Huntingdonshire District Council

2020 Air Quality Annual Status Report (ASR) for the year 2019

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

June 2020

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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 and includes local measures as part of EU reporting requirements, as well as requiring the completion of an air quality Annual Status Report (ASR). This report relates to data gathered between 1st January and 31st December 2019 and forms Huntingdonshire District Councils (HDC) 2020 ASR, providing a review of air quality in the district for the year 2019.

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often the less affluent areas[1,2]. The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3].

Locally the Cambridgeshire Transport and Health Joint Strategic Needs Assessment (JSNA) for Air Pollution further outlines the impacts of poor air quality on health. This highlighted that in 2010 it was estimated there were 67 deaths in Huntingdonshire where air pollution could have been an attributable factor, and that 5.3% of all population mortality in Huntingdonshire in 2012 could be attributed to air pollution[4].

The Active Transport JSNA found that in 2011 there were over 18,000 car trips to work that were within 2km (1.2 miles) of an employee's usual residence in Cambridgeshire, with over a third of these taking place in Huntingdonshire[5].

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[2] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[3] Defra. Abatement cost guidance for valuing changes in air quality, May 2013
[4] Cambridgeshire County Council: Cambridgeshire Transport and Health JSNA Air Pollution 2015, available at: https://cambridgeshireinsight.org.uk/wp-content/uploads/2017/08/Transport-and-Health-JSNA-2015-Air-Pollution.pdf
[5] Cambridgeshire County Council: Cambridgeshire Transport and Health JSNA Active Travel 2015, available at: http://cambridgeshireinsight.org.uk/wp-content/uploads/2017/08/Transport-and-Health-JSNA-2015-Active-Transport.pdf

Air Quality in Huntingdonshire

Nitrogen Dioxide (NO_2) continues to be the only pollutant that currently exceeds the objective level within the district. The primary source of NO_2 in Huntingdonshire is due to vehicle emissions, mostly originating from the A14 and to a lesser extent the A1 that runs through the district. However, local traffic within the market towns continues to cause some elevated levels, compared to the rest of the district.

Huntingdonshire currently has four Air Quality Management Areas (AQMA's).

1. Huntingdon,
2. St Neots,
3. Brampton, and
4. A14 Hemingford to Fenstanton.

These can be viewed on our website at: Air Quality and on the Defra website

Diffusion Tubes (non-continuous monitors for Nitrogen Dioxide (NO_2))

Looking at the diffusion tube data, this year the level of NO_2 appears to have plateaued with most locations experiencing a small increase or decrease (up to 1µg/m^3 compared with the results last year). This is broken down as follows:

18 sites have increased by up to 1µg/m^3, 8 sites have increased by up to 2µg/m^3 and 7 sites have increased by more than 2µg/m^3. Of these, the largest increase of above 3µg/m^3 (3.3µg/m^3) occurred at two sites – Brampton 7 and Offord Cluny, resulting in figures of 14.9µg/m^3 and 19.3µg/m^3 respectively. Whilst this is an increase, the results still remain significantly below the objective limit of 40µg/m^3. HDC will monitor this, however it has been noted that there were construction activities occurring in the vicinity of both sites, which may have impacted on the NO_2 levels.

9 sites indicate a fall in NO_2 of up to 1µg/m^3 and 7 sites have decreased by more than 1µg/m^3. Of these, the largest decrease of above 3µg/m^3 occurred at two points at one location, PFH 1 with a decrease of 3.1µg/m^3 and PFH 3 with a decrease of 3.2µg/m^3, resulting in levels of 37.7µg/m^3 and 40.1µg/m^3 respectively. From the monitoring completed, this is the only site that breaches the objective level in the district and is predominantly linked with the A14 and ring road. When the distance calculation is applied to indicate the level at the nearest sensitive receptor the result

is below the objective at 36.5µg/m^3. The distance calculation spreadsheet can be seen in Appendix C.

The results from the final 2 sites have remained the same as last year.

At the start of 2019 HDC introduced 5 new sites and redeployed 2 tubes from other locations, this will be discussed later in the *'Actions to improve air quality'* section.

Overall the results demonstrate that whilst there has been a small increase in NO_2 at several locations for 2019, all results remain well within the objective, with only 6 sites at 3 locations (PFH has 3 tubes) above 30µg/m^3, and just one above the annual objective limit of 40µg/m^3. This is demonstrated in the graphs in Figure A.1.

Continuous monitors (Analysers for Particulate Matter (PM) and NO_2)

It is difficult to compare results from 2018 to 2019 for the continuous monitors due to a lack of data for PM_{10} during 2018, and concerns regarding the reliability of the NO_2 analyser. New equipment was purchased and installed in April 2019 and this will be discussed later in the *'Actions to improve air quality'* section. The results for 2019 for PM_{10}, $PM_{2.5}$ and NO_2 from the continuous analysers indicate an annual mean level of 15.74µg/m^3 for PM_{10} which is well within the objective level of 40µg/m^3 with no breaches of the 24 hour objective (50µg/m^3). There has been a reduction in $PM_{2.5}$ to 8.67µg/m^3 and the NO_2 analyser meausured an annual mean of 37µg/m^3, which would imply that the objective is being met at this location, (the same location as where the diffusion tube indicates a breach). With the installation of the new equipment HDC intend to take part in the next diffusion tube co-location study to produce a localised bais adjustment figure. This has not been completed over the last few years due to concerns over the reliability of the data from the monitor.

Residential Development:

As a growing district Huntingdonshire has many large-scale developments both under construction, as well as proposed within the planning process. Areas around St Neots (such as Loves Farm/Wintringham Park and Loves Farm East) and Alconbury Weald continue to undergo large scale development; other sites include locations at Sawtry, St Ives, Godmanchester, Houghton, Brampton and Buckden. Most larger scale proposals are accompanied by an Air Quality Impact Assessment

to assess the impact of the proposed development; construction impacts and mitigation; and the impact of the local air quality on the development itself.

Industrial Development:

Neither of the two crematoria referenced in last year's report are operational at this time, nor have they applied for an Environmental Permit. The Small Waste Incineration Plant near Colne is still undergoing construction and commissioning and as such is not yet operational. This remains under the Industrial Emissions Directive and has an Environmental Permit.

In early 2019 there was a large fire at Envar composting, a recycling facility in Bluntisham, near St Ives. The fire was burning for more than a month during which the Environment Agency and Fire Service were in attendance. The nearest diffusion tube is located 3km upwind so is unlikely to have been impacted. The fire occurred over the winter period, reducing the potential impact on members of the public.

Actions to Improve Air Quality

Whilst not a specific action to improve air quality as such, HDC has taken steps to improve the monitoring provision within the district. With regard to diffusion tubes, 2 tubes have been relocated and 5 new tubes introduced:

- Removal of Brampton number 2 (as this is in close proximity to Brampton 1 which has more historical data associated with it and there is a possibility Buckden Road may become busier with the new A14).
- Removal of Fenstanton number 2 (similar location to Fenstanton 1 and has recently had to move due to new development and the loss of the telegraph pole).

New tubes at:

- Ermine Street Huntingdon – to monitor any increase in traffic along this route into Huntingdon following the A14 works.
- Warboys – to provide an indication of air quality in the area.
- Houghton Road, St Ives – to provide information on the queuing traffic at this location.

- Needingworth Road, St Ives – to cover the east end of the town.
- Earith – to monitor a possible canyon effect.
- Great North Road, St Neots – to monitor the impact of traffic going to the commercial/shopping areas.
- Cambridge Road, St Neots – to monitor the effects of the large-scale residential developments occurring in the area.

Ongoing concerns have been raised by an action group regarding the pollution within Earith and St Ives. Both Earith Parish Council and St Ives Town Council, as well as the East Cambs HCV Action Group were informed of the proposed new locations.

The new locations can be seen in the maps in Appendix D and results are available in Table B1 (Appendix B) and Figure A1 (Appendix A).

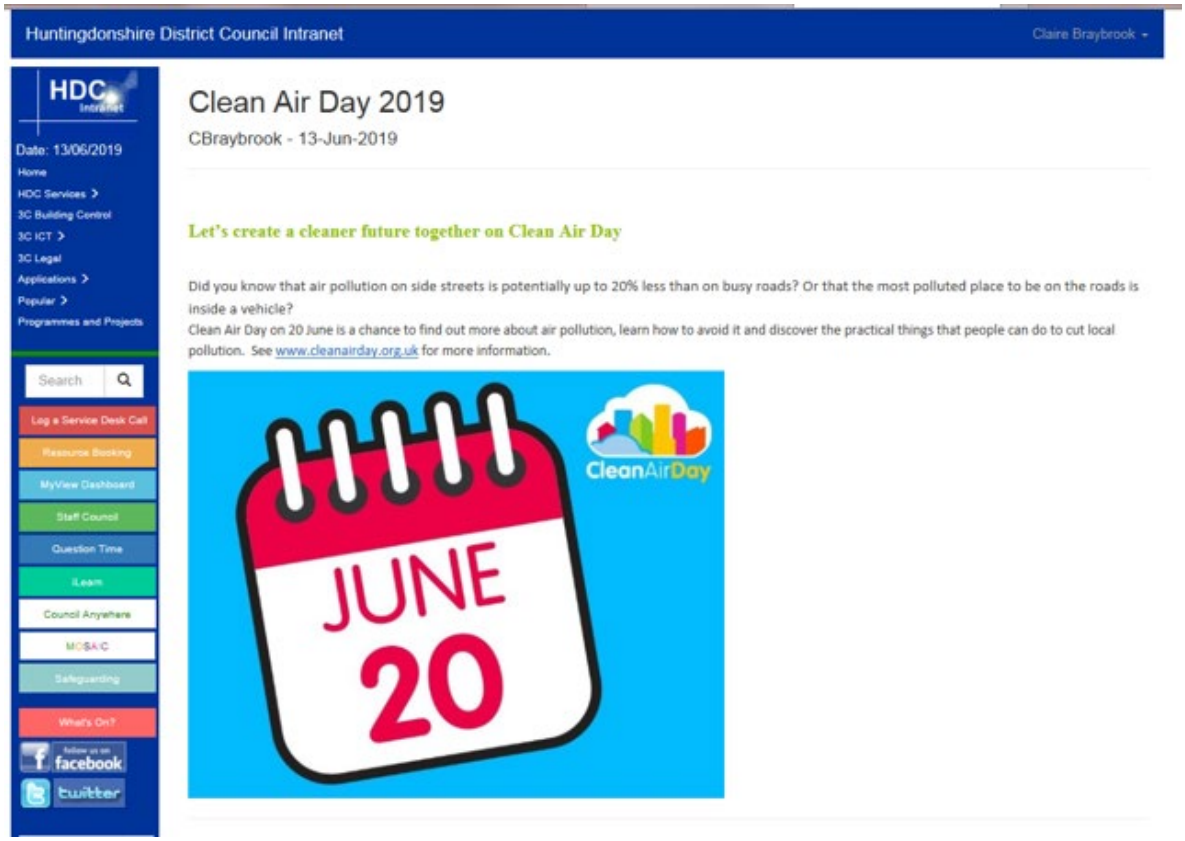
HDC have also replaced the automatic air quality monitors located within the Huntingdon Air Quality Management Area, after securing funding from the Cambridgeshire County Council's Local Transport Fund to help towards purchasing the equipment. Along with investment from HDC, this funding has enabled the installation of reliable equipment which will provide a more accurate picture of the air quality at this location, which from previous monitoring results has had the highest measured pollution levels in the district and is in close proximity to the A14 (now A1307) and the Huntingdon ring road. Further details can be found in section 3.1.1.

The Environmental Health Team continue to provide advice to the Planning Team regarding proposed developments in an attempt to minimise air pollution impacts, even if there is no risk that air quality objectives will be breached. Therefore, even if the effect is judged to be insignificant, consideration of the application of good design and good practice measures, including electric vehicle rapid charge points is advised. Construction Environmental Management Plans are also advised for certain developments in order to control and minimise the impact of pollution, especially particulate matter, during construction activities.

During 2019 HDC also participated in the National Clean Air Day public awareness campaign on 20th June 2019. An email was sent to all schools within the district

highlighting the campaign, providing information and signposting to the resources, as well as informing them that Huntingdonshire District Council would be tweeting throughout the day if they wished to retweet to their followers. Further to this we provided information on our intranet (for staff), our website's main page (for the public), and we tweeted information and advice to our followers throughout the day.

Intranet information:



Tweets:

A14 upgrade

The re-routing of the A14 has been partly completed ahead of schedule. The new section of road which takes the heavy traffic away from Huntingdon has opened a year early and the part of the A14 in close proximity to large residential areas in Huntingdon, closed at the end of 2019. This, along with the impact on the NO_2 and PM_{10} levels within the AQMA and elsewhere, will be discussed further in the 2020 ASR.

Whilst this year there appear to have been slight increases in NO_2 at many sites, all locations outside Huntingdon continue to be well below the national objectives. As highlighted last year, a report has been written reviewing the AQMA's at St Neots, Fenstanton and Brampton concluding that all 3 should be revoked, leaving Huntingdon the only AQMA remaining. Defra has offered clear support for this proposal and stated the following in their appraisal report of the 2018 ASR:

'AQMA statuses should be reviewed as soon as possible. To reiterate AQMAs 2, 3 and 4 have demonstrated long standing compliance and there is no need for these areas to be designated as such'.

Changes in management structure have resulted in a delay to the agreement of the draft report and seeking committee approval. It is envisaged there will be a further delay this year due to the impact of Covid-19, however HDC are committed to ensuring the AQMA's are fully considered in line with the correct protocol.

The detailed modelling assessment of NO_2 concentrations in St Neots can be viewed on our website. The draft report on the AQMA review was included within last years ASR and will be updated and presented to Council.

A428 upgrade

A new 10-mile duel carriageway and various junction improvements are proposed on the A428 between the Black Cat roundabout and Caxton Gibbet roundabout. This will improve journeys between Milton Keynes and Cambridge including the section which runs south of St Neots and directly affects traffic flows within St Neots. Following consultation in summer 2019, Highways England have made changes to the development boundary and to the design of the scheme. A further consultation on these changes will run until 28 July 2020. Further information can be read. HDC will continue to liaise with Highways England on assessing the impact of the scheme on St Neots and other surrounding areas.

Huntingdonshire District Council also provides advice to members of the public regarding sustainability and energy saving measures and is working hard to reduce its own impact by improving energy efficiency of council owned buildings and continuing to support working from home opportunities; helping to reduce vehicle usage. We are also continuing to investigate and pursue measures that will help to improve air quality and officers are currently submitting a bid to the County Council for additional cycling routes in Huntingdon as well as looking at more sustainable transport options for the market towns.

Conclusions and Priorities

One exceedance of the NO_2 limit has been identified within the current Huntingdon AQMA, however when distance corrected to the nearest relevant exposure receptor, this did not persist. Overall, there has been a slight increase in NO_2 within the district, however there is still widespread compliance with the objectives.

Revocation is proposed for the St Neots, Fenstanton and Brampton AQMA's, subject to committee approval. As previously highlighted, the Air Quality Action Plan (AQAP) is out of date, it is considered the most appropriate time for completing a new AQAP would be following the revocation of the 3 AQMA's (if agreed) and completion of the A14 works to enable assessment of the remaining AQMA and ensure a more focussed and appropriate action plan to be produced, if required.

It is fully expected the re-routed A14 will have a beneficial impact on the pollution levels currently experienced by many residents in Huntingdon. Huntingdonshire District Council will continue to liaise with Highways England regarding the progress of this scheme, as well as the proposed upgrade of the A428, to minimise any adverse impact on air quality.

The introduction of 5 new locations for diffusion tubes has assisted in providing information to residents concerned about the air quality in their area and new continuous monitoring equipment located at Pathfinder House will enable confidence in monitoring results within the AQMA. HDC have also acquired funding for 2020/2021 from Cambridgeshire County Council's Local Transport Fund to purchase a mobile continuous monitor, Aeroqual AQY. This will allow HDC to monitor particulate matter as well as NO_2 in more detail at locations where residents/action groups consider there is an issue and then take appropriate action. This will be discussed further in next year's ASR.

The main priorities for HDC in relation to air quality are to:

- Purchase Aeroqual AQY
- update (with 2019's data) the review into the status of the AQMA's that continue to show monitoring compliance, take this to committee for consideration and take appropriate action following their decision.

- Assess the impacts of the relocation of the A14 and if this will require changes to the Huntingdon AQMA – this may take a few years as works continue within Huntingdon so an accurate long-term impact will take some time.
- Once the future of 3 of the AQMA's is known, completion of a new AQAP.
- continue to maintain partnership working with HDC planning department and improve partnership working with the County Council Highways team.
- continue to ensure construction impacts are considered and mitigation provided for appropriate development proposals; and
- consider what further measures the Council can take to improve its own emissions.

These are discussed further in Section 2.2 below.

Challenges:

Covid-19 has presented a challenge in normal operations and may cause a further delay to gaining a committee decision regarding the AQMA's.

The ongoing challenge remains to balance economic growth within Huntingdonshire, whilst ensuring compliance with the air quality objectives.

Local Engagement and How to get Involved

During 2019 HDC received various requests for information regarding air quality within the district, members of the public and action groups are increasingly recognising the impacts of poor air quality and querying pollution levels within their area.

Members of the public can help to improve local air quality by 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. Public transport information for Cambridgeshire can be viewed on the County Council website.

The use of wood burning stoves and open fires also contributes 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.

HDC provide further information on our website under ‘Sustainability and greener living’. The energy savings trust can also provide further advice. HDC support National Clean Air Day, another valuable source of information regarding air quality advice and how to minimise exposure is the website.

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1 Local Air Quality Management

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

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Huntingdonshire District Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by Huntingdonshire District Council can be found in Table 2.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries is available online. Alternatively, see *Appendix D: Map(s) of Monitoring Locations and AQMAs*, which provides a map of air quality monitoring locations in relation to the AQMAs.

Due to continued compliance HDC propose to revoke St Neots, Brampton and Hemingford to Fenstanton AQMA's (see monitoring section).

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	At Declaration	Now	Name	Date of Publication	Link
Huntingdonshire District Council Air Quality Management Area Order No. 1 (Huntingdon: Nitrogen Dioxide)	16/11/05 - amended 29/10/07	NO^2 Annual Mean	Huntingdon	An area encompassing approximately 2831 domestic properties affected by the A14, A141, B1044, B1514 and Huntingdon Inner Ring Road.	YES	96 Orthwaite 50.2 (2004) $\mu g/m^3$	40.1 at PFH (3) 36.5 at RE $\mu g/m^3$	Cambs Joint Air Quality Action Plan	2009	www.huntingdonshire.gov.uk/media/3423/2009-joint-air-quality-action-plan.pdf
Huntingdonshire District Council Air Quality Management Area Order No. 2 (St Neots: Nitrogen Dioxide)	16/11/05 - amended 29/10/07	NO^2 Annual Mean	St Neots	An area encompassing approximately 115 domestic properties affected by local traffic in the town centre.	NO	26 High Street 45.2 (2004) $\mu g/m^3$	28.8 at 8-10 High Street (St Neots 5) & RE $\mu g/m^3$	Cambs Joint Air Quality Action Plan	2009	www.huntingdonshire.gov.uk/media/3423/2009-joint-air-quality-action-plan.pdf
Huntingdonshire District Council Air Quality Management Area Order No. 3 (Brampton)	01/09/06 - amended 29/10/07	NO^2 Annual Mean	Brampton	An area encompassing approximately 82 domestic properties affected by the A14.	YES	16 Wood View 37.2 (2004) $\mu g/m^3$	21 at 1 Laws Crescent (Brampton 3). 15.7 at RE $\mu g/m^3$	Cambs Joint Air Quality Action Plan	2009	www.huntingdonshire.gov.uk/media/3423/2009-joint-air-quality-action-plan.pdf
Huntingdonshire District Council Air Quality Management Area Order No. 4 (Hemingford to Fenstanton: Nitrogen Dioxide)	01/09/06	NO^2 Annual Mean	Fenstanton	An area encompassing approximately 62 domestic properties affected by the A14.	YES	Slipway, Huntingdon Road 46.2 (2004) $\mu g/m^3$	25.2 at Hilton Road (Fenstanton 1) & RE $\mu g/m^3$	Cambs 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(s) is up to date

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
The Council's AQAP was published in 2009 and is now out of date. The Council are advised to update their action plan to make it specific to the Huntingdon AQMA (assuming successful revocation of the Councils other three AQMAs) and incorporate particulate-specific measures where applicable, given the well-documented adverse health impacts of exposure.	Agreed. This is a priority within the air quality work, however with the delay to council consideration of the revocation of three of the AQMAs it has not yet been completed. Once agreement has been made regarding these, the Air Quality Action Plan will be completed for the relevant areas, specific to Huntingdonshire.
The Council are encouraged to consider utilising their co-located diffusion tubes in future years in order to derive a local bias adjustment factor, however use of the national factor is appropriate.	Due to various issues with our air quality monitoring station HDC considered the uncertainty in measurements from the NOx monitor was too great to derive a reliable local adjustment factor. All equipment has now been replaced and is functioning well and it is therefore fully intended to gain a local bias adjustment factor for the data collected in 2020.
The Council provides a discussion of PM2.5 and refer to the Public Health Outcomes Framework, however are encouraged to draw more detailed links. The report should draw links to the fraction of mortality attributable to PM2.5 emissions. The	Noted and complied with in this report. See section 2.3.

Council are encouraged to include this in future reports, in addition to a discussion of historical trends, a comparison between Huntingdonshire and England as a whole, and a comparison to neighbouring authorities. For further guidance, please refer to LAQM Technical Guidance TG16.	
The Council has listed a number of priorities for the next year and the council should provide an update on the progress of these in the next reporting year. These priorities are appropriate.	Noted and complied with – see further within this section.
It is encouraging to see the Council responding to comments raised in the previous appraisal, as it is an example of good practice.	Noted.

As well as the actions discussed above in the Executive Summary section, such as supporting promotional campaigns and upgrading of the air quality monitoring equipment, Huntingdonshire District Council has taken forward a number of direct measures during the current reporting year of 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

As stated in last year's ASR, it should be noted that these measures originate from the Cambridgeshire Air Quality Action Plan (2009) and hence have remained the same for a number of years. Huntingdonshire District Council are in the process of reviewing the St Neots, Brampton and Fenstanton AQMA's, with a view to revocation. Once the A14 works have been completed and data has been gained during normal traffic flows the AQMA in Huntingdon will be reviewed. This may take a few years to gain sufficient data, due to continued works in Huntingdon on the A1307 (old A14), so at this time it is intended that a new Action Plan, with updated,

more appropriate and targeted measures will be written following the outcome of the decision on the revocation of the three AQMAs, in order to reduce further delay.

Key completed measures are:

Measurement 1: The A14 upgrade is ahead of schedule and the main new road is open. The old A14, now called A1307, is currently closed whilst road works and removal of the viaduct occur in Huntingdon. This means a significant source of pollution has now been removed.

Measurement 2: Implementation of air quality policies in local plan is currently on going. The Local Plan for Huntingdonshire to the year 2036 was formally adopted at full Council on 15 May 2019. Within the *'Parking provision and vehicle movement'* section on page 78, paragraph 5.60 states:

'It is suggested that at least one charging point for an electric vehicle should be provided where a proposal includes 20 or more parking spaces and that 1 charging point is provided for every 50 spaces'.

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 considered, officers continue to advise the Local Planning Authority, air quality consultants and developers, that the current advice from public health experts is that the health impacts of air quality should be minimised, 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 electric vehicle rapid charge points.

Measurement 3: Development of an effective freight partnership. Now that the A14 has been moved away from the main residential areas it is not expected that freight will cause a significant issue within Huntingdonshire. Therefore no further action will be taken. This will be reassessed once the A14 works have been fully completed and traffic movements become representative.

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. This will be reassessed once the A14 works have been fully completed and traffic movements become representative.

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

Measurement 6: Smart traffic lights at St Neots have been installed and are operational.

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

- The proposed revocation of the St Neots, Brampton and Fenstanton AQMAs (AQMA 2, 3 & 4). Following a number of years meeting the objectives, and completion of a detailed modelling assessment (for St Neots), it can be demonstrated that the air quality standards and objectives are being achieved (and are likely throughout the relevant period to be achieved within the designated area). A draft report reviewing the AQMA's is currently with management. This will be updated to reflect 2019's data, which continues to demonstrate strong compliance with the national objective. The Council has therefore entered the process of revocation and is awaiting management and ultimately committee approval, prior to the revocation orders being made. Defra have expressed their support of this proposal, stating the following in their appraisal report of the 2018 ASR:

  'Alongside AQMA 2 which is currently undergoing revocation it is strongly recommended that the Council revoke AQMA 3 and 4 due to long standing compliance'.

  The revocation of AQMA 2 was delayed so all three can be considered together.

  The detailed modelling assessment of NO_2 concentrations for St Neots can be viewed on our website. Due to the size of the report it has not be included in the Appendices. The draft report for the review of AQMA's was included in last year's ASR and will be updated and presented to Council.

- Use Local Transport Plan (LTP) funding from Cambridgeshire County Council to purchase a new mobile air quality monitoring device to enable data (including particulate matter) to be gained in areas of concern around the district.

- Continue to build on partnership working, especially with Planning and Highways.

- Maintain position to ensure construction impacts are considered and mitigation utilised for appropriate development proposals; and
- Continue to consider what further measures the Council can take to improve its own emissions and work towards improvements.

Update on last year's priorities:

2018 ASR priorities	Huntingdonshire District Council update
The review and proposed revocation of the St Neots, Brampton and Fenstanton AQMAs (AQMA 2, 3 & 4).	Due to a management restructure this work has been delayed. This continues to be a priority, however with the current situation in relation to Covid-19 the timescale for completion is unclear as council resources are focussed on unforeseen additional works.
Ensure the effective operation of the new Air Quality Monitoring Station to enable the collection of meaningful data	Installation completed and equipment is functioning correctly, providing robust data.
Improve Partnership working, especially with Planning and Highways.	Good partnership working with planning officers and detailed conversations regarding air quality. Green City presentation and discussion attended with County Council representatives from Public Health and Highways/transport.
Ensure construction impacts are considered and mitigated for appropriate development proposals; and	All environmental health practitioners providing consultation responses on planning applications are aware of the need for Construction Environmental Management Plans (CEMP's) in order to control pollution emanating from construction activities. Condition wording

	has also been discussed with planning enforcement to ensure conditions are enforceable.
Consider what further measures the Council can take to improve its own emissions.	HDC are bidding for additional cycling routes in Huntingdon and investigating sustainable transport options for the market towns. HDC's own fleet now has a fully electric van and electric options will be fully considered when vehicle replacements are required.

It should also be noted at a regional level Cambridgeshire County Council elected members have recognised the impacts of poor air quality and at Full Council in October 2018 they passed a resolution to work with their partner councils and other public bodies towards promoting a programme of active participation across Cambridgeshire to address air pollution more collaboratively, including the development of communication resources, training and learning events, guidance for communities on air quality monitoring, and collaborative working. This is ongoing.

Following its declaration of a Climate and Environment Emergency in May 2019, Cambridgeshire County Council have also developed a strategy to reduce their own and the County's carbon footprint, and to support others in their efforts. The strategy outlines how the council plans to reduce their carbon footprint, where the council can collaborate with others to achieve improvements, and a range of measures to encourage, support and help communities adapt to the change already happening, and enhance nature and the benefits it provides.

Huntingdonshire District Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in AQMA 1 Huntingdon, and continued compliance in AQMA 2 St Neots, AQMA 3 Brampton and AQMA 4 Hemingford to Fenstanton.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
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	Highways England	Highways England	Monitoring should indicate a reduction when relocation of road completed	AQMA's 1, 3 & 4 should meet requirements	Scheme being undertaken	2020	Lengthy Timescale but expected to improve all AQMA's (after revocation of St Neots)
2	Implementation of air quality policies in the local plan.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2009	Huntingdonshire District Council	Huntingdonshire District Council	N/A	All	Included within the HDC Local Plan to 2036 Implementation on-going	Ongoing	Highlighting AQ aspects and measures for reduction is ongoing
3	Development of an effective freight partnership	Freight and Delivery Management	Other	2009	Not currently progressing	Not currently progressing	N/A	All	None	Unknown	Now the A14 improvement has been agreed and Highways England have opened communication on improving the A428 it is unknown if an effective fright partnership would have any significant effect. This will be re-evaluated once changes have been monitored.
4	Inclusion of Huntingdonshire in the Quality Bus Partnership	Alternatives to private vehicle use	Other	2009	Cambridgeshire County Council	Cambridgeshire County Council	N/A	All	None	None	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	Cambridgeshire County Council	Cambridgeshire County Council	Unknown	All	Completed	Completed	The guided busway was opened in August 2011 from Cambridge Huntingdon and extended to Peterborough in July 2012.
6	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	Cambridgeshire County Council	Cambridgeshire County Council	AQ monitoring indicates a reduction	Reduction in AQMA 2 St Neots	Completed	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

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

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

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[6]. Nevertheless, this 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.

$PM_{2.5}$ has been monitored in Huntingdonshire at Pathfinder House since 2014 and has indicated a general downward trend over the years. In 2018 there was a high level of uncertainty due to operational issues with the analyser, which was replaced in 2019 and annualised data demonstrates a fall in $PM_{2.5}$ to 8.67µg/m^3. Table A.7 and Figure A.4 in Appendix A demonstrate that the measured annual mean concentration of $PM_{2.5}$ in Huntingdonshire has been steadily reducing. This is likely to improve further for the year 2020 due to the impact of the Coronavirus lockdown measures, and long term due to the relocation of significant flows of traffic on the A14.

[6] Defra Local Air Quality Management Technical Guidance (TG16) 2018

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

- The measures discussed above in Section 2.2 and Table 2.2 will have co-benefits on multiple pollutants, including $PM_{2.5}$.
- The relocation of the A14 will reduce pollution, including $PM_{2.5}$ significantly (Measurement 1 in Table 2.2).
- In 2014 Huntingdonshire District Council joined with Public Health England and the other Cambridgeshire authorities to develop the transport and health joint strategic needs survey which focused on $PM_{2.5}$ from transport.
- Huntingdonshire District Council is intending to review and update the Council's Air Quality Action Plan (AQAP) once the outcome of the current AQMAs has been determined. $PM_{2.5}$ will be considered within any new AQAP.
- 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 when necessary, in order to control dust from demolition and construction activities.
- Funding was applied for in 2019/20 and again in 2020/21 and has now been gained for the acquisition of a micro air quality monitor which can be installed on lamp posts, enabling data (including $PM_{2.5}$) to be collected from areas of concern. More information regarding this will be available in next year's ASR.
- HDC have put in a bid in for additional cycling routes in Huntingdon and are looking at more sustainable transport options for the market towns. These could help to bring about a modal shift away from use of private vehicles, thereby reducing emissions of relevant air pollutants, including $PM_{2.5}$. There are also co-benefits in encouraging cycling, for example on health.
- Informing the public 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.

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

Public Health Outcomes Framework:

Some of the above point's link 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. For example, population-weighted annual average concentrations of anthropogenic $PM_{2.5}$ are provided for all lower tier and unitary local authorities within the UK. These are combined to produce figures at upper tier, regional and national level so that attributable fractions of annual all-cause adult mortality associated with long term exposure to current levels of anthropogenic $PM_{2.5}$ can be calculated at those scales as well[7].

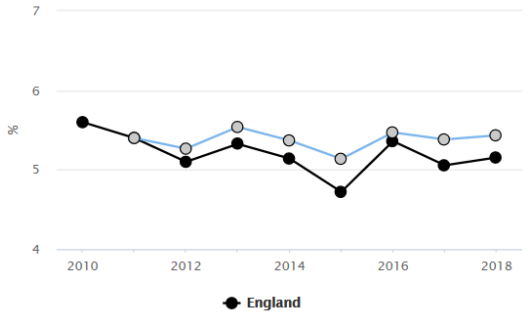
The Public Health England PHOF indicator D01 *'Fraction of mortality attributable to particulate air pollution'* for Huntingdonshire in 2018 (the most recent year available) was 5.4% and this has fluctuated since records began in 2011.

Public Health England historical data trends for Huntingdonshire compared with England:

[7] Defra Local Air Quality Management Technical Guidance (TG16) 2018

D01 - Fraction of mortality attributable to particulate air pollution Huntingdonshire — Proportion - %

Export chart as image | Show confidence intervals | Export table as CSV file



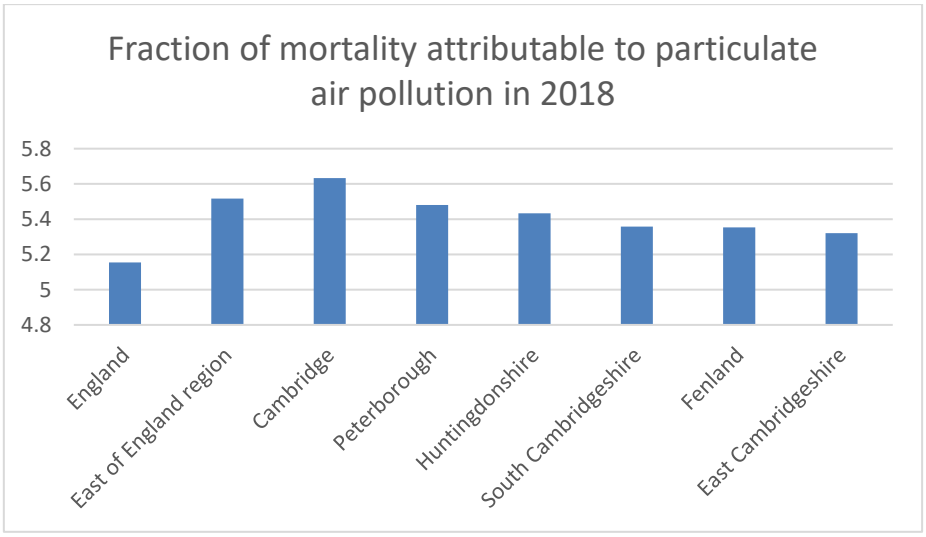
Recent trend: –

Period		Huntingdonshire Count	Value	Lower CI	Upper CI	East of England	England
2010		-	-	-	-	5.6%	5.6%
2011	○	-	5.4%	-	-	5.5%	5.4%
2012	○	-	5.3%	-	-	5.3%	5.1%
2013	○	-	5.5%	-	-	5.6%	5.3%
2014	○	-	5.4%	-	-	5.4%	5.1%
2015	○	-	5.1%	-	-	5.1%	4.7%
2016	○	-	5.5%	-	-	5.6%	5.4%
2017	○	-	5.4%	-	-	5.5%	5.1%
2018	○	-	5.4%	-	-	5.5%	5.2%

Source: Background annual average $PM_{2.5}$ 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 (http://uk-air.defra.gov.uk/interactive-map.) Data on primary emissions from different sources and a combination of measurement data for secondary inorganic aerosol and models for sources not included in the emission inventory (including re-suspension of dusts) are used to estimate the anthropogenic (human-made) component of these concentrations. By approximating LA boundaries to the 1km by 1km grid, and using census population data, population weighted background $PM_{2.5}$ 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 anthropogenic, rather than total, $PM_{2.5}$ are used as the basis for this indicator, as burden estimates based on total $PM_{2.5}$ might give a misleading impression of the scale of the potential influence of policy interventions (COMEAP, 2012).

Source

The 2018 figure of 5.4% for Huntingdonshire is similar to the values across the East of England region of 5.5% and 5.2% nationally.



Source

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

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

Huntingdonshire District Council undertook automatic (continuous) monitoring at one site during 2019. Table A.1 in Appendix A shows the details of the site. National monitoring results are available. Air quality data from the automatic continuous monitor is available via our website.

Maps showing the location of the monitoring sites are provided in Appendix D. Huntingdonshire District Council have a service contract with Air Monitors and Quality Assurance/Quality Control (QA/QC) audits are completed by Ricardo. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

The Air Quality Monitoring Station has received a complete overhaul, with air conditioning equipment being replaced in 2018 and, after securing funding from the Cambridgeshire County Council's Local Transport Fund to help towards purchasing the equipment, all monitors were replaced in April 2019. The equipment now comprises of a Serinus S40 NOx analyser and the Fidas 200 particulate monitor, both of which are MCERTS certified. Results for 2019 have been annualised where required. The replacement of the equipment has significantly improved both data capture and certainty in results.

3.1.2 Non-Automatic Monitoring Sites

Huntingdonshire District Council undertook non- automatic (passive) monitoring of NO_2 at 58 sites during 2019. This has increased by 5 from 2018 as 2 tubes have been relocated and 5 new tubes introduced, as discussed earlier in the *'Actions to Improve Air Quality'* section, this consisted of:

- Removal of Brampton number 2 (as this is in close proximity to Brampton 1 which has more historical data associated with it and there is a possibility Buckden Road may become busier with the new A14).

- Removal of Fenstanton number 2 (similar location to Fenstanton 1 and has recently had to move due to new development and the loss of the telegraph pole)

New tubes installed at:

- Ermine Street Huntingdon – to monitor any increase in traffic along this route into Huntingdon following the A14 works.
- Warboys – to provide an indication of air quality in the area.
- Houghton Road, St Ives – to provide information on the queuing traffic at this location.
- Needingworth Road, St Ives – to cover the east end of the town.
- Earith – to monitor a possible canyon effect.
- Great North Road, St Neots – to monitor the impact of traffic going to the commercial/shopping areas.
- Cambridge Road, St Neots – to monitor the effects of the large-scale residential developments occurring in the area.

Ongoing concerns have been raised by an action group regarding the pollution within Earith and St Ives. Both Earith Parish Council and St Ives Town Council, as well as the East Cambs HCV Action Group were informed of the proposed locations.

The tubes are supplied and analysed under contract with SOCOTEC at Didcot a UKAS accredited laboratory. Huntingdonshire District Council are currently in a 3-year contract for the provision of the diffusion tubes and will re-evaluate the number and location of tubes when that expires in 2022. This should also enable full monitoring of the impact on air quality from the relocation of the A14. In the meantime, if concerns are raised regarding other locations they will be investigated, and tubes relocated if considered appropriate.

Table A.2 in Appendix A shows the details of all of the monitoring 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 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[8], "annualisation" (where the data capture falls below 75%), and distance correction[9]. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

Note that the concentration data presented in Table A.3 represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment). This data is also presented in the graphs in Figure A1.

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

In 2019 there was only one diffusion tube that indicated a breach of the 40µg/m^3 annual mean objective, and this is located at the same site that breached last year, Pathfinder House. Of the three tubes at this location, only one (PFH 3 at 40.1µg/m^3) indicated a failure, with the others being within 10% of the objective. This site is located within the Huntingdon AQMA, and can be seen on the map in Appendix D.

Looking at the diffusion tube data for the whole of the district for 2019 the level of NO_2 appears to have plateaued with most locations experiencing a small increase, and some a small decrease (up to 1µg/m^3) compared with last year's results.

18 sites have increased by up to 1µg/m^3, 8 sites have increased by up to 2µg/m^3 and 7 sites have increased by more than 2µg/m^3. Of these the largest increase of above 3µg/m^3 (3.3µg/m^3) was at two sites – Brampton 7 and Offord Cluny, resulting in figures of 14.9µg/m^3 and 19.3µg/m^3 respectively. Whilst this is an increase, the results still remain significantly below the objective limit of 40µg/m^3. HDC will monitor this, however it has been noted that there were construction activities occurring in the vicinity of both sites, which may have impacted on the NO_2 levels.

[8] https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html
[9] Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)

9 sites have decreased by up to 1µg/m^3 and 7 sites have decreased by more than 1µg/m^3. Of these, the largest decrease of above 3µg/m^3 occurred at two points at one location, PFH 1 with a decrease of 3.1µg/m^3 and PFH 3 with a decrease of 3.2µg/m^3, resulting in levels of 37.7µg/m^3 and 40.1µg/m^3 respectively. This is the only site that breaches the objective level in the district and is predominantly linked with the A14 and ring road. When the distance calculation is applied to indicate the level at the nearest sensitive receptor the result is below the objective at 36.5µg/m^3. The calculation can be seen in Appendix C.

The results from the final 2 sites have remained the same as last year.

Of the new locations, the highest bias adjusted annual mean was 28.2µg/m^3 at Ermine Street in Huntingdon, which is significantly below the objective of 40µg/m^3.

Overall the results demonstrate that whilst there has been a small increase in NO_2 at several locations for 2019, all results remain well within the objective, with only 6 sites at 3 different locations above 30µg/m^3 (PFH has 3 tubes), and just one marginally above the annual objective limit of 40µg/m^3. This is demonstrated in the graphs in Figure A.1 in Appendix A.

The highlighted breech occurred in the same location as the continuous monitor, which had a result of 37µg/m^3. When comparing this to 2018's data from the analyser (28µg/m^3) this is a significant increase. However, whilst the data capture for the continuous monitor was good, the reliability of the analyser in use prior to April 2019 was questionable and therefore, even though continuous monitoring will provide more robust data compared to that from diffusion tubes, we are cautious as to the accuracy of the figures for the annual mean, and would not necessarily rely on them to demonstrate compliance at this time. With the new analyser we are able to ensure monitoring results will be more robust, enabling us to determine a more accurate overview of the situation.

Table A.4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year, and demonstrates there were no exceedances during the year. This is the same as the last 5 years.

There were also no annual means greater than 60µg/m^3 for any of the diffusion tubes around the district, which again indicates that an exceedance of the 1-hour mean objective was not likely to have occurred at these locations.

Both the automatic monitor and 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. A distance correction calculation has been completed for monitoring locations where an annual mean concentration has been recorded as above, or within 10% of the NO_2 annual objective of 40µg/m^3. The breech related to one tube, located at Pathfinder House and the distance calculation indicated no breach at the nearest relevant receptor, see Table B1. Only three other sites were within 10% of the objective (i.e. at or above 36 µg/m^3), these were PFH 1, PFH 2 and Huntingdon 3 (located on George Street). A distance correction was completed in line with Defra guidance, (with the exception of Huntingdon 3, which is at the relevant exposure point so no distance correction is required).

Due to the concerns over accuracy of the data gained by the NO_2 analyser for January to April, the national bias adjustment figure has been utilised for the diffusion tubes. Some residents have raised concerns regarding the need for completing bias adjustment on the diffusion tube results and it should be noted that this is to account for the inherent uncertainty in diffusion tube monitoring concentration data and is in line with government guidance (paragraph 7.78 of TG16). The methodology for gaining the bias adjustment figure can be found in Appendix C.

As discussed earlier, with the installation of the new equipment HDC intend to take part in the next diffusion tube co-location study to produce a localised bias adjustment figure. This has not been completed over the last few years due to concerns over the reliability of the data from the monitor.

To summarise, there has been an overall marginal increase in NO_2 at the majority of sites, however all sites, with the exception of 2 locations in Huntingdon (PFH and Huntingdon 3) remain significantly below the objectives for NO_2. No additional locations are exceeding the objectives compared with last year.

3.2.2 Particulate Matter (PM_{10})

Table A.5 in Appendix A compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

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

Results from 2018 to 2019 are unable to be compared for PM_{10} as there was a lack of data available for 2018 due to the monitor malfunctioning. However, when looking at the overall trend, there appears to be a general fall since 2012, as demonstrated within Figures A.2 and A.3 in Appendix A. The results for 2019 for PM_{10} from the continuous analyser indicate an annual mean of 15.74µg/m^3 for PM_{10} which is well within the objective level of 40µg/m^3 with no breaches of the 24-hour objective (50µg/m^3). The new monitor was installed in April 2019 and therefore the results have been annualised in line with government guidance, details of which can be found in Appendix C. PM_{10} results can also be viewed online at the Air Quality England website where data can be downloaded.

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.7 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past 5 years.

Huntingdonshire District Council has been monitoring $PM_{2.5}$ since 2014 with results indicating a downward trend and a reduction in the annual mean to 8.67µg/m^3 in 2019. The new monitor was installed in April 2019 and therefore the results have been annualised in line with government guidance, details of which can be found in Appendix C. $PM_{2.5}$ results can also be viewed online at the Air Quality England website where data can be downloaded.

Appendix A: Monitoring Results

Table A.1 - Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
PFH	Huntingdon	Roadside	524102	271540	NO2, PM10, PM2.5, PM1	YES	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

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
St Neots 1	The Paddocks	Kerbside	517869	260132	NO2	NO	22	22	NO	3
St Neots 2	18 Cromwell Gardens	Roadside	519541	260280	NO2	NO	8	4	NO	3
St Neots 3	71 Avenue Road	Urban Background	518925	260503	NO2	NO	4	1	NO	3
St Neots 4	20 Harland Road	Urban Background	518489	260871	NO2	NO	3	1	NO	3
St Neots 5	8-10 High Street (Post Office)	Kerbside	518323	260263	NO2	YES	0	1	NO	3
St Neots 6	35 High Street (Traffic lights)	Kerbside	518433	260321	NO2	YES	0	1	NO	3
St Neots 7	17 Arundel Crescent	Suburban	518424	258556	NO2	NO	0	17	NO	1.75
St Neots 8	122 Lindisfarne Close	Suburban	518707	258260	NO2	NO	4	31	NO	3
St Neots 9	5 Duchess Close	Suburban	516370	259514	NO2	NO	3	5 (24m to trunk road)	NO	3
Southoe 1	2 Lees Lane	Roadside	518714	264308	NO2	NO	24	2 (14m to trunk road)	NO	1.75
Buckden 1	6 Perry Road	Roadside	518981	267370	NO2	NO	0	12 (10m to trunk road)	NO	1.75
Buckden 2	4 High Street (Roundabout)	Roadside	519082	267433	NO2	NO	0	1 (35m to trunk road)	NO	1.75
Buckden 3	34 High Street (shop)	Roadside	519161	267624	NO2	NO	0	1	NO	2
Buckden 4	11 Taylors Lane	Roadside	519197	267955	NO2	NO	3	1	NO	3
Brampton 1	RAF Brampton (Sparrow Close)	Roadside	520734	269623	NO2	NO	10	0.5	NO	3

Huntingdon 9	Ermine Street Huntingdon	Roadside	523575	272174	NO2	YES	0	3	NO	2
Brampton 3	1 Laws Crescent	Roadside	520155	271561	NO2	YES	32	2	No	3
Brampton 4	25 Dorling Way	Roadside	519956	271461	NO2	NO	6	1.5	No	3
Brampton 5	7 Hansell Road	Roadside	519839	271061	NO2	NO	18	0.5	No	3
Catworth 1	1 Thrapston Road	Rural	508409	274876	NO2	NO	42	42 (42m to trunk road)	NO	3
PFH 1	Pathfinder House	Roadside	524102	271540	NO2	YES	8	6	YES	3.6
PFH 2	Pathfinder House	Roadside	524102	271540	NO2	YES	8	6	YES	3.6
PFH 3	Pathfinder House	Roadside	524102	271540	NO2	YES	8	6	YES	3.6
Huntingdon 1	23 Lodge Close	Suburban	523177	271627	NO2	NO	3	2	NO	3
Huntingdon 2	19 Nursery Road	Kerbside	524198	271949	NO2	YES	0	1	NO	1.75
Huntingdon 3	6 George Street	Kerbside	523661	271802	NO2	YES	0	1	NO	3
Huntingdon 4	1 St Peters Road	Kerbside	523435	272464	NO2	YES	3	1	NO	3
Huntingdon 5	18 Blethan Drive	Roadside	522293	272909	NO2	YES	3	2	NO	3
Huntingdon 6	40 Hartford Road	Roadside	524274	271939	NO2	YES	4	2	NO	3
Godmanchester 1	25 Cambridge Villas	Roadside	525319	270571	NO2	NO	3	12 (34m to trunk road)	NO	3
Wood Green Animal Shelter	Goat enclosure	Rural	526250	268264	NO2	NO	0	235	NO	3
Fenstanton 1	Hilton Road	Roadside	531427	268397	NO2	YES	20	2 (20m to trunk road)	NO	3
Earith 1	52-54 High Street	Roadside	538460	274797	NO2	NO	0	1.8	NO	2
Fenstanton 3	1 Pear Tree Close	Rural	531063	268063	NO2	NO	6	1.5	NO	3
St Ives 1	2 The Pound	Urban Background	531206	272334	NO2	NO	5	1	NO	3

St Ives 2	59 Greenfields	Suburban	530850	270286	NO2	NO	6	1.5	NO	3
St Ives 3	6 Goldie Close	Roadside	529866	272285	NO2	NO	11	6	NO	3
Ramsey 1	5 Blenheim Road	Urban Background	528433	284936	NO2	NO	4	2	NO	3
Yaxley 1	2 London Road	Roadside	517480	292309	NO2	NO	13	2	NO	3
Stibbington 1	7 Great North Road	Roadside	508326	298684	NO2	NO	22	2 (8m to trunk road)	NO	3
Alwalton 1	2 Royce Road	Roadside	513132	295723	NO2	NO	11	4 (61m to trunk road)	NO	3
Sawtry 1	81 Fen Lane	Suburban	517440	283443	NO2	NO	4	2	NO	3
Alconbury 1	54 Manor Lane	Roadside	518954	276010	NO2	NO	6	2	NO	3
Great Stukeley 1	Church of Jesus Christ - Ermine Street	Roadside	522000	274607	NO2	NO	33	1	NO	3
Huntingdon 7	6 Brampton Road	Roadside	523432	271760	NO2	YES	10	2	NO	3
Huntingdon 8	Main Road	Roadside	525289	272525	NO2	NO	27	2	NO	3
Hilton 1	1 Westbrook Close	Suburban	528836	266538	NO2	NO	10	1	NO	3
Fenstanton 4	25 High Street	Roadside	531729	268370	NO2	NO	1.5	1	NO	3
Alconbury 2	Lords Ways	Suburban	518955	275520	NO2	NO	10	1	NO	3
Brampton 6	Parish Hall Church Road	Roadside	521487	270803	NO2	NO	19	1	NO	3
Brampton 7	52 Elizabethan Way	Suburban	519874	270948	NO2	NO	7	1.5	NO	3
Offord D'Arcy 1	42 Gravely Road	Suburban	522127	266105	NO2	NO	11	3	NO	3
Offord Cluny 2	168 High Street	Roadside	521947	267178	NO2	NO	11	3	NO	3
St Neots 10	81 Great North Road	Roadside	516921	258382	NO2	NO	15	1.7	NO	2
St Neots 11	119 Cambridge Road	Roadside	519925	260291	NO2	NO	0	11	NO	2

St Ives 4	1 Hill Rise	Kerbside	530529	272357	NO2	NO	6	0	NO	2
St Ives 5	93 Needingworth Road	Roadside	531963	272142	NO2	NO	5	1.5	NO	2
Warboys	Puddock Road	Roadside	531326	281889	NO2	NO	60	2	NO	2

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2019 (%) [2]	NO_2 Annual Mean Concentration ($\mu g/m^3$) [3] [4] 2015	NO_2 Annual Mean Concentration ($\mu g/m^3$) [3] [4] 2016	NO_2 Annual Mean Concentration ($\mu g/m^3$) [3] [4] 2017	NO_2 Annual Mean Concentration ($\mu g/m^3$) [3] [4] 2018	NO_2 Annual Mean Concentration ($\mu g/m^3$) [3] [4] 2019
PFH	524102	271540	Roadside	Automatic	97.74	97.42	32.2	39.4	31.9	28	37
St Neots 1	517869	260132	Kerbside	Diffusion Tube	100	100	20.5	22.1	21.6	17.5	18.1
St Neots 2	519541	260280	Roadside	Diffusion Tube	100	100	N/A	N/A	20.3	20.7	21.4
St Neots 3	518925	260503	Urban Background	Diffusion Tube	100	100	16.6	18.3	16.9	15.0	15.8
St Neots 4	518489	260871	Urban Background	Diffusion Tube	100	100	14.3	16.8	15.4	13.9	14.7
St Neots 5	518323	260263	Kerbside	Diffusion Tube	100	100	31.7	31.3	31.2	28.7	28.8
St Neots 6	518433	260321	Kerbside	Diffusion Tube	100	100	28.7	29.6	29.9	28.4	29.0
St Neots 7	518424	258556	Suburban	Diffusion Tube	100	100	19.9	20.5	19.9	17.4	18.7
St Neots 8	518707	258260	Suburban	Diffusion Tube	100	100	N/A	N/A	20.1	18.8	19.9
St Neots 9	516370	259514	Suburban	Diffusion Tube	100	100	24.5	28.4	28.1	22.4	23.0
Southoe 1	518714	264308	Roadside	Diffusion Tube	100	100	17.4	18.6	16.2	16.2	15.5
Buckden 1	518981	267370	Roadside	Diffusion Tube	100	100	21.2	24.9	20.8	21.9	21.8
Buckden 2	519082	267433	Roadside	Diffusion Tube	100	100	25.6	25.8	25.6	19.7	22.2
Buckden 3	519161	267624	Roadside	Diffusion Tube	100	100	28.9	29.6	27.7	25.4	25.7

Buckden 4	519197	267955	Roadside	Diffusion Tube	100	100	19.4	22.3	18.7	15.8	17.1
Brampton 1	520734	269623	Roadside	Diffusion Tube	100	100	14.4	15.4	14.3	13.1	14.1
Huntingdon 9	523575	272174	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	N/A	28.2
Brampton 3	520155	271561	Roadside	Diffusion Tube	100	100	22.7	27.0	23.9	21.0	21.0
Brampton 4	519956	271461	Roadside	Diffusion Tube	100	100	18.8	19.8	17.4	16.3	16.6
Brampton 5	519839	271061	Roadside	Diffusion Tube	100	100	15.9	17.5	15.7	13.4	13.6
Catworth 1	508409	274876	Rural	Diffusion Tube	100	100	21.6	18.9	20.3	15.8	16.4
PFH 1	524102	271540	Roadside	Diffusion Tube	100	100	**44.2**	**45.1**	**42.5**	**40.8**	37.7
PFH 2	524102	271540	Roadside	Diffusion Tube	100	100	**44.7**	**46.1**	**44.4**	**41.4**	39.8
PFH 3	524102	271540	Roadside	Diffusion Tube	100	100	**46.6**	**44.8**	**44.9**	**43.3**	**40.1**
Huntingdon 1	523177	271627	Suburban	Diffusion Tube	100	100	17.1	19.3	15.9	17.0	16.5
Huntingdon 2	524198	271949	Kerbside	Diffusion Tube	100	100	21.0	22.2	25.4	23.5	23.6
Huntingdon 3	523661	271802	Kerbside	Diffusion Tube	100	100	**40.7**	39.9	38.8	34.0	35.6
Huntingdon 4	523435	272464	Kerbside	Diffusion Tube	92	92	29.9	28.7	28.3	27.4	27.2
Huntingdon 5	522293	272909	Roadside	Diffusion Tube	100	100	27.6	26.9	26.5	24.6	23.0
Huntingdon 6	524274	271939	Roadside	Diffusion Tube	100	100	23.7	25.2	24.7	21.6	22.4
Godmanchester 1	525319	270571	Roadside	Diffusion Tube	100	100	22.7	24.8	22.0	22.1	19.9
Wood Green Animal Shelter	526250	268264	Rural	Diffusion Tube	100	100	12.4	13.7	14.1	12.7	12.6

Fenstanton 1	531427	268397	Roadside	Diffusion Tube	100	100	31.5	31.2	31.9	25.0	25.2
Earith 1	538460	274797	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	N/A	16.6
Fenstanton 3	531063	268063	Rural	Diffusion Tube	100	100	13.7	13.8	13.6	12.4	14.0
St Ives 1	531206	272334	Urban Background	Diffusion Tube	100	100	17.6	18.6	19.0	16.3	16.0
St Ives 2	530850	270286	Suburban	Diffusion Tube	100	100	21.3	22.9	23.2	19.3	19.3
St Ives 3	529866	272285	Roadside	Diffusion Tube	100	100	N/A	N/A	16.4	15.9	15.8
Ramsey 1	528433	284936	Urban Background	Diffusion Tube	100	100	17.8	19.7	18.1	17.2	17.7
Yaxley 1	517480	292309	Roadside	Diffusion Tube	100	100	N/A	N/A	28.5	27.8	27.1
Stibbington 1	508326	298684	Roadside	Diffusion Tube	100	100	29.6	28.6	29.8	22.8	23.6
Alwalton 1	513132	295723	Roadside	Diffusion Tube	100	100	N/A	N/A	20.1	19.2	19.1
Sawtry 1	517440	283443	Suburban	Diffusion Tube	100	100	20.9	22.3	23.0	20.3	18.0
Alconbury 1	518954	276010	Roadside	Diffusion Tube	100	100	19.9	21.8	19.2	19.0	17.4
Great Stukeley 1	522000	274607	Roadside	Diffusion Tube	100	100	N/A	N/A	18.7	16.4	17.0
Huntingdon 7	523432	271760	Roadside	Diffusion Tube	100	100	36.4	34.6	37.4	30.7	33.5
Huntingdon 8	525289	272525	Roadside	Diffusion Tube	100	100	N/A	N/A	23.4	20.5	22.6
Hilton 1	528836	266538	Suburban	Diffusion Tube	100	100	N/A	N/A	11.9	10.8	12.9
Fenstanton 4	531729	268370	Roadside	Diffusion Tube	100	100	N/A	N/A	23.1	19.2	20.9
Alconbury 2	518955	275520	Suburban	Diffusion Tube	83	83	17.7	15.9	15.4	11.2	13.2

Brampton 6	521487	270803	Roadside	Diffusion Tube	100	100	N/A	N/A	23.6	20.7	22.5
Brampton 7	519874	270948	Suburban	Diffusion Tube	100	100	N/A	N/A	14.5	11.6	14.9
Offord D'Arcy 1	522127	266105	Suburban	Diffusion Tube	100	100	N/A	N/A	11.4	10.7	13.2
Offord Cluny 2	521947	267178	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	16.0	19.3
St Neots 10	516921	258382	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	N/A	24.7
St Neots 11	519925	260291	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	N/A	18.7
St Ives 4	530529	272357	Kerbside	Diffusion Tube	100	100	N/A	N/A	N/A	N/A	27.6
St Ives 5	531963	272142	Roadside	Diffusion Tube	92	92	N/A	N/A	N/A	N/A	28.1
Warboys	531326	281889	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	N/A	10.9

☒ Diffusion tube data has been bias corrected

☐ Annualisation has been conducted where data capture is <75% - Not applicable

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

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

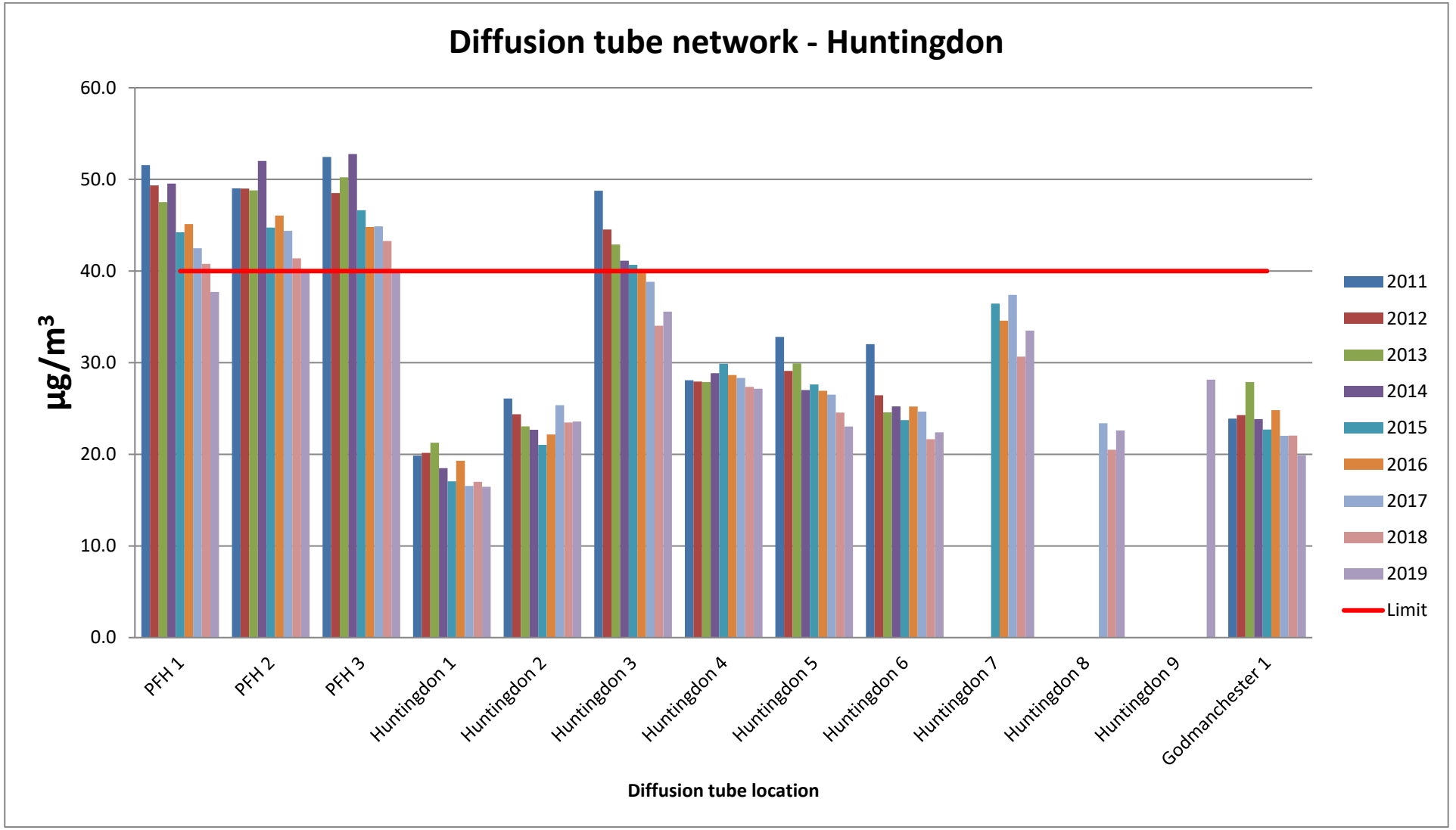
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

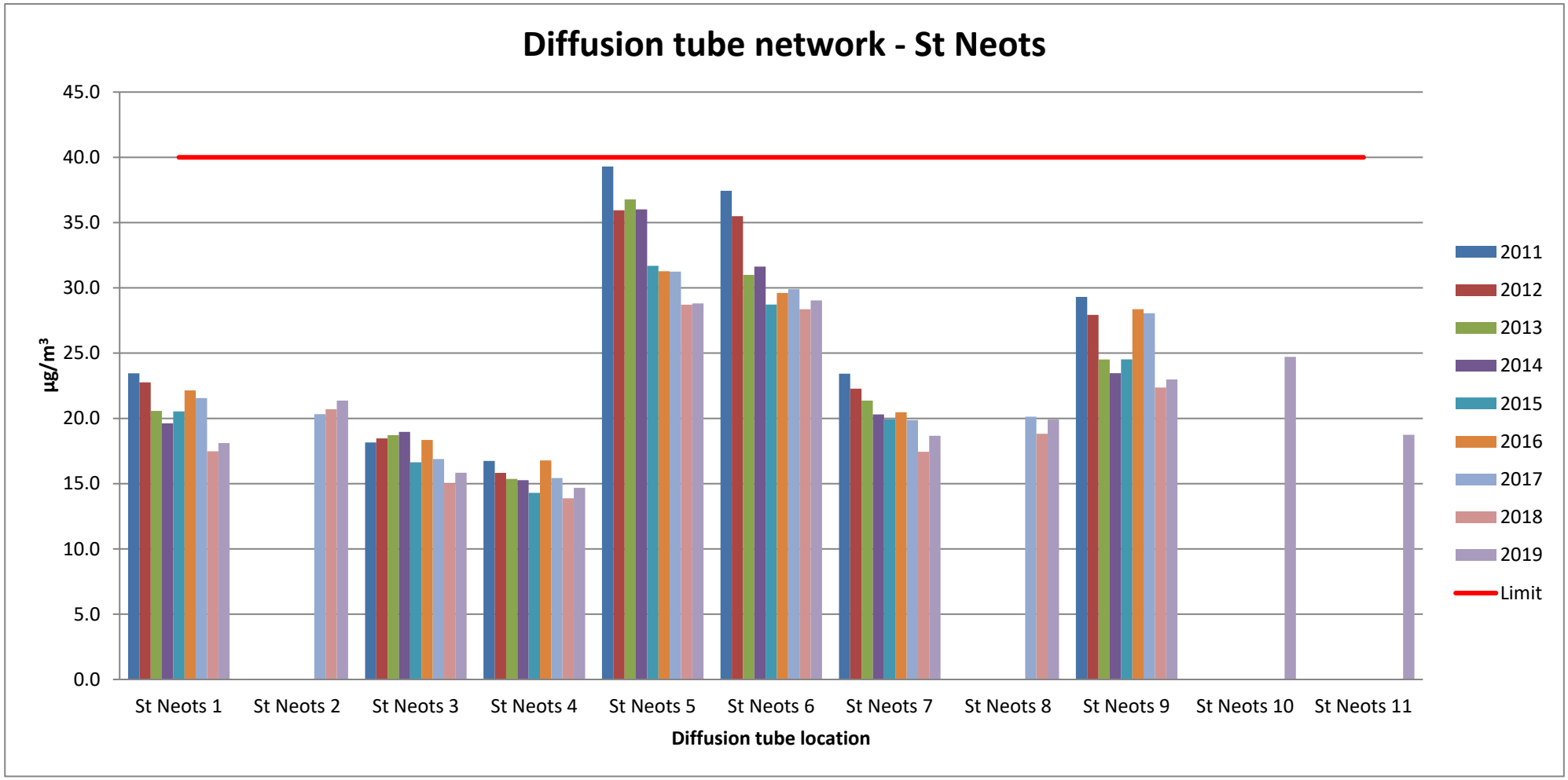
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

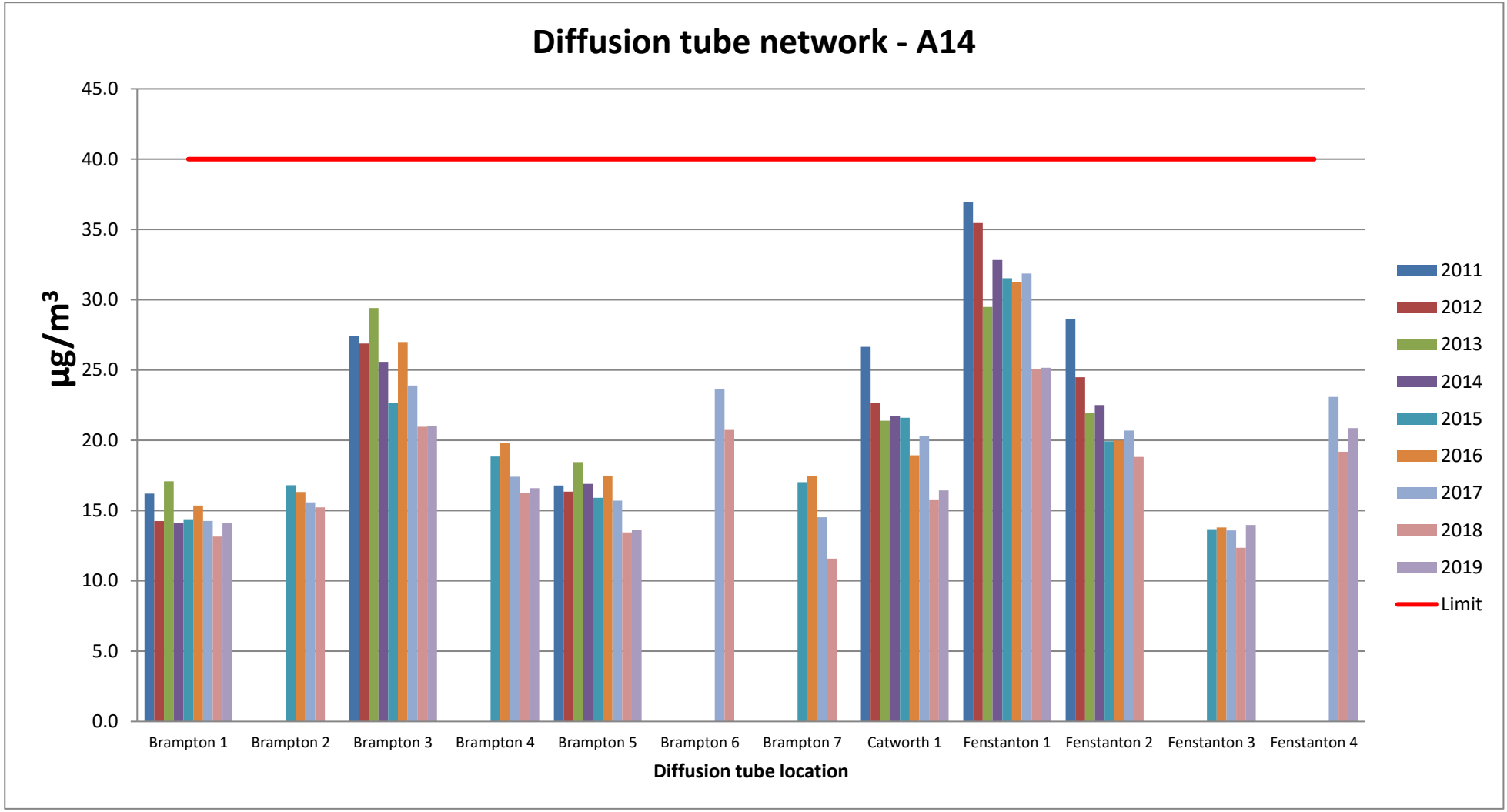
(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

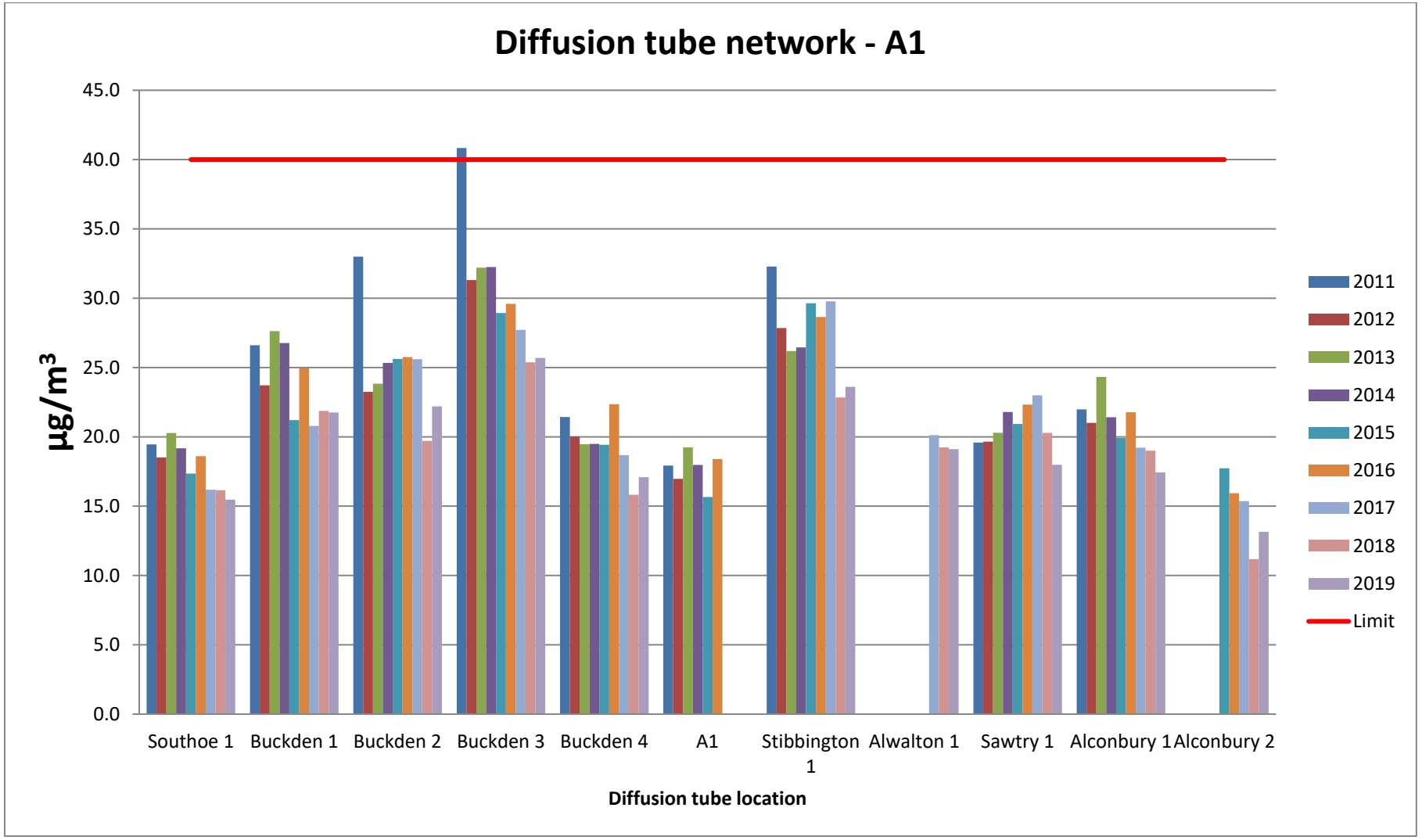
(4) Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

Figure A.1 – Trends in Annual Mean NO_2 Concentrations




Diffusion tube network - St Neots
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
µg/m³
St Neots 1
St Neots 2
St Neots 3
St Neots 4
St Neots 5
St Neots 6
St Neots 7
St Neots 8
St Neots 9
St Neots 10
St Neots 11
Diffusion tube location
2011
2012
2013
2014
2015
2016
2017
2018
2019
Limit


Diffusion tube network - A14
µg/m³
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Brampton 1
Brampton 2
Brampton 3
Brampton 4
Brampton 5
Brampton 6
Brampton 7
Catworth 1
Fenstanton 1
Fenstanton 2
Fenstanton 3
Fenstanton 4
Diffusion tube location
2011
2012
2013
2014
2015
2016
2017
2018
2019
Limit


Diffusion tube network - A1
µg/m³
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Southoe 1
Buckden 1
Buckden 2
Buckden 3
Buckden 4
A1
Stibbington 1
Alwalton 1
Sawtry 1
Alconbury 1
Alconbury 2
Diffusion tube location
2011
2012
2013
2014
2015
2016
2017
2018
2019
Limit

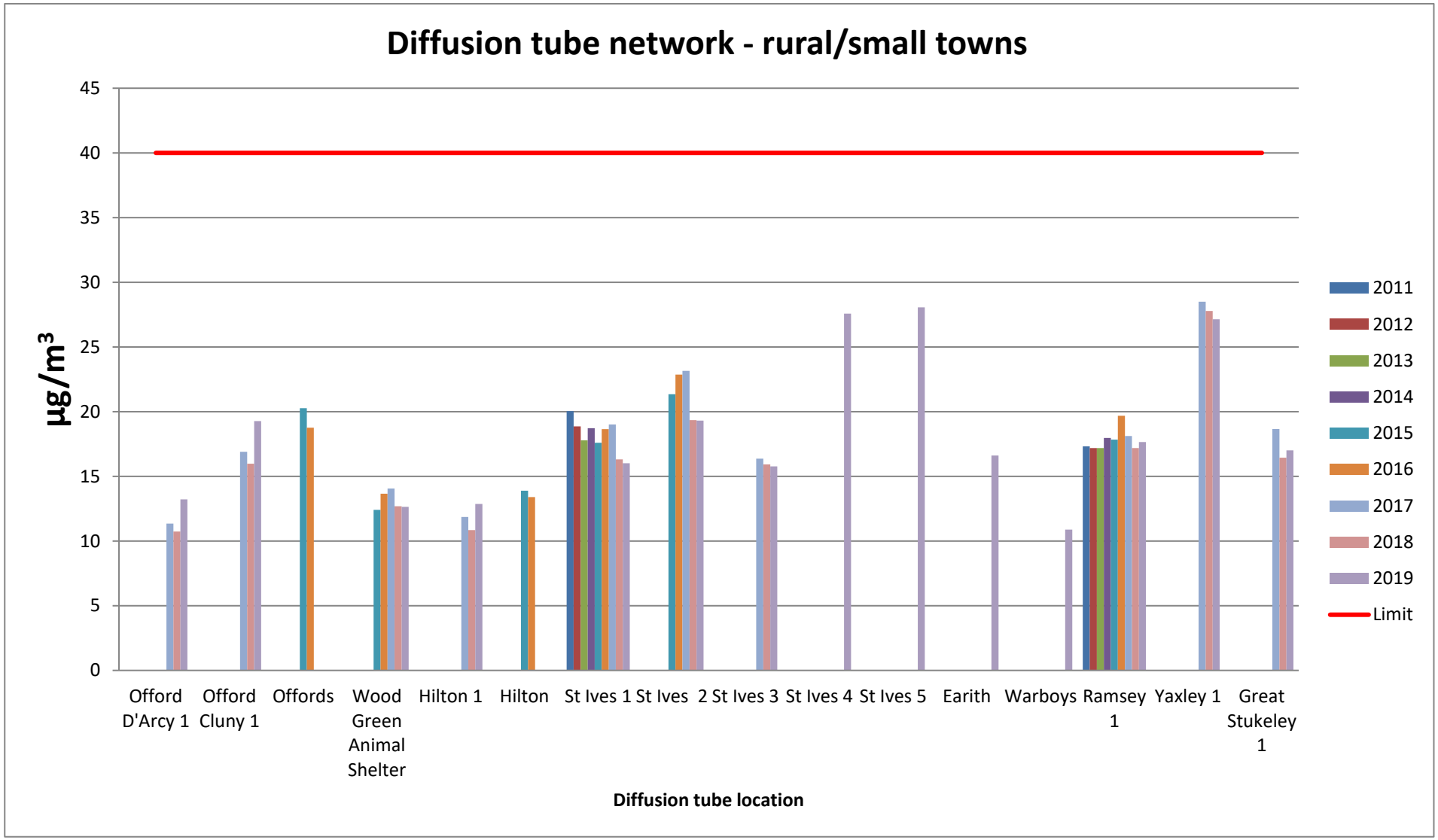

Diffusion tube network - rural/small towns
µg/m³
45
40
35
30
25
20
15
10
5
0
Offord D'Arcy 1
Offord Cluny 1
Offords
Wood Green Animal Shelter
Hilton 1
Hilton
St Ives 1
St Ives 2
St Ives 3
St Ives 4
St Ives 5
Earith
Warboys
Ramsey 1
Yaxley 1
Great Stukeley 1
Diffusion tube location
2011
2012
2013
2014
2015
2016
2017
2018
2019
Limit

Table A.4 – 1-Hour Mean NO_2 Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	2015	2016	2017	2018	2019
PFH	524102	271540	Roadside	Automatic	97.74	97.42	0	0	0	0	0

Notes:

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.**

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

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

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

Table A.5 – Annual Mean PM_{10} Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	2015	2016	2017	2018	2019
PFH	524102	271540	Roadside	97.69	67.72	19.34	20.39	18.4	**No Data**	15.74

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

Notes:

Exceedances of the PM_{10} annual mean objective of 40µg/m^3 are shown in **bold.**

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

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

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

Figure A.2 – Trends in Annual Mean PM_{10} Concentrations

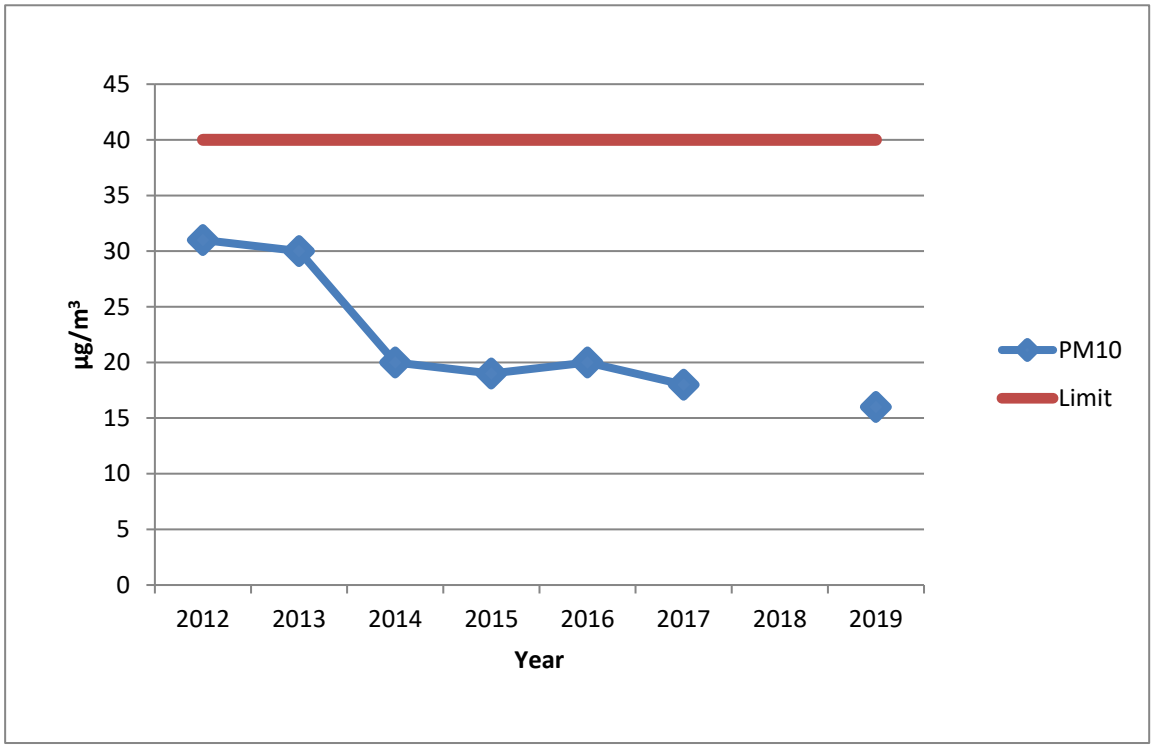


Table A.6 – 24-Hour Mean PM_{10} Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	2015	2016	2017	2018	2019
PFH	524102	271540	Roadside	97.69	67.72	3	5	7	**No Data**	0

Notes:

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.**

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

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

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

Figure A.3 – Trends in Number of 24-Hour Mean PM_{10} Results >50µg/m^3

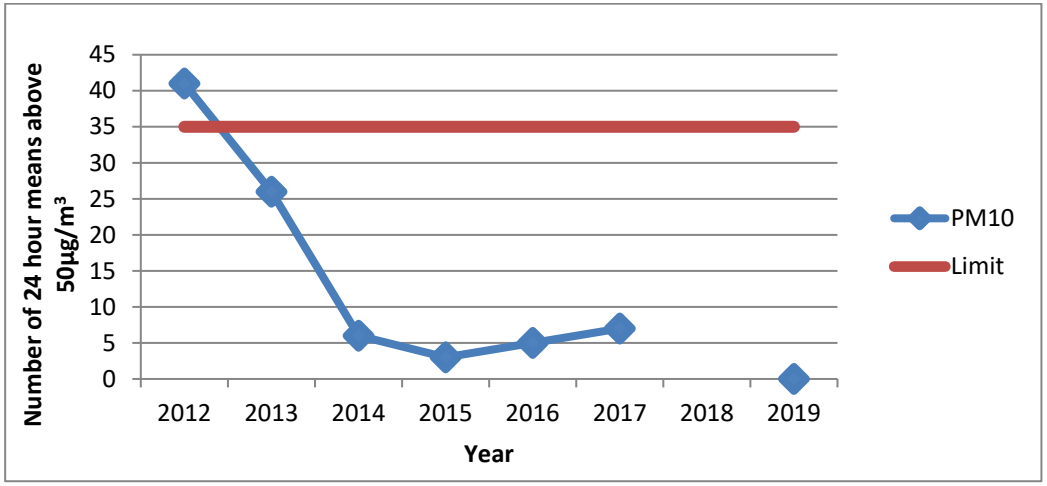


Table A.7 – $PM_{2.5}$ Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	2015	2016	2017	2018	2019
PFH	524102	271540	Roadside	97.73	67.74	12.3	11.8	10.6	11.7	8.67

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

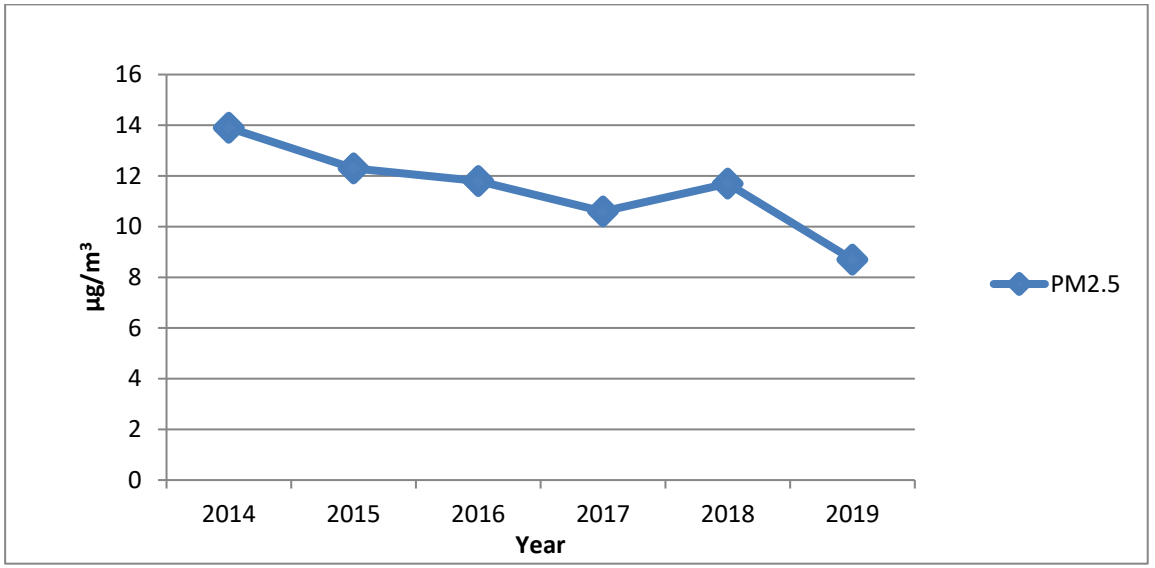
Notes:

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

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

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

Figure A.4 – Trends in Annual Mean $PM_{2.5}$ Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 - NO_2 Monthly Diffusion Tube Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.75) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
St Neots 1	517869	260132	33.9	25.9	21.4	24.2	20.2	17.8	19.1	18.8	18.7	27.7	34.1	28.0	24.2	18.1	
St Neots 2	519541	260280	39.4	33.8	28.1	27.6	21.6	21.1	22.0	22.5	21.3	34.2	39.0	31.2	28.5	21.4	
St Neots 3	518925	260503	28.3	30.7	21.8	15.3	12.9	15.2	13.8	14.2	16.3	27.0	32.8	25.1	21.1	15.8	
St Neots 4	518489	260871	30.1	25.6	17.9	15.5	10.8	13.6	12.3	13.8	15.5	25.8	29.2	24.8	19.6	14.7	
St Neots 5	518323	260263	52.1	45.1	40.3	33.9	31.0	33.0	33.9	32.9	30.5	41.3	45.1	41.8	38.4	28.8	
St Neots 6	518433	260321	43.7	47.7	36.8	33.2	31.3	33.9	32.4	37.6	33.4	44.3	48.1	42.3	38.7	29.0	
St Neots 7	518424	258556	31.5	33.8	24.2	22.3	15.2	19.6	14.6	18.1	18.1	33.3	35.5	32.5	24.9	18.7	
St Neots 8	518707	258260	35.0	38.5	28.6	22.7	18.3	19.7	18.2	25.2	19.1	29.3	32.2	31.8	26.6	19.9	
St Neots 9	516370	259514	46.9	36.1	33.6	21.2	22.6	21.2	21.5	26.8	24.6	35.1	38.2	39.9	30.6	23.0	
Southoe 1	518714	264308	21.9	25.2	17.4	31.2	14.6	19.7	13.9	14.6	16.9	24.1	25.6	22.5	20.6	15.5	
Buckden 1	518981	267370	28.2	33.0	22.5	42.2	24.2	29.9	21.9	20.8	23.4	32.3	40.3	29.4	29.0	21.8	
Buckden 2	519082	267433	38.5	33.6	27.0	27.4	25.5	22.9	27.0	32.9	26.5	31.3	31.6	31.0	29.6	22.2	
Buckden 3	519161	267624	33.5	48.4	31.8	33.0	27.4	28.1	27.3	30.6	29.2	40.7	41.0	40.1	34.3	25.7	
Buckden 4	519197	267955	24.8	31.6	23.3	19.7	14.9	20.7	14.4	19.3	18.4	26.8	30.7	28.9	22.8	17.1	
Brampton 1	520734	269623	26.0	25.2	16.4	15.4	10.3	13.1	11.6	12.5	13.4	23.7	28.3	29.8	18.8	14.1	
Huntingdon 9	523575	272174	45.9	49.7	37.1	35.0	29.9	27.5	30.7	32.1	34.5	39.0	47.7	41.4	37.5	28.2	
Brampton 3	520155	271561	36.2	30.7	25.0	30.3	23.8	22.7	19.2	17.1	31.5	30.6	38.9	30.3	28.0	21.0	
Brampton 4	519956	271461	32.5	28.2	18.7	23.9	13.8	15.6	13.2	14.4	17.2	26.6	35.0	26.4	22.1	16.6	

Brampton 5	519839	271061	24.4	23.5	16.5	18.4	11.4	11.9	11.5	13.5	14.5	20.8	26.3	25.5	18.2	13.6	
Catworth 1	508409	274876	30.8	29.5	25.4	14.8	14.6	15.8	16.1	22.0	18.2	24.9	23.2	27.7	21.9	16.4	
PFH 1	524102	271540	51.8	54.5	46.0	57.8	49.9	50.4	50.8	47.6	46.1	51.5	52.6	44.4	50.3	37.7	34.5
PFH 2	524102	271540	53.2	60.7	48.9	56.5	59.9	51.7	53.6	52.4	49.2	52.1	56.9	42.1	53.1	39.8	36.3
PFH 3	524102	271540	57.4	61.3	37.8	59.0	54.9	53.4	52.7	54.1	46.7	53.6	61.6	49.4	53.5	**40.1**	36.5
Huntingdon 1	523177	271627	27.2	26.8	18.8	27.6	18.4	18.3	16.0	13.4	17.2	24.0	32.5	23.2	22.0	16.5	
Huntingdon 2	524198	271949	38.4	36.0	31.3	33.4	24.7	26.4	28.3	24.2	28.0	32.8	41.7	32.1	31.4	23.6	
Huntingdon 3	523661	271802	56.3	60.5	47.1	37.4	44.2	41.0	39.7	49.4	39.2	52.4	51.2	50.9	47.4	35.6	35.6
Huntingdon 4	523435	272464	44.1	47.6	36.0	28.7	29.3	27.8		35.3	30.4	40.4	42.0	36.7	36.2	27.2	
Huntingdon 5	522293	272909	39.5	40.2	32.9	22.9	26.9	21.5	28.0	32.2	28.4	33.2	37.8	25.2	30.7	23.0	
Huntingdon 6	524274	271939	41.2	42.1	25.2	19.6	17.9	22.2	20.9	29.5	25.0	35.9	39.9	39.0	29.9	22.4	
Godmanchester 1	525319	270571	38.8	27.3	26.7	38.6	27.6	23.8	19.7	16.0	23.3	30.4	25.1	20.9	26.5	19.9	
Wood Green Animal Shelter	526250	268264	24.2	17.6	16.5	14.5	9.2	9.9	10.1	11.5	11.8	21.3	32.1	23.6	16.9	12.6	
Fenstanton 1	531427	268397	44.5	45.1	37.5	22.9	30.6	27.5	31.4	31.8	28.3	36.4	42.7	23.9	33.6	25.2	
Earith 1	538460	274797	32.5	21.7	23.5	21.6	21.8	17.0	15.2	15.4	17.3	24.8	32.9	22.0	22.1	16.6	
Fenstanton 3	531063	268063	28.3	23.2	16.7	16.6	11.7	17.0	10.5	11.6	12.9	23.1	29.9	22.1	18.6	14.0	
St Ives 1	531206	272334	32.8	28.3	19.6	16.8	10.9	14.8	14.7	17.2	17.2	27.0	27.9	29.0	21.4	16.0	
St Ives 2	530850	270286	36.7	27.8	29.9	19.2	19.9	19.7	21.6	20.4	20.4	28.4	37.3	27.6	25.7	19.3	
St Ives 3	529866	272285	28.3	28.6	15.9	17.2	11.9	13.5	14.3	18.4	14.9	24.7	36.1	28.5	21.0	15.8	
Ramsey 1	528433	284936	32.3	28.7	20.6	22.0	16.4	17.9	16.0	18.4	17.8	29.8	33.5	29.1	23.5	17.7	
Yaxley 1	517480	292309	45.8	45.7	33.0	28.7	31.2	28.3	27.7	34.1	32.2	42.9	45.4	39.2	36.2	27.1	
Stibbington 1	508326	298684	34.6	42.1	35.5	21.0	24.5	25.8	27.7	34.0	27.8	36.8	36.5	31.4	31.5	23.6	
Alwalton 1	513132	295723	32.2	27.0	23.5	21.4	22.5	18.3	21.4	27.5	23.6	29.4	31.5	27.5	25.5	19.1	
Sawtry 1	517440	283443	28.4	24.8	20.4	30.7	19.0	19.8	17.4	13.7	19.5	29.4	37.8	26.8	24.0	18.0	
Alconbury 1	518954	276010	30.1	23.3	18.2	29.1	16.2	17.2	16.1	17.1	19.7	28.7	33.6	29.6	23.2	17.4	

Great Stukeley 1	522000	274607	36.7	32.1	19.7	12.1	15.1	15.6	17.4	19.6	19.0	26.8	30.7	27.3	22.7	17.0	
Huntingdon 7	523432	271760	67.2	35.8	40.1	38.9	44.5	37.6	40.3	42.5	42.4	49.4	54.4	43.0	44.7	33.5	
Huntingdon 8	525289	272525	42.0	40.8	27.4	26.7	20.2	22.2	22.8	25.8	31.1	33.4	38.3	30.9	30.1	22.6	
Hilton 1	528836	266538	27.5	22.3	13.0	16.0	10.7	11.1	10.5	14.3	12.2	22.3	26.7	19.3	17.2	12.9	
Fenstanton 4	531729	268370	45.2	36.7	28.6	21.4	19.7	21.0	19.9	21.8	20.1	33.9	38.8	26.8	27.8	20.9	
Alconbury 2	518955	275520	21.4	24.5		15.3		12.5	10.3	14.8	12.9	21.3	20.0	22.4	17.5	13.2	
Brampton 6	521487	270803	39.9	29.6	27.9	22.2	24.4	24.5	24.3	28.1	26.5	34.7	40.1	37.5	30.0	22.5	
Brampton 7	519874	270948	30.0	25.0	15.5	17.7	15.8	13.2	11.2	14.2	14.9	24.6	28.4	27.7	19.9	14.9	
Offord D'Arcy 1	522127	266105	29.8	21.8	15.4	13.8	10.8	11.3	10.5	11.7	12.4	23.8	27.2	23.1	17.6	13.2	
Offord Cluny 2	521947	267178	38.1	34.5	24.4	22.2	18.0	18.5	19.8	20.4	20.0	30.4	35.9	26.1	25.7	19.3	
St Neots 10	516921	258382	38.9	35.2	28.2	34.3	25.3	27.6	25.8	24.5	29.4	41.4	47.2	37.7	33.0	24.7	
St Neots 11	519925	260291	33.7	33.2	22.3	19.9	19.0	20.1	18.3	19.8	20.0	31.6	33.0	29.0	25.0	18.7	
St Ives 4	530529	272357	43.1	45.9	32.3	26.8	31.8	33.5	31.1	34.0	34.8	42.9	48.6	36.5	36.8	27.6	
St Ives 5	531963	272142		41.0	33.7	38.3	31.9	31.4	31.7	32.2	33.5	44.3	52.6	40.9	37.4	28.1	
Warboys	531326	281889	24.7	19.0	14.5	12.9	11.6	10.8	11.1	9.8	13.1	19.9	7.9	18.9	14.5	10.9	

☒ **Local bias adjustment factor used**

☒ **National bias adjustment factor used**

☐ **Annualisation has been conducted where data capture is <75% - NOT REQUIRED**

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

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

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

(2) Distance corrected to nearest relevant public exposure.

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

Figure C.1: Diffusion Tube Bias Adjustment:

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/20

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2020
LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List. If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List. If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List. If a year is not shown, we have no data[2]

Step 4: **Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.**

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953

Analysed By[1]	Method (Tube exposure solution, choose [All] from the pop-up list)	Year[5] (Tube exposure solution, choose [All])	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Socotec Didcot	50% TEA in acetone	2019	UB	Kingston upon Hull City Council	12	30	23	32.2%	G	**0.76**
Socotec Didcot	50% TEA in acetone	2019	O	Kingston upon Hull City Council	11	32	26	19.1%	G	**0.84**
Socotec Didcot	50% TEA in acetone	2019	R	Vale of Glamorgan	11	40	24	68.0%	G	**0.60**
Socotec Didcot	50% TEA in acetone	2019	R	Watford Borough Council	12	35	30	16.8%	S	**0.86**
Socotec Didcot	50% TEA in acetone	2019	R	Dumfries & Galloway Council	13	35	31	11.9%	G	**0.89**
Socotec Didcot	50% TEA in acetone	2019	KS	Marylebone Road Intercomparison	12	92	65	40.5%	G	**0.71**
Socotec Didcot	50% TEA in acetone	2019	UB	City of York Council	12	22	16	35.6%	G	**0.74**
Socotec Didcot	50% TEA in acetone	2019	R	City of York Council	12	33	26	26.8%	G	**0.79**
Socotec Didcot	50% TEA in acetone	2019	R	City of York Council	9	32	23	37.2%	G	**0.73**
Socotec Didcot	50% TEA in acetone	2019	R	City of York Council	11	40	28	43.4%	G	**0.70**
Socotec Didcot	50% TEA in acetone	2019	R	Ipswich Boorough council	11	34	26	34.1%	G	**0.75**
Socotec Didcot	50% TEA in acetone	2019	R	Swale BC	12	51	39	31.7%	G	**0.76**
Socotec Didcot	50% TEA in acetone	2019	R	Swale BC	12	33	27	23.9%	G	**0.81**
Socotec Didcot	50% TEA in acetone	2019	R	Swale BC	12	40	31	26.7%	G	**0.79**
Socotec Didcot	50% TEA in acetone	2019	R	Wrexham County Borough Council	10	20	16	22.2%	G	**0.82**
Socotec Didcot	50% TEA in acetone	2019	R	City of Wolverhampton Council	12	39	27	48.4%	G	**0.67**
Socotec Didcot	50% TEA in acetone	2019	R	North Herts DC	12	59	46	28.5%	G	**0.78**
Socotec Didcot	50% TEA in acetone	2019	R	Horsham District Council	12	30	24	24.5%	G	**0.80**
Socotec Didcot	50% TEA in acetone	2019	R	Horsham District Council	11	31	22	44.5%	G	**0.69**
Socotec Didcot	50% TEA in acetone	2019	R	Horsham District Council	11	32	24	34.4%	G	**0.74**
Socotec Didcot	50% TEA in acetone	2019	B	Medway Council	10	21	13	59.5%	P	**0.63**
Socotec Didcot	50% TEA in acetone	2019	R	Medway Council	12	33	24	35.1%	G	**0.74**
Socotec Didcot	50% TEA in acetone	2019	R	Waverley Borough Council	10	38	30	27.5%	G	**0.78**
Socotec Didcot	50% TEA in acetone	2019	R	Waverley Borough Council	12	35	24	44.7%	G	**0.69**
SOCOTEC Didcot	50% TEA in acetone	2019		**Overall Factor[3] (24 studies)**				Use		**0.75**

Distance Correction:

Distance correction has been completed in accordance with the guidance within LAQM Technical Guidance 2016 (TG16). The LAQM NO_2 fall off with distance calculator was utilised, for the appropriate measurement locations, as the following figures demonstrate. The final row is calculating the level to gain the information required within Table 2.1.

Figure C.2: Multiple Distance Correction Calculation:

Enter data into the pink cells

Site Name/ID	Distance (m)		NO_2 Annual Mean Concentration ($\mu g/m^3$)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Background	Monitored at Site	Predicted at Receptor	
PFH 1	6.0	10.0	17.8	37.7	34.5	
PFH 2	6.0	10.0	17.8	39.8	36.3	Predicted concentration at Receptor within 10% the AQS objective.
PFH 3	6.0	10.0	17.8	40.1	36.5	Predicted concentration at Receptor within 10% the AQS objective.
Brampton 3	2.0	34.0	13.0	21.0	15.7	Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.

Automatic Monitoring:

As discussed above, the analysers were replaced in April 2019. During 2019 a Service Contract was held with Air Monitors and Quality Assurance/Quality Control audits were completed by Ricardo, again under contract.

Annualisation:

Ricardo currently undertake data management for Huntingdonshire District Council. No data was available for PM_{10} and $PM_{2.5}$ prior to April 2019 resulting in a low data capture. An annualisation calculation has therefore been completed in line with government guidelines to gain an annual mean for PM_{10} and $PM_{2.5}$. It should be noted that local authority sites have been used for PM_{10} as there are no AURN sites within 50 miles for PM_{10}. For $PM_{2.5}$ the two AURN sites within the distance have been used.

Full data was supplied, but as this was a years' worth of hourly measurements this has not been included within this report. If you wish to see the data please contact claire.braybrook@huntingdonshire.gov.uk

Sufficient data was collected from the NO_x monitor so no annualisation was required.

Figure C.3: Annualisation information for PM_{10} and $PM_{2.5}$:

PM10			
Period Mean	14.18	Annualised Mean	15.74

Background Site	Data Capture	Site Type	Annual Mean	Period Mean	Ratio
South Holland Westmere School	98.86	Rural - Local Authority	14.21	12.72	1.12
Spalding Monkhouse School	97.51	Urban Background - Local Authority	13.63	12.40	1.10
Breckland East Wretham	97.97	Rural - Local Authority	14.68	13.20	1.11
				Average ratio	1.11

PM2.5			
Period Mean	7.53	Annualised Mean	8.67

Background Site	Data Capture	Site Type	Annual Mean	Period Mean	Ratio
Leicester University	96.53	Urban Background - AURN	11.22	9.65	1.16
Northampton Spring Park	97.92	Urban Background - AURN	11.55	10.14	1.14
				Average ratio	1.15

Figure C.4: Third Party QA/QC Reports:

March 2019:

0401

CERTIFICATE OF CALIBRATION

Ricardo Energy and Environment, Gemini Building, Fermi Avenue Harwell, Didcot,

RICARDO

Page 1 of 3

Approved Signatories:

☐ S. Eaton	☐ B Stacey
☐ D Hector	☐ S Stratton
☐ N Rand	☐ S Telfer
☐ E Marshall-Padkin	☐ S Gray
☐ B Davies	☑ D Lane

Signed:

Date of issue: 04 Mar 19

Certificate Number: 04397

Customer Name and Address:

Huntingdonshire District Council
Pathfinder House
St Mary's Street
Huntingdon
PE29 3TN

Description: Calibration factors for the air monitoring station at Huntingdon Pathfinder House

Ricardo Energy & Environment ID: ED62657217/January 2019

The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95% The uncertainty evaluation has been carried out in accordance with UKAS requirements.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

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0401

CERTIFICATE OF CALIBRATION

Date of issue: 04 Mar 19

Certificate Number: 04397

Ricardo Energy & Environment ID: ED62657217/January 2019

Huntingdon Pathfinder House
Date of audit: 21 Jan 2019

Species	Analyser Serial no	Zero Response[1]	Zero uncertainty ppb	Calibration Factor[2]	Factor uncertainty %	Converter eff. (%)[3]
NOx	426608503	-3.6	2.5	0.9302	3.5	100.0
NO	426608503	-2.5	2.5	0.9358	3.5	n/a

0401

CERTIFICATE OF CALIBRATION

Date of issue:	04 Mar 19
Certificate Number:	04397
Ricardo Energy & Environment ID:	ED62657217/January 2019

The gaseous ambient analysers listed above have been tested for zero response, calibration factor, linearity and converter efficiency (NOx analysers) by documented methods. The factors have been calculated using certified gas standards. The particulate analysers listed above have been tested for sample flow rates and k_0(where appropriate) by documented methods. Note that the test results are valid on the day of test only, as analyser drift over time cannot be quantified. All results for gaseous species are given in ppb (parts per billion) mole fractions or ppm (parts per million) mole fractions.

[1] The zero response is the zero reading on the data logging system of the analyser when audit zero gas was introduced to the analysers under test.

[2] The calibration factor is the multiplying factor required to scale the reading on the data logging system of the analyser into reported concentration units (ppb for NO, NOx, SO_2, O_3 and ppm for CO. Where 1ppm = 1000ppb). It should be used in conjunction with the zero response. A corrected concentration is calculated using the following equation:

Concentration = F(Output - Zero Response)
Where F = Calibration Factor provided on this certificate
Output = Reading on the data logging system of the analyser
Zero Response = Zero Response provided on this certificate

[3] Converter eff. is the measured efficiency of the NO_2 to NO converter within the oxides of nitrogen analyser under test.

The calibration results shaded are those that fall within our scope of accreditation, all other results on this certificate are not UKAS accredited, but have been included for completeness.

July 2019:

0401

CERTIFICATE OF CALIBRATION

Ricardo Energy and Environment, Gemini Building, Fermi Avenue Harwell, Didcot,

Approved Signatories:

☐ S. Eaton	☐ B Stacey
☐ D Hector	☐ S Stratton
☐ N Rand	☐ S Telfer
☐ E Marshall-Padkin	☐ S Gray
☑ B Davies	☐ D Lane

Signed:

Date of issue: 27 Sep 19

Certificate Number: 4624

Customer Name and Address:

Huntingdonshire District Council
Pathfinder House
St Mary's Street
Huntingdon
PE29 3TN

Description: Calibration factors for the air monitoring station at Huntingdon Pathfinder House

Ricardo Energy & Environment ID: ED79001133/July 2019

The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95% The uncertainty evaluation has been carried out in accordance with UKAS requirements.

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CERTIFICATE OF CALIBRATION

Date of issue: 27 Sep 19

Certificate Number: 4624

Ricardo Energy & Environment ID: ED79001133/July 2019

Huntingdon Pathfinder House
Date of audit: 11 Jul 2019

	Species	Analyser Serial no	Zero Response[1]	Zero uncertainty ppb	Calibration Factor[2]	Factor uncertainty %	Converter eff. (%)[3]
	NOx	18-0589	-6.0	2.7	0.9935	3.5	100.0
	NO	18-0589	1.0	2.5	0.9764	3.5	n/a

Huntingdon Pathfinder House
Date of audit: 11 Jul 2019

	Species	Analyser Serial no	Parameter	Specified Value	Measured Value	Deviation %	Uncertainty %
FIDAS	PM_{10}	11350	Total Flow[4]	4.8	4.80	0.2	2.25

0401

CERTIFICATE OF CALIBRATION

Date of issue: 27 Sep 19

Certificate Number: 4624

Ricardo Energy & Environment ID: ED79001133/July 2019

The gaseous ambient analysers listed above have been tested for zero response, calibration factor, linearity and converter efficiency (NOx analysers) by documented methods. The factors have been calculated using certified gas standards. The particulate analysers listed above have been tested for sample flow rates and k_0(where appropriate) by documented methods. Note that the test results are valid on the day of test only, as analyser drift over time cannot be quantified. All results for gaseous species are given in ppb (parts per billion) mole fractions or ppm (parts per million) mole fractions.

[1] The zero response is the zero reading on the data logging system of the analyser when audit zero gas was introduced to the analysers under test.

[2] The calibration factor is the multiplying factor required to scale the reading on the data logging system of the analyser into reported concentration units (ppb for NO, NOx, SO_2, O_3 and ppm for CO. Where 1ppm = 1000ppb). It should be used in conjunction with the zero response. A corrected concentration is calculated using the following equation:

Concentration = F(Output - Zero Response)
Where F = Calibration Factor provided on this certificate
Output = Reading on the data logging system of the analyser
Zero Response = Zero Response provided on this certificate

[3] Converter eff. is the measured efficiency of the NO_2 to NO converter within the oxides of nitrogen analyser under test.

[4] The measured main flow rate (where this is applicable) is the flow rate through the sensor unit of the TEOM particulate analyser under test. The measured aux flow rate (where this is applicable) is the flow rate through the bypass tubing of the TEOM particulate analyser under test. The measured total flow rate is the total flow rate through the particulate analyser under test. Units of flow are $l.min^{-1}$, reported at prevailing ambient conditions unless otherwise specified. Where flow rates are highlighted in bold, it indicates that measurements were not made at the analyser sample inlet. These measurements therefore may not accurately reflect analyser performance in normal operation.

The calibration results shaded are those that fall within our scope of accreditation, all other results on this certificate are not UKAS accredited, but have been included for completeness.

December 2019:

0401

CERTIFICATE OF CALIBRATION

Ricardo Energy and Environment, Gemini Building, Fermi Avenue Harwell, Didcot,

Approved Signatories:

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☐ D Hector	☐ S Stratton
☐ N Rand	☐ S Telfer
☐ B Davies	☐ S Gray
	☑ D Lane

Signed:

Date of issue: 27 Dec 19

Certificate Number: 04786

Customer Name and Address: Huntingdonshire District Council
Pathfinder House
St Mary's Street
Huntingdon
PE29 3TN

Description: Calibration factors for the air monitoring station at Huntingdon Pathfinder House

Ricardo Energy & Environment ID: ED79001133/December 2019

The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95% The uncertainty evaluation has been carried out in accordance with UKAS requirements.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

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CERTIFICATE OF CALIBRATION

Date of issue: 27 Dec 19

Certificate Number: 04786

Ricardo Energy & Environment ID: ED79001133/December 2019

Huntingdon Pathfinder House
Date of audit: 16 Dec 2019

	Species	Analyser Serial no	Zero Response[1]	Zero uncertainty ppb	Calibration Factor[2]	Factor uncertainty %	Converter eff. (%)[3]
	NOx	18-0589	-9.0	2.7	0.9715	3.5	100.5
	NO	18-0589	0.0	2.6	0.9614	3.5	n/a

Huntingdon Pathfinder House
Date of audit: 16 Dec 2019

	Species	Analyser Serial no	Parameter	Specified Value	Measured Value	Deviation %	Uncertainty %
FIDAS	PM	11350	Total Flow[4]	4.8	4.62	-3.5	2.25

0401

CERTIFICATE OF CALIBRATION

Date of issue: 27 Dec 19

Certificate Number: 04786

Ricardo Energy & Environment ID: ED79001133/December 2019

The gaseous ambient analysers listed above have been tested for zero response, calibration factor, linearity and converter efficiency (NOx analysers) by documented methods. The factors have been calculated using certified gas standards. The particulate analysers listed above have been tested for sample flow rates and k0(where appropriate) by documented methods. Note that the test results are valid on the day of test only, as analyser drift over time cannot be quantified. All results for gaseous species are given in ppb (parts per billion) mole fractions or ppm (parts per million) mole fractions.

[1] The zero response is the zero reading on the data logging system of the analyser when audit zero gas was introduced to the analysers under test.

[2] The calibration factor is the multiplying factor required to scale the reading on the data logging system of the analyser into reported concentration units (ppb for NO, NOx, SO_2, O_3 and ppm for CO. Where 1ppm = 1000ppb). It should be used in conjunction with the zero response. A corrected concentration is calculated using the following equation:

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Zero Response = Zero Response provided on this certificate

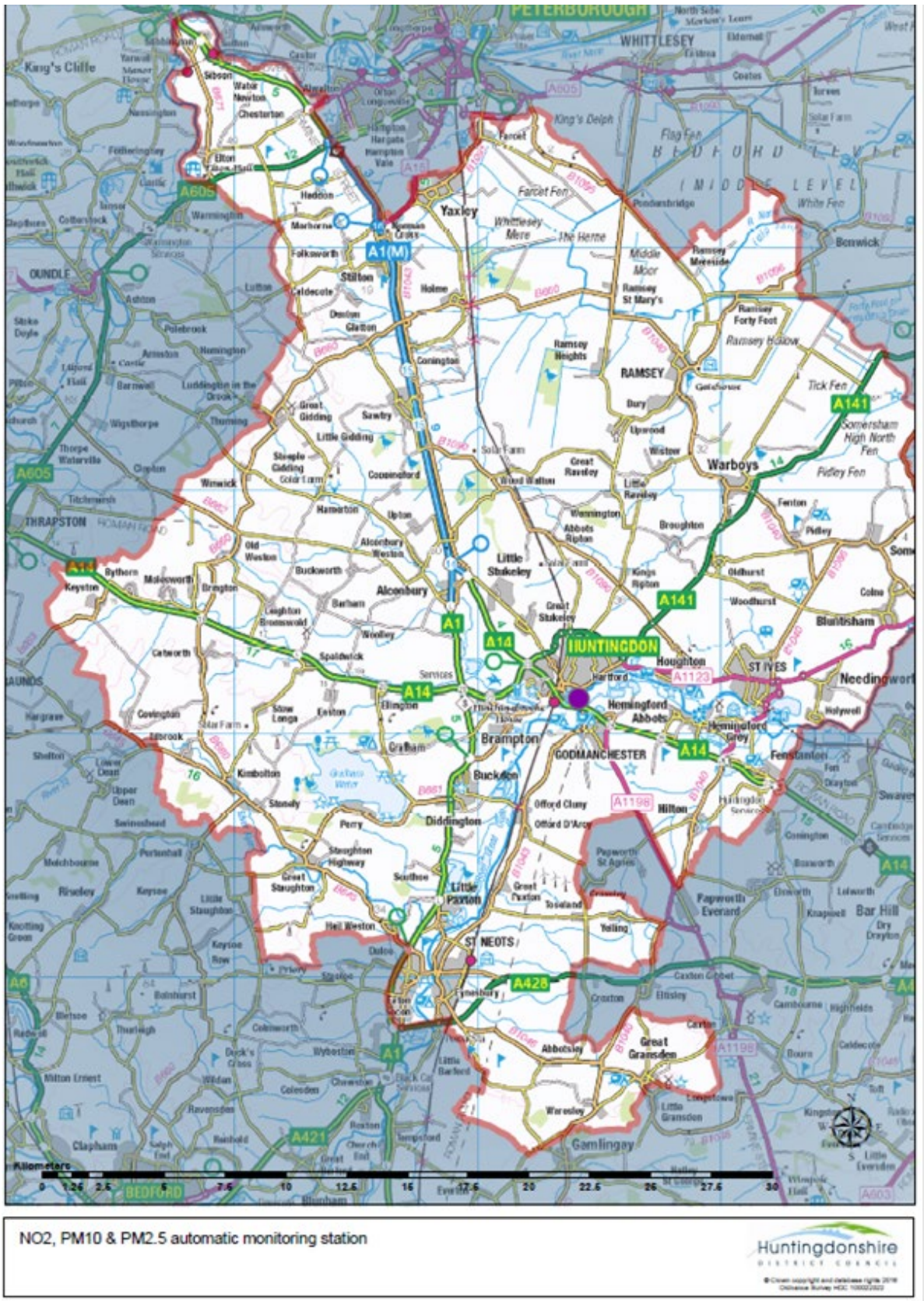
[3] Converter eff. is the measured efficiency of the NO_2 to NO converter within the oxides of nitrogen analyser under test.

[4] The measured main flow rate (where this is applicable) is the flow rate through the sensor unit of the TEOM particulate analyser under test. The measured aux flow rate (where this is applicable) is the flow rate through the bypass tubing of the TEOM particulate analyser under test. The measured total flow rate is the total flow rate through the particulate analyser under test. Units of flow are $L.min^{-1}$, reported at prevailing ambient conditions unless otherwise specified. Where flow rates are highlighted in bold, it indicates that measurements were not made at the analyser sample inlet. These measurements therefore may not accurately reflect analyser performance in normal operation.

The calibration results shaded are those that fall within our scope of accreditation, all other results on this certificate are not UKAS accredited, but have been included for completeness.

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

Figure D.1: Map indicating location of Automatic NO_2, PM_{10} and $PM_{2.5}$ monitor:



NO2, PM10 & PM2.5 automatic monitoring station

Figure D.2: Map showing location of Automatic NO_2, PM_{10} and $PM_{2.5}$ monitor:

Figure D.3: Close up of location of Automatic NO_2, PM_{10} and $PM_{2.5}$ monitor:

Please note – The AQMS can be seen in relation to the AQMA, on figure D5 as 'PFH'.

Figure D.4: Map indicating location of non automatic (Diffusion Tube) NO_2 monitoring locations:

Figure D.5: Huntingdon AQMA Diffusion Tube NO_2 monitoring locations:

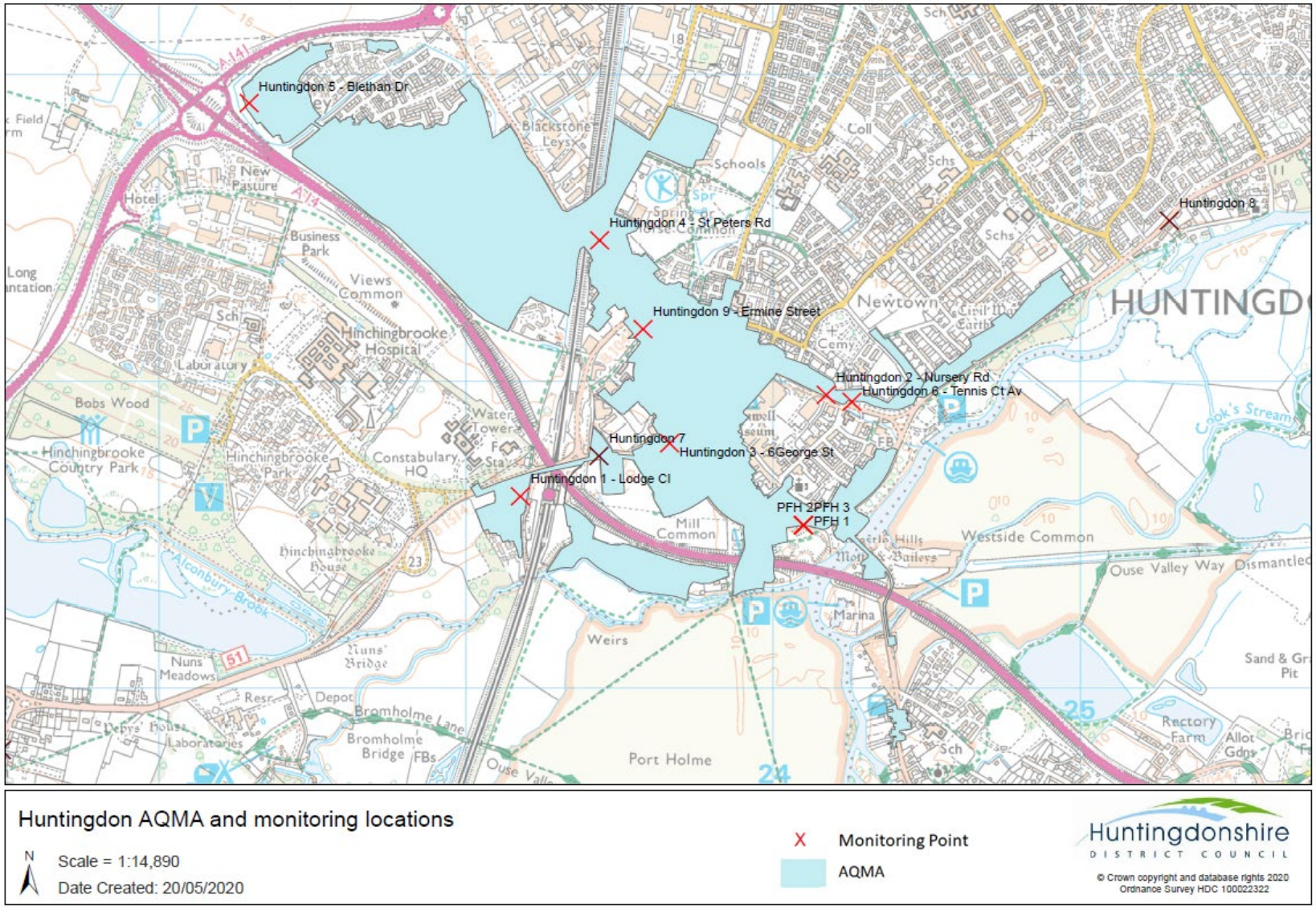


Figure D.6: St Neots AQMA Diffusion Tube NO_2 monitoring locations:

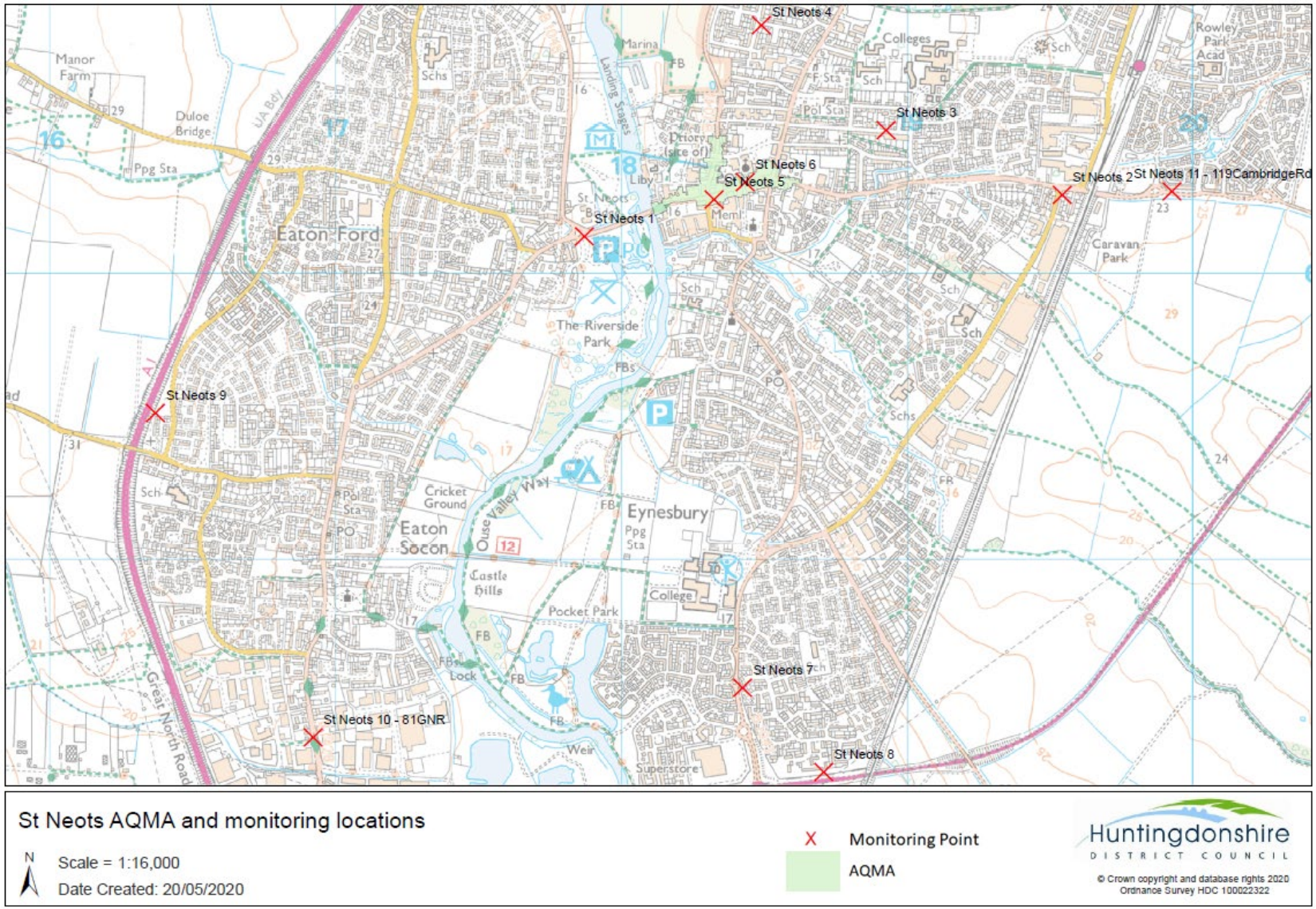


Figure D.7: A14 Fenstanton AQMA Diffusion Tube NO_2 monitoring locations:

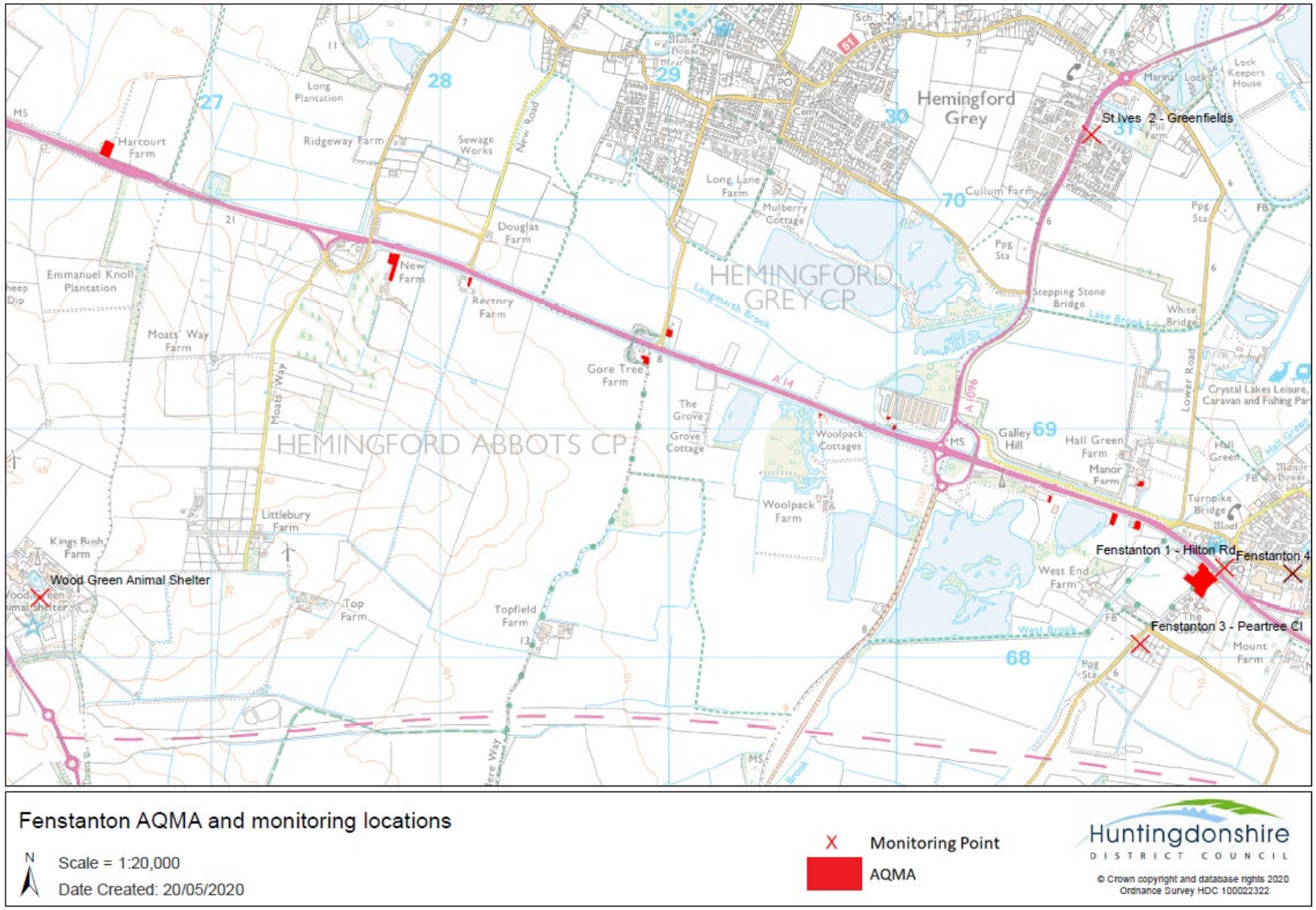
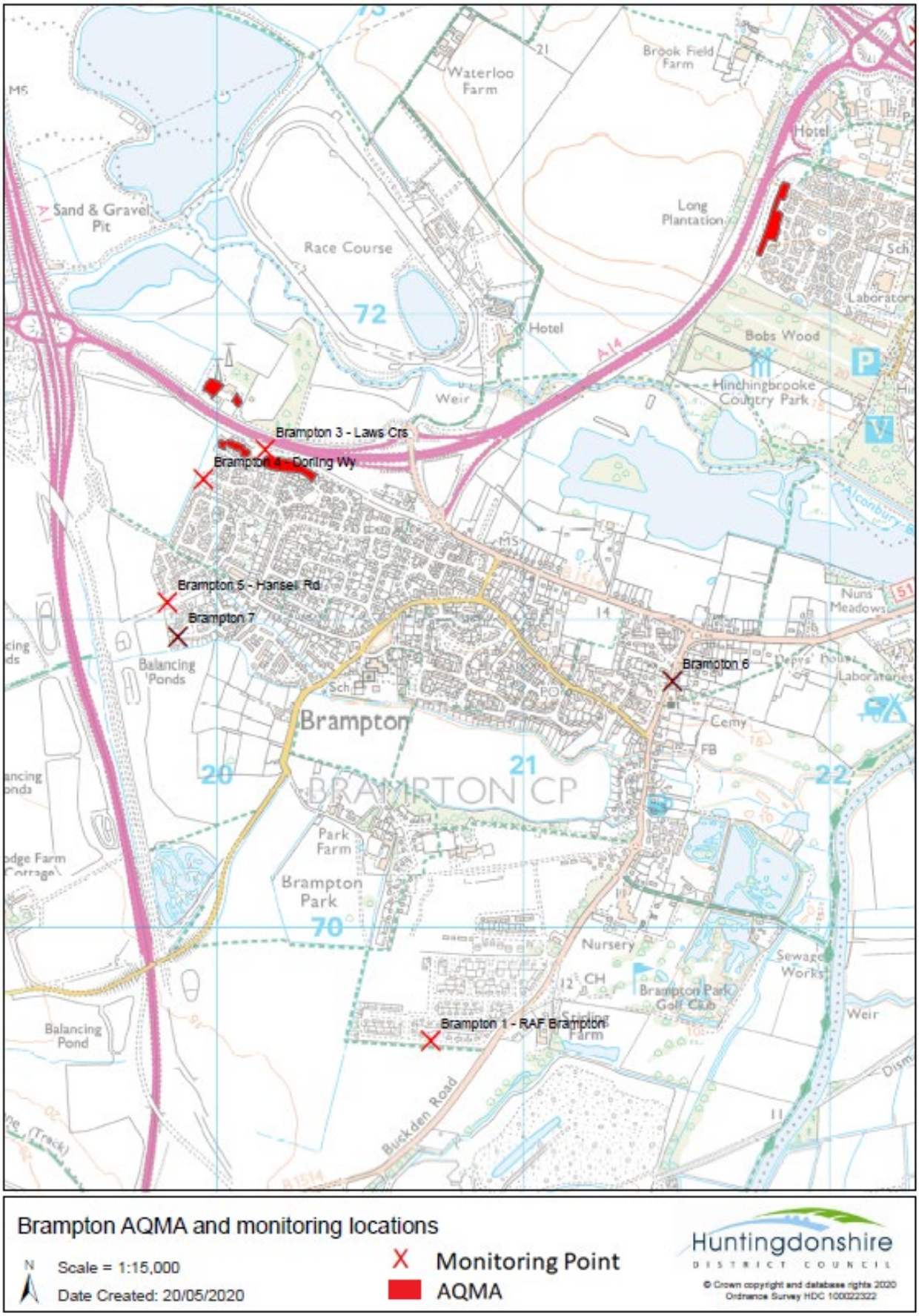


Figure D.8: Brampton AQMA Diffusion Tube NO_2 monitoring locations:



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year 40 µg/m^3	1-hour mean Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year 40 µg/m^3	24-hour mean Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year 125 µg/m^3, not to be exceeded more than 3 times a year 266 µg/m^3, not to be exceeded more than 35 times a year	1-hour mean 24-hour mean 15-minute mean

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
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
HDC	Huntingdonshire District Council
LAQM	Local Air Quality Management
LPA	Local Planning Authority
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) 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