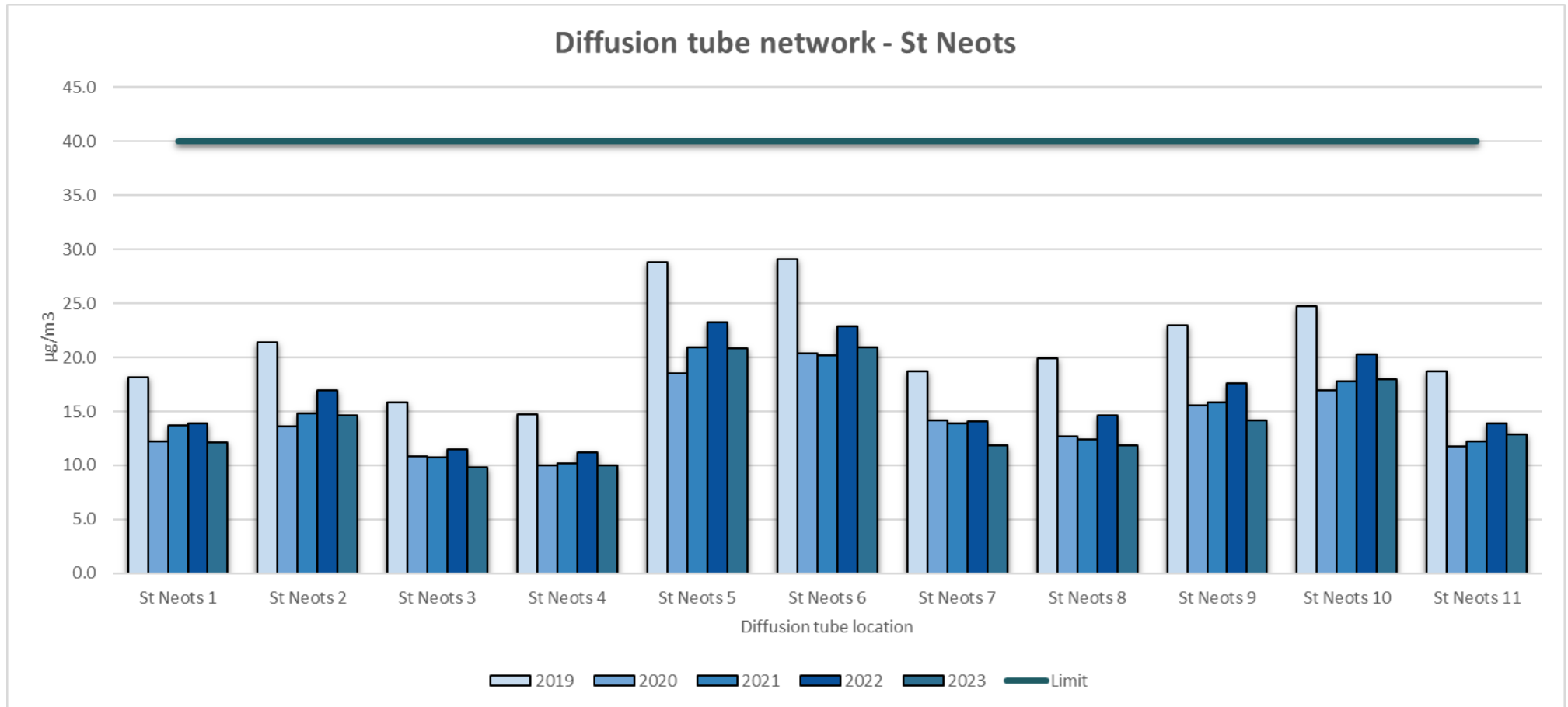
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
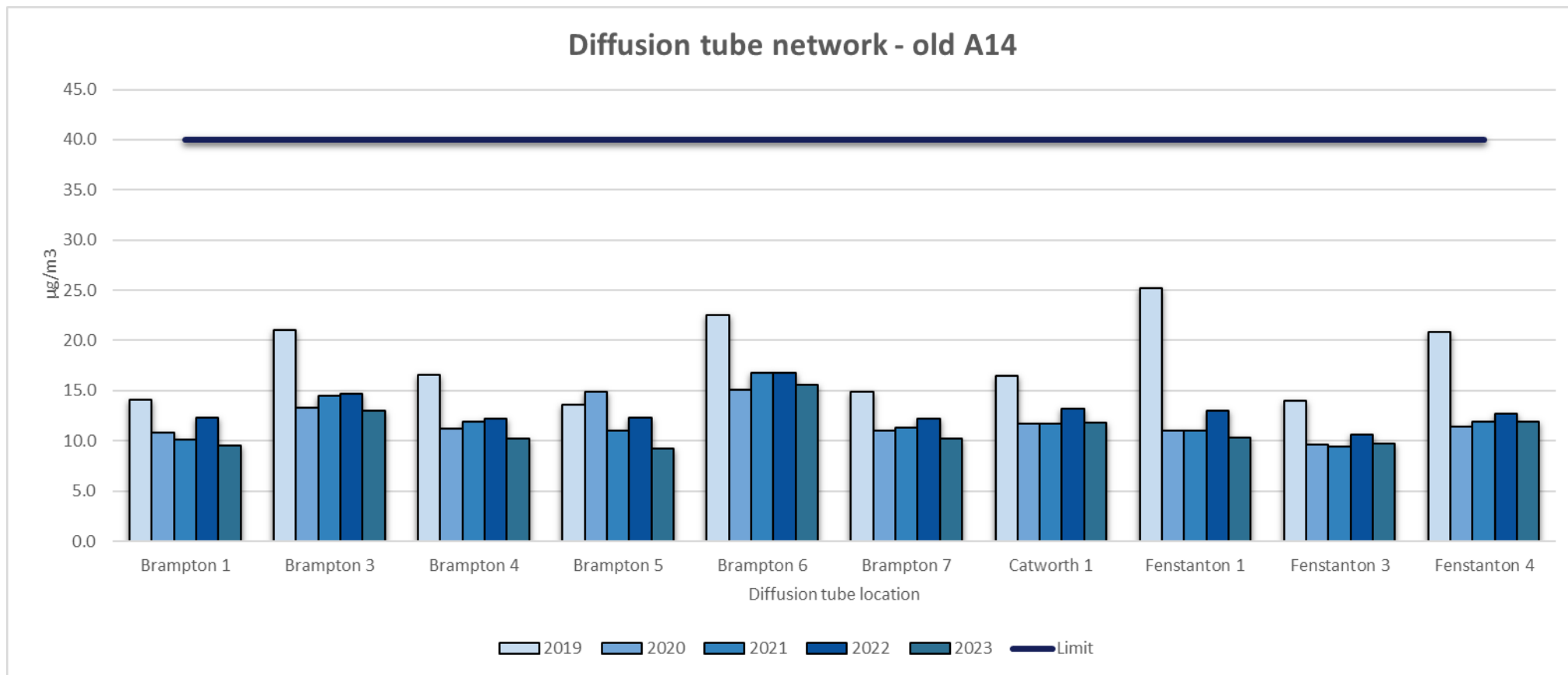
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.6 – Annual Mean PM$_{10}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
PFH	524102	271540	Roadside	99.91	99.91	15.74	14	15	14.8	13.54

☒ **Annualisation has not been required as data capture is >75% (in line with LAQM.TG22).**

Notes:

The annual mean concentrations are presented as µg/m^3.

Exceedances of the PM$_{10}$ annual mean objective of 40µg/m^3 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%).
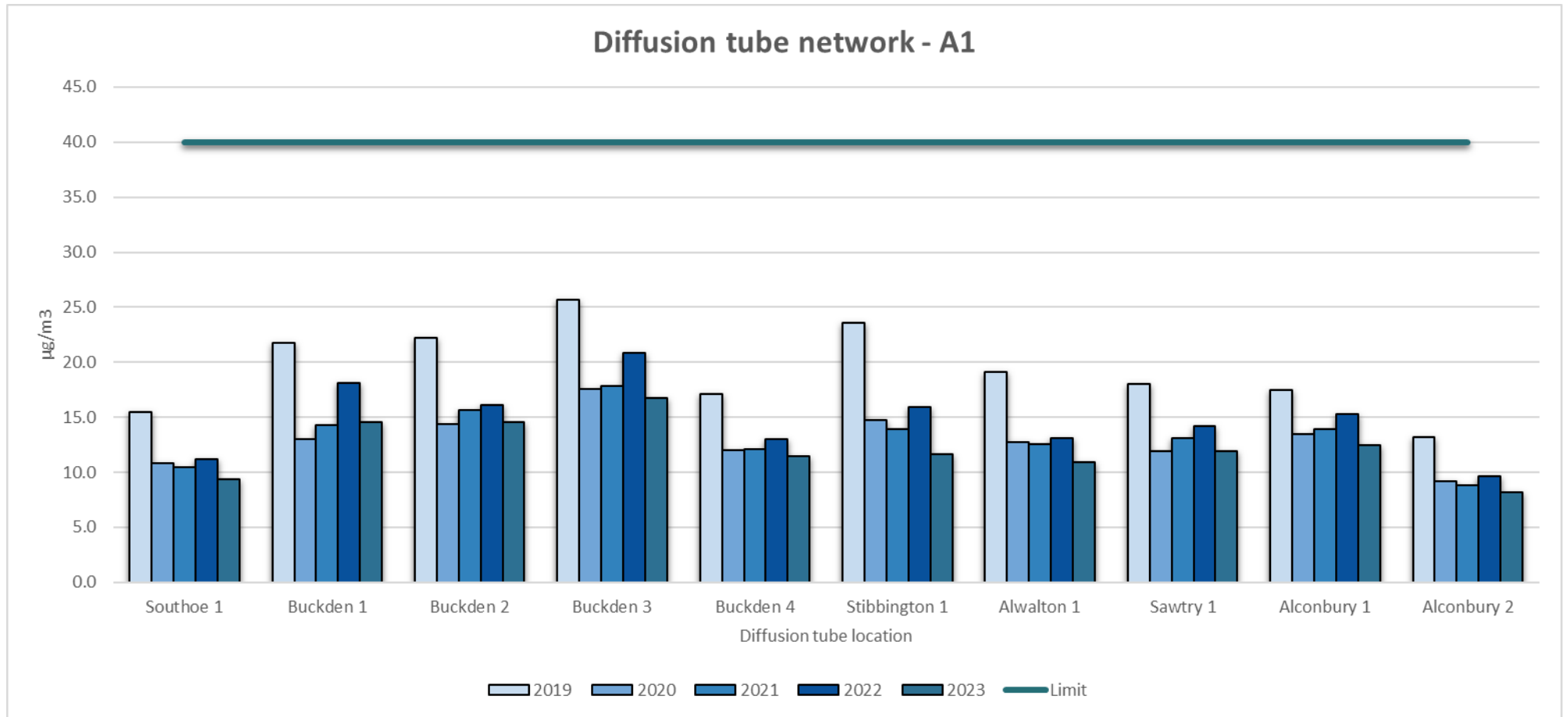
Figure A.2 – Trends in Annual Mean PM$_{10}$ Concentrations
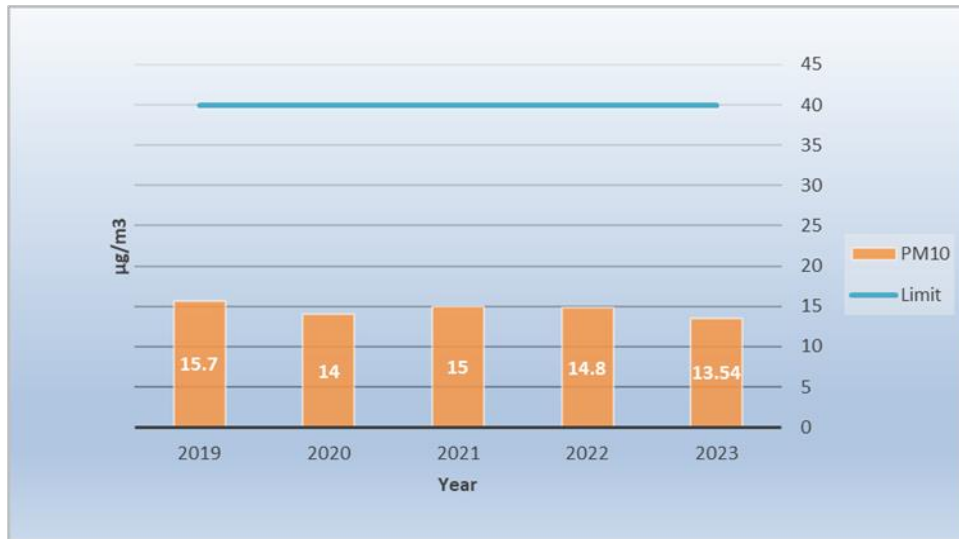
The presentation of this chart has been completed to take account of readers who are colour blind, if you have any issues viewing the chart please contact us on the details at the top of this report and we can provide the information in another format.
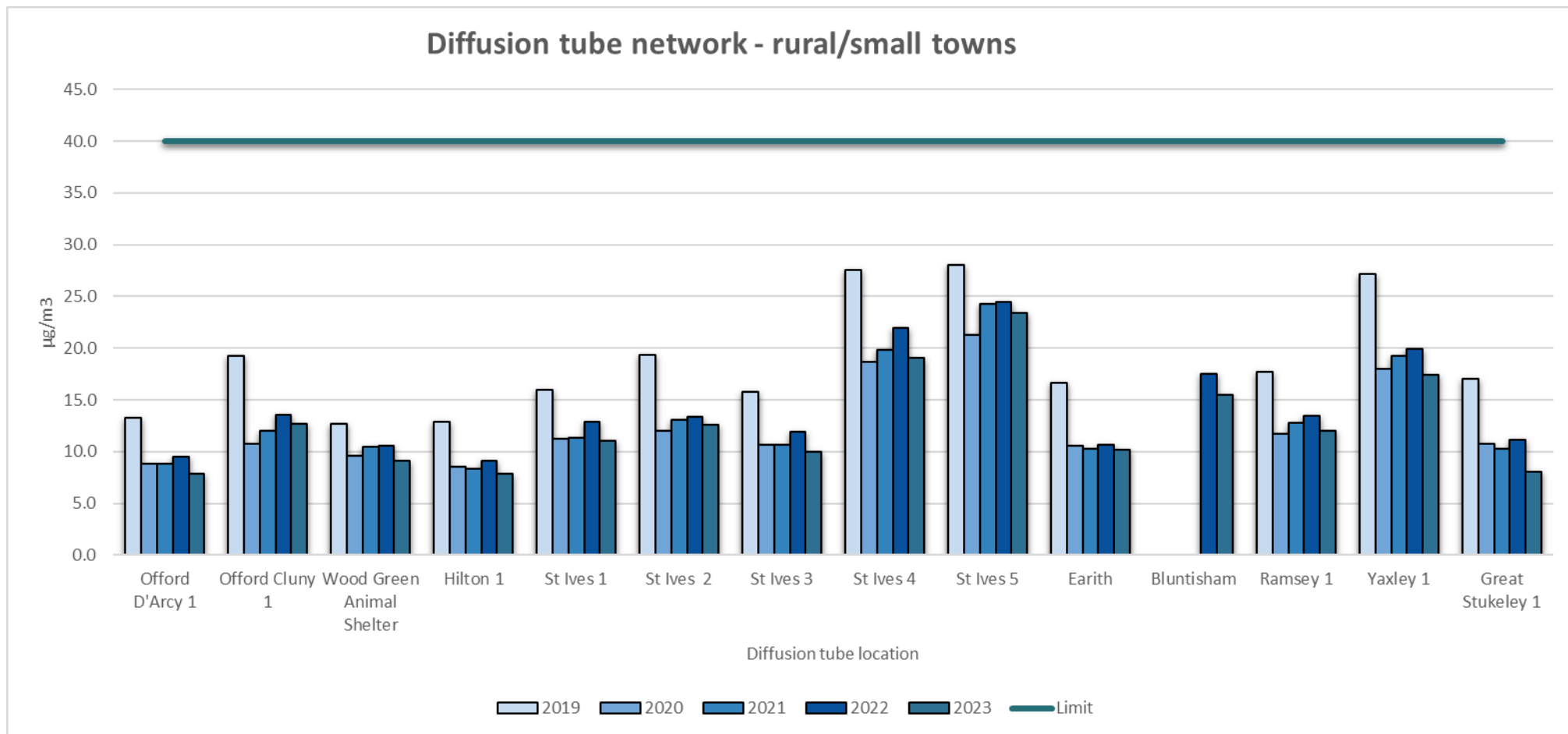
Table A.7 – 24-Hour Mean PM$_{10}$ Monitoring Results, Number of PM$_{10}$ 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
PFH	524102	271540	Roadside	99.91	99.91	0	0	1	1 (26.1µg/m3)	0

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.

Exceedances of the PM$_{10}$ 24-hour mean objective (50µg/m^3 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%).

Figure A.3 – Trends in Number of 24-Hour Mean PM$_{10}$ Results > 50µg/m^3
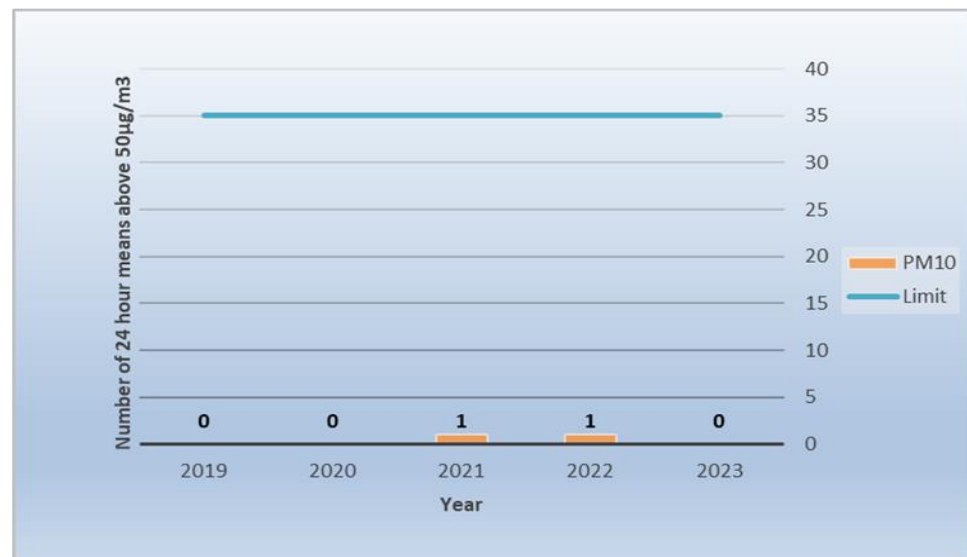
The presentation of this chart has been completed to take account of readers who are colour blind, if you have any issues viewing the chart please contact us on the details at the top of this report and we can provide the information in another format.

Table A.8 – Annual Mean PM$_{2.5}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
PFH	524102	271540	Roadside	99.91	99.91	8.67	8	8	8.3	6.99

☒ **Annualisation has not been required as data capture is >75% (in line with LAQM.TG22).**

Notes:

The annual mean concentrations are presented as µg/m^3.

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%).

Figure A.4 – Trends in Annual Mean PM$_{2.5}$ Concentrations
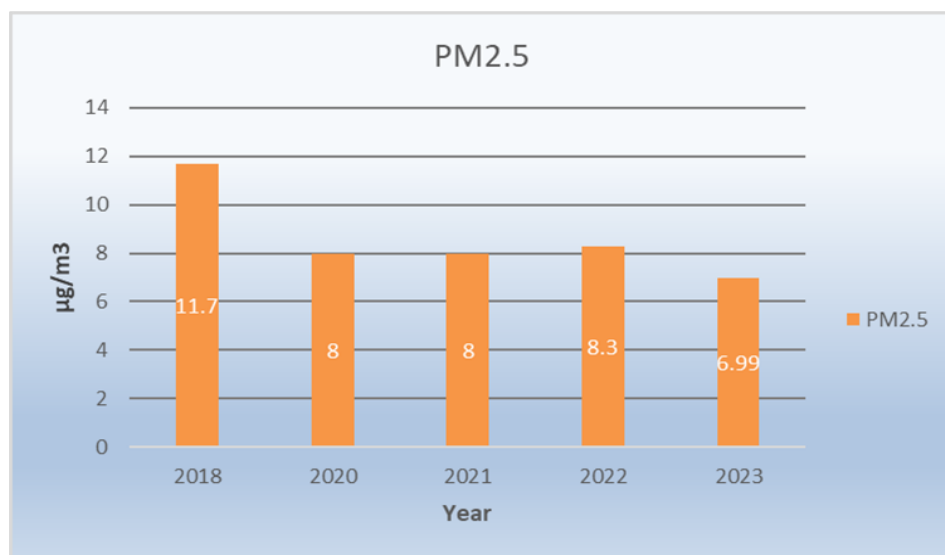
The presentation of this chart has been completed to take account of readers who are colour blind, if you have any issues viewing the chart please contact us on the details at the top of this report and we can provide the information in another format.

Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO₂ 2023 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 (0.75)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
St Neots 1	517869	260132	26.5	12.1	16.8	8.4	13.6	12.8	13.1	14.2		20.0	24.0		16.2	12.1	-	
St Neots 2	519541	260280	27.9	26.2	20.2	8.4	17.1	16.9	14.9	16.0	18.0	21.6	27.8		19.5	14.7	-	
St Neots 3	518925	260503		21.2	15.1	10.2	7.9	9.0	8.8	9.4	11.2	16.4	21.4		13.1	9.8	-	
St Neots 4	518489	260871	21.0	19.8	14.7	8.1	7.8	8.5	8.3	9.5	13.7	18.9	15.6		13.3	9.9	-	
St Neots 5	518323	260263	36.6	33.9	29.7	19.7	23.3	24.1	22.7	23.9	26.4	30.3	34.7		27.8	20.8	-	
St Neots 6	518433	260321	32.6	27.6	31.3	22.1	21.5	22.6	23.6	27.1	32.1	35.6	31.2		27.9	21.0	-	
St Neots 7	518424	258556	22.2	19.5	20.3	12.3	10.4	10.0	11.7	11.9	15.1	19.5	21.4		15.8	11.9	-	
St Neots 8	518707	258260	20.0	16.0	19.0	9.4	8.5	9.9	14.2	14.7	23.2	18.7	20.8		15.9	11.9	-	
St Neots 9	516370	259514	26.0	29.2	19.8	8.8	13.5	14.2	16.6	15.3	19.6	22.2	23.1		18.9	14.2	-	
Southoe 1	518714	264308	16.0	18.5	16.1	5.2	11.9	10.9	7.5	9.6	13.4	15.9	13.0		12.5	9.4	-	
Buckden 1	518981	267370	21.3	17.8	23.1	22.3	15.0	21.7	14.1	17.1	20.4	21.8	19.1		19.4	14.6	-	
Buckden 2	519082	267433	24.9	23.3	20.7	7.6	13.5	15.2	19.1	18.4	21.3	23.8	26.1		19.4	14.6	-	
Buckden 3	519161	267624	24.4	16.2	27.6	16.2	19.4	20.3	20.5	21.6	25.7	28.2	25.7		22.3	16.8	-	
Buckden 4	519197	267955	19.5	24.1	16.1	6.6	11.8	11.4	11.1	10.7	13.2	17.6	26.2		15.3	11.5	-	
Brampton 1	520734	269623	21.4	18.2	13.1	7.8	7.1	3.5	9.8	9.4	12.8	16.2	20.2		12.7	9.5	-	
Huntingdon 9	523575	272174	31.0	6.4	26.0	19.1	18.6	21.8	19.3	20.1	25.2	27.8	24.6		21.8	16.4	-	

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 (0.75)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
Brampton 3	520155	271561	22.6	25.6	17.0	20.7	13.2	14.2	11.6	13.0	14.3	19.9	19.1		17.4	13.0	-	
Brampton 4	519956	271461	20.3	20.9	15.9	8.8	7.9	9.3	9.9	10.9	12.9	16.9	15.9		13.6	10.2	-	
Brampton 5	519839	271061	18.1	17.2	14.3	7.4	7.8	10.7	9.4	10.4	7.4	14.7	17.3		12.2	9.2	-	
Catworth 1	508409	274876	21.7	19.6	18.9	12.3	8.7	10.9	15.2	13.2	17.4	16.3	19.0		15.7	11.8	-	
PFH 1	524102	271540	32.8	27.1	32.4	26.6	34.7	36.5	29.3	31.3	37.6	32.7	32.9		-	-	-	Triplicate Site with PFH 1, PFH 2 and PFH 3 - Annual data provided for PFH 3 only
PFH 2	524102	271540	36.0	31.2	32.7	17.0	34.9	34.3	28.7	31.2	37.3	34.0	28.9		-	-	-	Triplicate Site with PFH 1, PFH 2 and PFH 3 - Annual data provided for PFH 3 only
PFH 3	524102	271540	31.6	33.9	30.1	19.9	35.7	35.4	29.9	32.7	38.3	35.4	31.7		32.0	24.0	-	Triplicate Site with PFH 1, PFH 2 and PFH 3 - Annual data provided for PFH 3 only
Huntingdon 1	523177	271627	16.6	21.6	13.5	4.5	9.0	8.1	7.4	9.9	10.9	14.0	17.4		12.1	9.1	-	
Huntingdon 2	524198	271949	23.8	25.4	19.1	17.2	16.0	16.9	14.4	15.8	22.5	21.9	20.4		19.4	14.6	-	
Huntingdon 3	523661	271802	28.6	32.3	21.6	15.7	16.8	17.3	19.7	19.2	26.8	21.5	26.8		22.4	16.8	-	
Huntingdon 4	523435	272464	28.0	30.8	21.6	18.7	16.5	21.0	16.0	17.1	21.7	22.3	20.9		21.3	16.0	-	
Huntingdon 5	522293	272909	21.6	22.4	9.2	9.1	11.1	10.3	12.3	11.5	19.3	14.7	20.1		14.7	11.0	-	
Huntingdon 6	524274	271939	26.6	29.2	19.0	13.2	11.2	11.6	18.0	15.2	23.6	23.5	27.1		19.8	14.9	-	
Godmanchester 1	525319	270571	20.2	23.3	15.2	12.3	11.8	10.5	8.5	10.2	16.0	15.7	16.5		14.6	10.9	-	
Wood Green Animal Shelter	526069	268254	16.6	21.9	11.2	6.8	7.0	6.9	8.8	8.4	11.7	17.4	16.9		12.1	9.1	-	
Fenstanton 1	531427	268397	20.7	11.7	14.7	10.2	10.0	9.1	16.8	10.1	13.9	17.7	16.7		13.8	10.3	-	
Earith 1	538460	274797	19.2	23.3	13.6	8.1	12.2	11.0	9.5	10.6	10.8	15.0	16.4		13.6	10.2	-	
Fenstanton 3	531063	268063	15.7	17.7	30.0	6.5	6.8	7.3	8.8	8.2	12.1	13.4	16.0		13.0	9.7	-	
St Ives 1	531206	272334	20.9	24.0	15.2	8.6	9.8	9.6	9.6	9.8	15.6	18.1	20.7		14.7	11.0	-	
St Ives 2	530850	270286	24.3	24.8	16.9	13.2	12.4	12.1	12.8	13.0	17.4	16.4	20.8		16.7	12.6	-	

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 (0.75)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
St Ives 3	529866	272285	19.9	19.2	12.8	10.7	8.0	7.7	9.5	9.8	13.4	15.9	19.0		13.3	9.9	-	
Ramsey 1	528433	284936	22.6	24.7	18.2	14.5	11.6	12.7	11.3	11.4	16.8	14.0	18.5		16.0	12.0	-	
Yaxley 1	517480	292309	32.7	31.9	25.6	14.4	19.7	15.3	21.4	19.7	26.2	18.7	29.5		23.2	17.4	-	
Stibbington 1	508326	298684	20.1	18.7	14.1	7.3	9.6	8.5	17.0	16.9	20.0	18.6	20.0		15.5	11.6	-	
Alwalton 1	513132	295723	18.0	18.3	14.1	10.4	11.1	9.7	12.8	15.5	17.0	14.4	18.1		14.5	10.9	-	
Sawtry 1	517440	283443	17.9	23.4	16.1	15.6	15.2	14.5	9.7	11.5	15.6	18.3	16.3		15.8	11.9	-	
Alconbury 1	518954	276010	22.1	23.9	17.0	7.7	14.5	14.7	11.4	13.2	19.6	19.7	18.9		16.6	12.5	-	
Great Stukeley 1	522000	274607	14.0	18.1	11.8	5.6	6.4	5.9	9.7	7.6	9.8	12.3	17.2		10.8	8.1	-	
Huntingdon 7	523432	271760	29.7	33.7	24.5	22.4	17.8	18.3	21.9	19.4	32.3	28.4	29.1		25.2	18.9	-	
Huntingdon 8	525289	272525	22.9	30.4	19.0	18.0	13.8	14.5	16.6	15.8	10.7	21.9	21.6		18.7	14.0	-	
Hilton 1	528836	266538	15.4	17.4	10.5	8.3	6.3	7.3	7.5	8.1	9.6	12.3	12.7		10.5	7.9	-	
Fenstanton 4	531729	268370	21.7	23.4	17.3	15.1	9.4	9.1	10.4	10.8	16.5	19.0	21.8		15.9	11.9	-	
Alconbury 2	518955	275520	16.3	17.0		8.9	6.4	6.6	8.2	8.1	11.0	13.5	13.1		10.9	8.2	-	
Brampton 6	521487	270803	28.9	30.7	20.5	15.2	16.9	15.2	14.3	18.1	19.5	25.6	23.9		20.8	15.6	-	
Brampton 7	519874	270948	20.8	18.0	12.8	14.4	7.8	8.4	9.1	10.9	13.6	15.4	19.2		13.7	10.3	-	
Offord D'Arcy 1	522127	266105	4.8	19.7	11.7	10.4	7.6	6.2	7.6	7.8	9.9	14.0	16.1		10.5	7.9	-	
Offord Cluny 2	521947	267178	20.9	24.7	17.5	15.0	13.1	11.0	12.8	12.9	17.7	18.8	21.2		16.9	12.7	-	
St Neots 10	516921	258382	29.6	33.8	25.8	25.4	21.4	20.4	10.7	20.5	22.1	26.0	27.4		23.9	17.9	-	
St Neots 11	519925	260291	23.8	25.7	9.5	16.1	15.1	16.6	10.1	13.7	16.6	19.3	22.1		17.1	12.9	-	
St Ives 4	530529	272357	27.5	33.9	25.7	24.7	19.8	18.1	22.4	22.6	28.9	27.0	29.2		25.4	19.1	-	

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 (0.75)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
St Ives 5	531963	272142	34.8	36.5	33.8	30.8	33.2	31.5	24.5	21.4	33.0	31.0	32.4		31.2	23.4	-	
Bluntisham	533719	275865	24.2	26.6	24.2	17.9	12.5	16.4	11.2	18.3	23.6	24.9	27.4		20.7	15.5	-	

☒ **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.**

☒ **Huntingdonshire District Council confirm that all 2023 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 Huntingdonshire During 2023

Continued residential and industrial development is taking place, but Huntingdonshire District Council has not identified any significant new sources relating to air quality within the reporting year of 2023. See page v above for more detail.

Additional Air Quality Works Undertaken by Huntingdonshire During 2023

Huntingdonshire District Council completed a report entitled 'Review of Air Quality Management Areas' in 2023 in order to support the proposed revocation of AQMA's 2, 3 and 4 at Committee. Due to the size of this report it is not included within the appendices, but can be provided upon request, or alternatively it can be viewed on our website here: Air Quality - Huntingdonshire.gov.uk

QA/QC of Diffusion Tube Monitoring

Huntingdonshire District Council currently have a contract with SOCOTEC to provide and analyse diffusion tubes. The method of preparation is by spiking acetone: triethanolamine (50:50) onto the grids prior to the tubes being assembled. Samples are analysed in accordance with SOCOTEC's standard operating procedure ANU/SOP/1015. This method meets the guidelines set out in DEFRA's *'Diffusion Tubes For Ambient NO2 Monitoring: Practical Guidance.'* The analysis of diffusion tube samples to determine the amount of nitrogen dioxide present on the tube is also within the scope of SOCOTEC's UKAS schedule. In the AIR PT inter-comparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, SOCOTEC currently holds the highest rank of a Satisfactory laboratory.

Huntingdonshire District Council has considered it necessary to reject data for December 2023 due to unusually low figures. These occurred over most of the district, with no reasonable pattern or explanation. The lab was contacted who confirmed the results had been correctly analysed and reported, however on discussion with neighbouring local authorities it appeared there were similar irregularities. The LAQM helpdesk are aware of this and have requested details which have been submitted. As this related to a large number of our sites it was considered that the most appropriate action was to reject the data for December 2023 as it was considered erroneous in line with TG22.

Diffusion tube monitoring has been completed in adherence with the Defra 2023 Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

Even with the exclusion of Decembers data, all diffusion tube monitoring locations within the district of Huntingdonshire recorded data capture of above 75% therefore annualisation was not required for any of the monitoring data. In addition, any sites with data capture below 25% do not require annualisation, which is again not applicable for HDC.

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/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Due to the excellent data capture for the continuous analyser Huntingdonshire District Council have taken part in the diffusion tube co-location study and utilised the Diffusion Tube Precision Accuracy Bias Spreadsheet to produce a localised bias adjustment factor

and have recently sent this through to be included within the next round of national bias calculation.

Huntingdonshire District Council have applied a local bias adjustment factor of 0.75 to the 2023 monitoring data. A summary of bias adjustment factors used by Huntingdonshire District Council over the past five years is presented in Table C.1.

The localised bias adjustment figure of 0.75 is similar to the national bias figure of 0.77 gained from the National Diffusion Tube Bias Adjustment Factor Spreadsheet (03/24). The localised figure was utilised due to the excellent data capture (in excess of 99%) for the continuous analyser, the overall good precision and high quality chemiluminescence results. The difference in use of the local, compared to the national bias factor is minor, for example at Pathfinder House (which has the highest result) the local bias factor gives a result of 24µg/m^3, this increases slightly to 24.6µg/m^3 using the national bias factor, however at most sites once rounding has been factored in, there is very little change in results and it should be noted that even using the higher figure there would still not be any breaches in the objective, or results within 10%.

The use of a localised bias adjustment factor has been deemed appropriate in previous years and has been used since the replacement of our monitoring equipment, with the exception of 2022 where a national figure was utilised due to poor data capture.

Huntingdonshire District Councils local bias figure will also not have been included within the March National Diffusion Tube Bias Adjustment Factor Spreadsheet (03/24), having only been submitted recently.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	Local	-	0.75
2022	National	03/23	0.76
2021	Local	-	0.72
2020	Local	-	0.68
2019	National	03/20	0.75

Table C.2 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3	Local Bias Adjustment Input 4	Local Bias Adjustment Input 5
Periods used to calculate bias	10				
Bias Factor A	0.75 (0.7 – 0.82)				
Bias Factor B	33% (23% - 44%)				
Diffusion Tube Mean (µg/m³)	33				
Mean CV (Precision)	4				
Automatic Mean (µg/m³)	25				
Data Capture	99%				
Adjusted Tube Mean (µg/m³)	25 (23 – 27)				

Notes:

A single local bias adjustment factor has been used to bias adjust the 2023 diffusion tube results.

The Precision and Accuracy Spreadsheet for the local bias calculation:

Checking Precision and Accuracy of Triplicate Tubes — AEA Energy & Environment (From the AEA group)

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm⁻³	Tube 2 µgm⁻³	Tube 3 µgm⁻³	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	05/01/2023	03/02/2023	32.8	36.0	31.6	33	2.3	7	5.7	26.2	99.7	Good	Good
2	03/02/2023	02/03/2023	27.1	31.2	33.9	31	3.4	11	8.5	29.3	99.6	Good	Good
3	02/03/2023	04/04/2023	32.4	32.7	30.1	32	1.4	4	3.5	23.5	99.8	Good	Good
4	04/04/2023	03/05/2023	26.6	17.0	19.9	21	4.9	23	12.2	25.8	99.6	Poor Precision	Good
5	03/05/2023	31/05/2023	34.7	34.9	35.7	35	0.5	2	1.3	23.5	99.1	Good	Good
6	31/05/2023	04/07/2023	36.5	34.3	35.4	35	1.1	3	2.7	23.4	99.3	Good	Good
7	04/07/2023	01/08/2023	29.3	28.7	29.9	29	0.6	2	1.5	19.4	99.1	Good	Good
8	01/08/2023	06/09/2023	31.3	31.2	32.7	32	0.8	3	2.1	22.8	99.7	Good	Good
9	06/09/2023	03/10/2023	37.6	37.3	38.3	38	0.5	1	1.3	28	99.3	Good	Good
10	03/10/2023	01/11/2023	32.7	34.0	35.4	34	1.4	4	3.4	25.7	99.7	Good	Good
11	01/11/2023	05/12/2023	32.9	28.9	31.7	31	2.1	7	5.1	26.2	99.3	Good	Good
12	05/12/2023	03/01/2024	26.5	13.9	25.4	22	7.0	32	17.3	24.2	98.9	Poor Precision	Good
13													

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

Overall survey --> Good precision / Good Overall DC

(Check average CV & DC from Accuracy calculations)

Site Name/ ID: **PFH Huntingdon**

Precision: 10 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval)
without periods with CV larger than 20%
Bias calculated using 10 periods of data
Bias factor A: 0.75 (0.7 - 0.82)
Bias B: 33% (23% - 44%)
Diffusion Tubes Mean: 33 µgm⁻³
Mean CV (Precision): 4
Automatic Mean: 25 µgm⁻³
Data Capture for periods used: 99%
Adjusted Tubes Mean: 25 (23 - 27) µgm⁻³

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 12 periods of data
Bias factor A: 0.8 (0.71 - 0.9)
Bias B: 25% (11% - 40%)
Diffusion Tubes Mean: 31 µgm⁻³
Mean CV (Precision): 8
Automatic Mean: 25 µgm⁻³
Data Capture for periods used: 99%
Adjusted Tubes Mean: 25 (22 - 28) µgm⁻³

Jaume Targa, for AEA
Version 04 - February 2011

NO$_2$ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO$_2$ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO$_2$ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO$_2$ concentrations corrected for distance are presented in Table B.1.

As the distance correction should be considered at any monitoring site where the annual mean concentration is greater than 36μg/m^3 and the monitoring site is not located at a point of relevant exposure it should be noted that due to the results gained no diffusion tube NO$_2$ monitoring locations within Huntingdonshire required distance correction during 2023.

QA/QC of Automatic Monitoring

During 2023 Huntingdonshire District Council held a Service Contract for our AQMS with Matts Monitors and a contract with Ricardo to provide independent Quality Assurance/Quality Control audits and data management, including ratification. QA/QC and servicing reports are available on request. Fully ratified results are available online at the Air Quality England website at [Huntingdon Pathfinder House Data Download - Air Quality monitoring service (airqualityengland.co.uk)](airqualityengland.co.uk) where data can be downloaded. All automatic monitoring data within the ASR is fully ratified.

A Local Authority officer visits the site and completes a calibration every 2 weeks as part of the Local Site Operator (LSO) duties.

Servicing and QA/QC are completed on a six-monthly basis.

PM$_{10}$ and PM$_{2.5}$ Monitoring Adjustment

The FIDAS 200 particulate monitor utilised within Huntingdonshire does not require the application of a correction factor for PM$_{10.}$ However, for PM$_{2.5}$ a factor of 0.9434 is applied. This follows section 7.174 in TG (22). The data downloaded from the AQE website already has this correction factor applied.

Automatic Monitoring Annualisation

The automatic monitoring station within Huntingdonshire recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data.

NO$_2$ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO$_2$ concentration at the nearest location relevant for exposure can be estimated using the NO$_2$ fall-off with distance calculator available on the LAQM Support website.

As mentioned above under the diffusion tube section, distance correction should be considered at any monitoring site where the annual mean concentration is greater than 36µg/m^3 and the monitoring site is not located at a point of relevant exposure. Due to the results obtained at the automatic NO$_2$ monitoring location within Huntingdonshire, no distance correction was required during 2023.

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

Figure D.1 – Map of Non-Automatic Monitoring Sites around the district – overview:

Non automatic monitoring sites (NO2)

N Scale = 1:170,000

Date Created: 20/05/2020

X Monitoring Point

X A14 Monitoing Point

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Figure D.2 – Map of Huntingdon AQMA Diffusion Tube NO2 monitoring locations - overview:

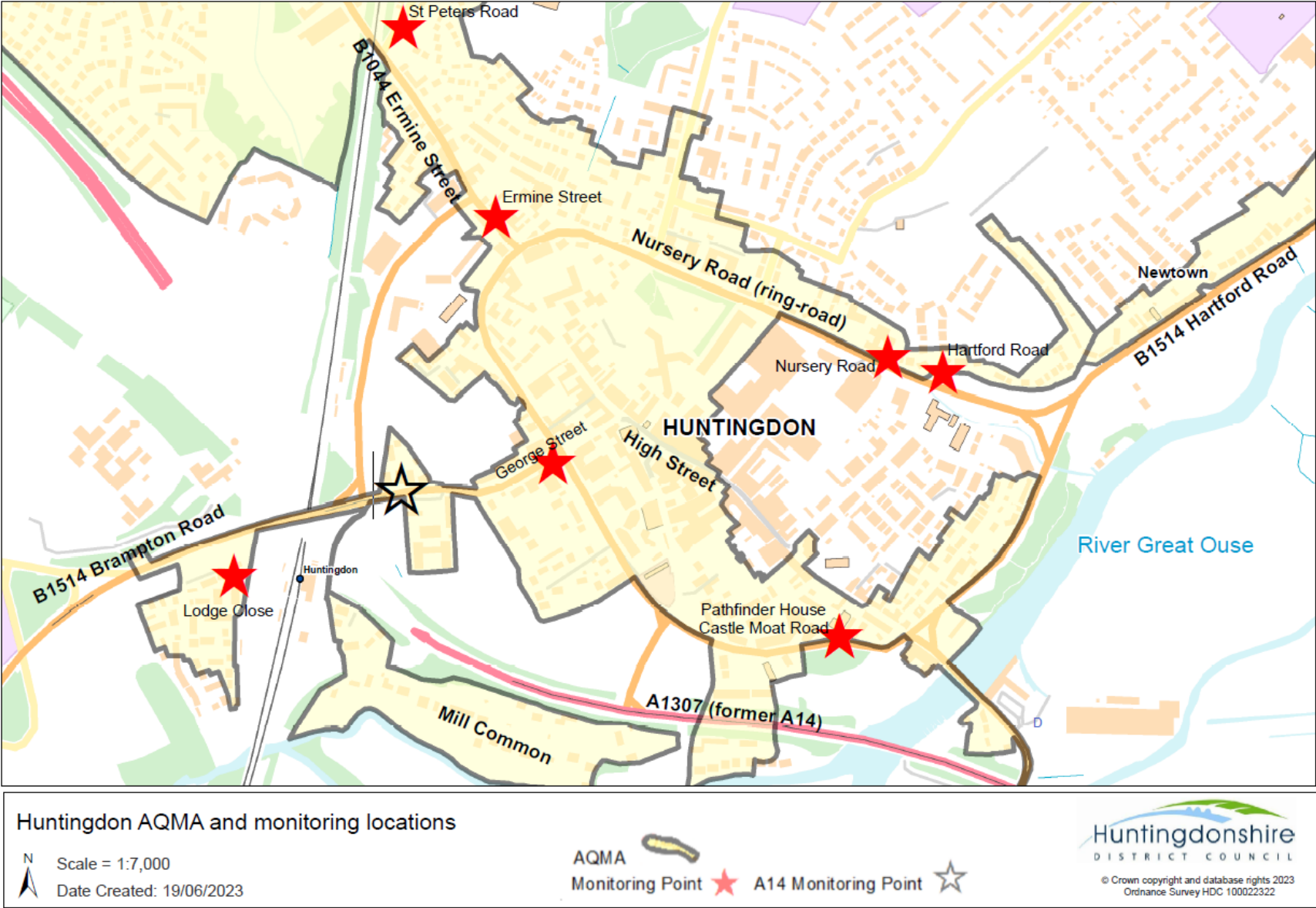**Figure D.3 – Map of Huntingdon AQMA Diffusion Tube NO2 monitoring locations:**

Huntingdon AQMA and monitoring locations

N
Scale = 1:7,000
Date Created: 19/06/2023

AQMA
Monitoring Point ⭐   A14 Monitoring Point ☆

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Figure D.4 – Map of Huntingdon AQMA Diffusion Tube NO2 monitoring locations:

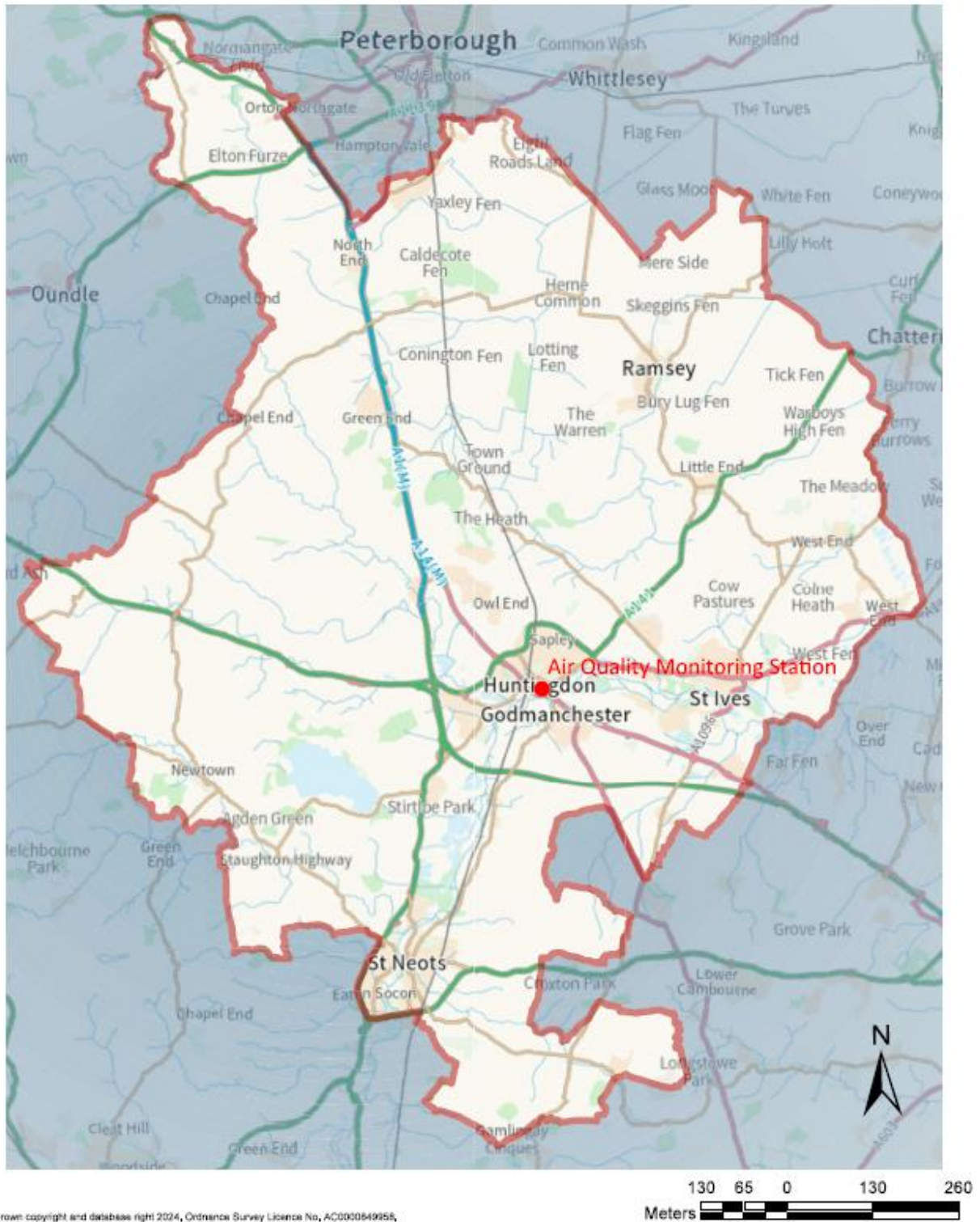**Figure D.5 – Map of Huntingdon AQMA Diffusion Tube NO2 monitoring locations:**
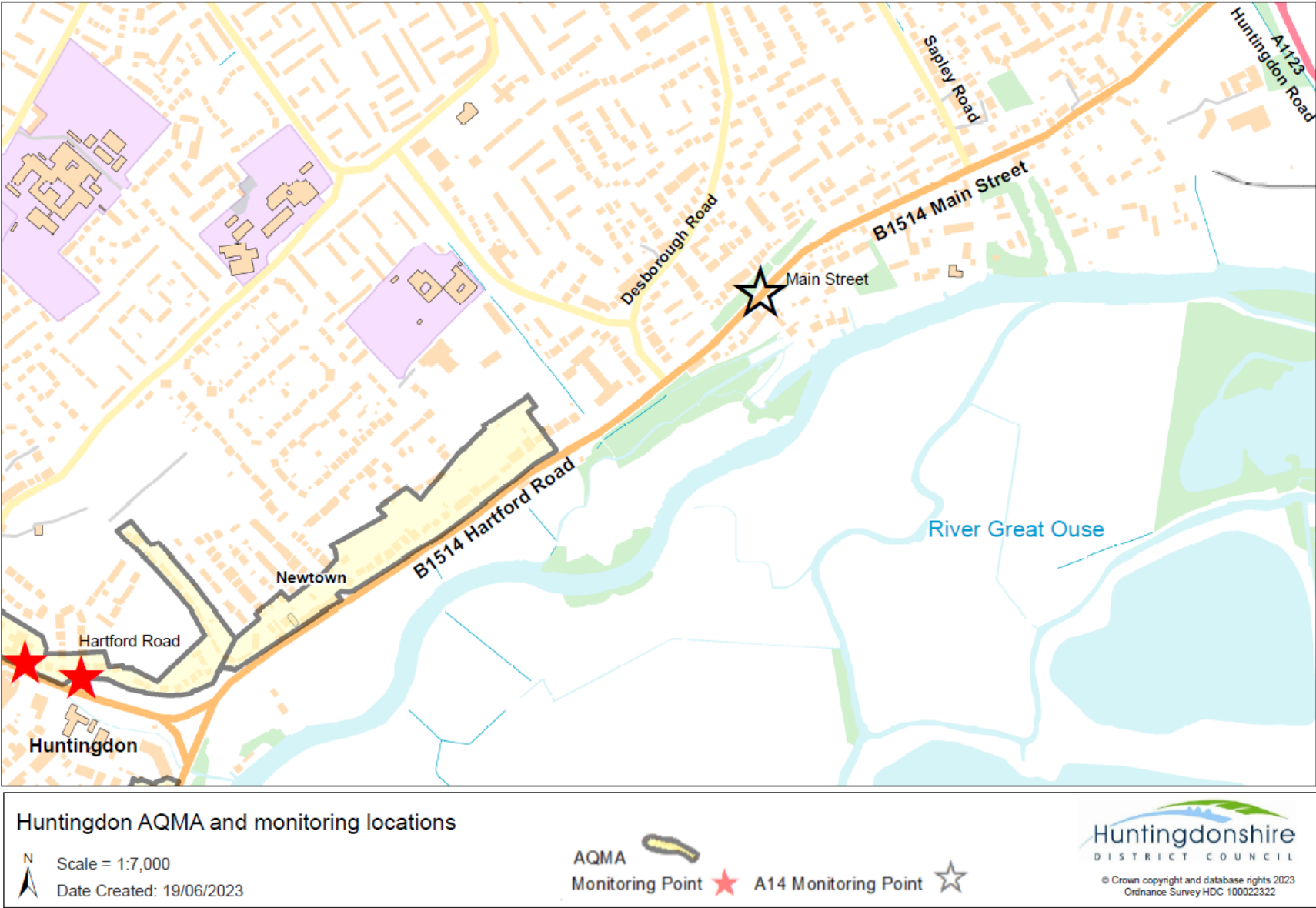
Figure D.6 – Map of the Automatic NO₂, PM₁₀ and PM₂.₅ monitoring location:

Title: Huntingdonshire's Air Quality Monitoring Station

Date: 13 June 2024

Produced by: 3C Shared Services Mapping Portal

Scale: 1:200,000 @ A4

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Figure D.7 – Map of the Automatic NO₂, PM₁₀ and PM₂.₅ monitoring location:
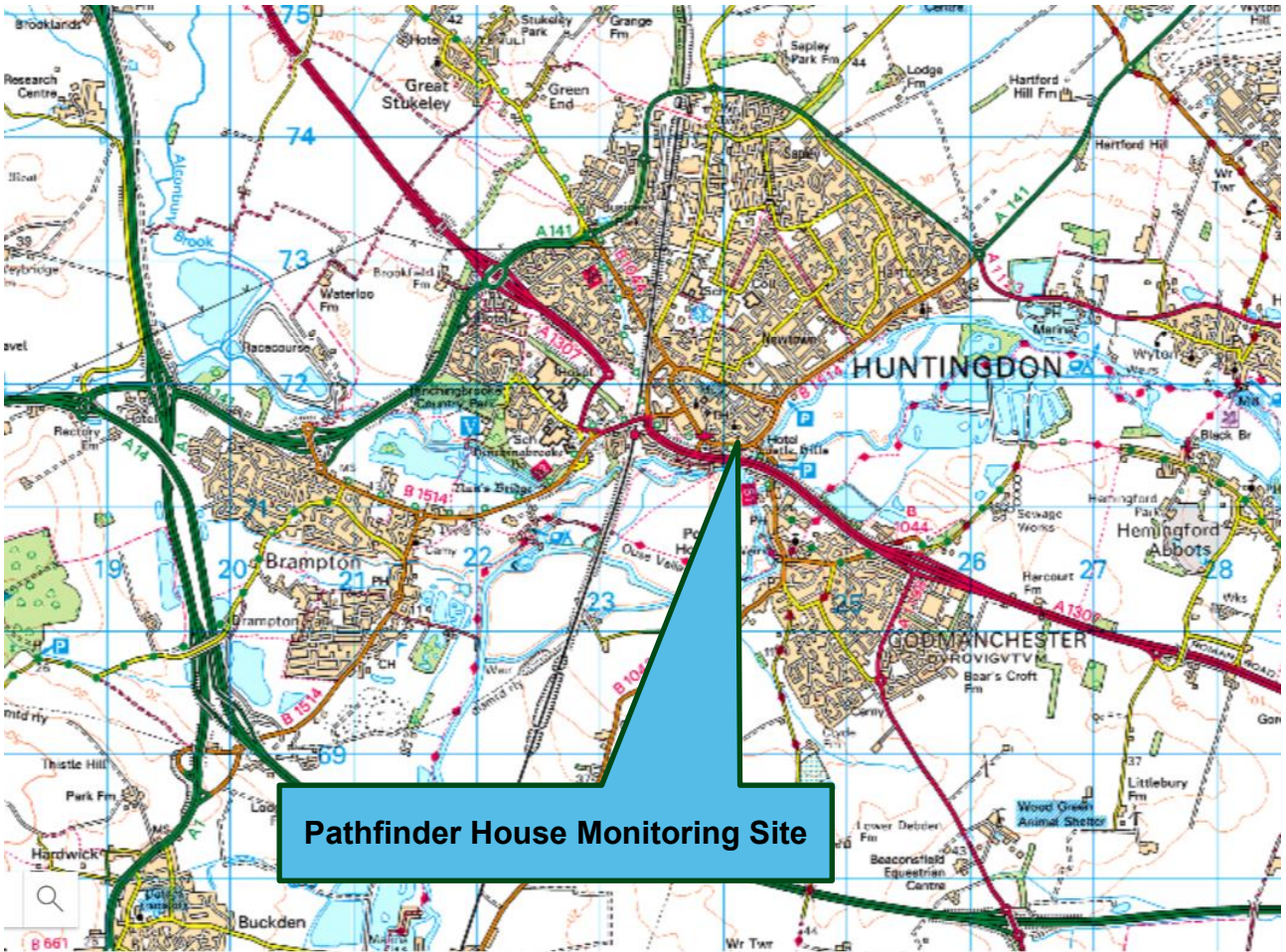

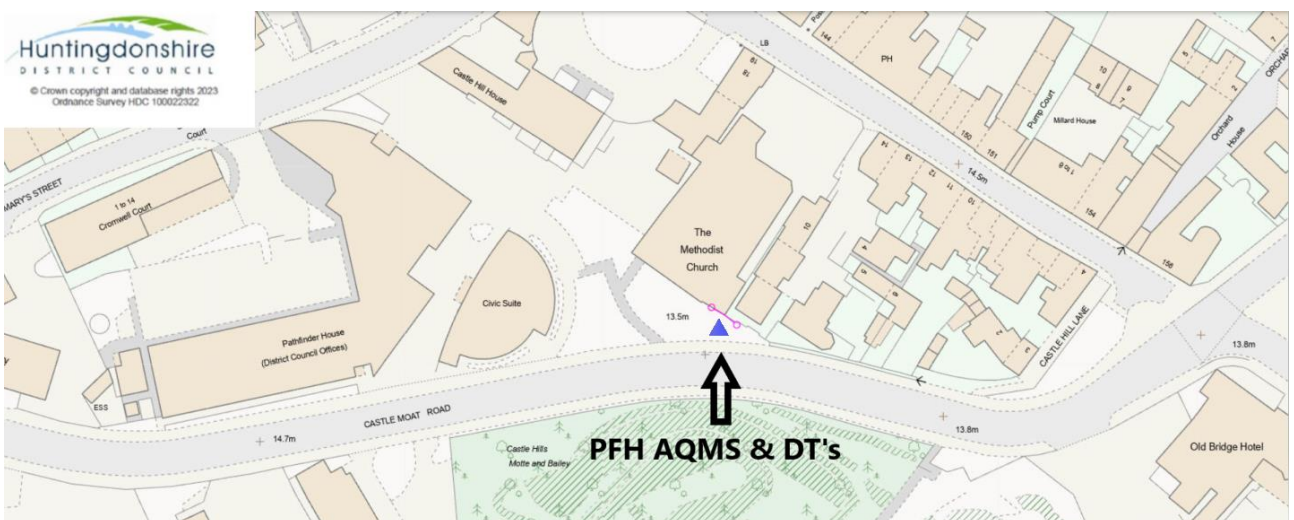
Pathfinder House Monitoring Site

Figure D.8 – Map of the Automatic NO₂, PM₁₀ and PM₂.₅ and PFH diffusion tubes monitoring location:

PFH AQMS & DT's

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[9]

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

[9] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

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
AQMS	Air Quality Monitoring Station (Automatic)
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
TG22	Local Air Quality Management Technical Guidance TG22

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.
- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency
- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.