South Cambridgeshire District Council

2020 Air Quality Annual Status Report (ASR)

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

August 2020

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Signed off by:

- Trevor Nicoll – Head of Environment and Waste

Executive Summary: Air Quality in our area, South Cambridgeshire District Council

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].

South Cambridgeshire District Council (SCDC) is a rural district undergoing a significant growth. The area has good road and rail links with London and the South-East. The M11 / A11 and A14 corridors pass through the District to the west, south and north of Cambridge, respectively. The demand for housing is therefore very high. Future developments are mainly to be residential and are reliant on road-based transport for travel and commuting to Cambridge city, London and the surrounding area.

The growth is mainly associated with new developments such as Northstowe (10,000 dwellings) to the North West of Cambridge, Waterbeach Barracks (6000-10,000 dwellings) to the North East of Cambridge, Bourn Airfield and Cambourne West to the West of Cambridge.

SCDC declared an Air Quality Management Area (AQMA) along the A14 between Bar Hill and Milton junction in 2008 for exceedance of the annual mean Nitrogen Dioxide (NO_2) and 24-hour Particulate Matter (PM_{10}) objective. pollution levels have been monitored through a network of Diffusion Tubes and Automatic Monitors since. A decreasing trend in the monitored levels have been recorded within AQMA with no exceedances above the objective levels since 2014. Therefore, we propose to revoke this AQMA as previously recommended by Defra. The supporting evidence for this decision is discussed in section 2.1.

[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

Actions and Priorities to Improve Air Quality

The key actions undertaken or underway to monitor and improve air quality are summarised here:

- A new Air Quality Strategy is completed and proposed to the Cabinet. The Strategy outlines a new approach to monitor and improve the air quality across the district and to ensure both the new and existing communities are considered to benefit a better air quality district wide.
- A review and upgrade of the air quality monitoring network is underway in line with the new Strategy and to reflect the growth district wide. Any future AQMAs will be addressed through an independent Air Quality Action Plan (AQAP).
- Hotspot monitoring initiative is underway enabling the Council to test the reliability of alternative technologies for air quality monitoring.
- Detailed air quality requirements were included in the Sustainable Design & Construction Supplementary Planning Document (SPD) adopted in January 2020. The requirements range from improving sustainable and low emission transport to facilitating schemes and infrastructure for behavioural change.
- A new monitor was installed at Orchard Park School near the A14 in September. The aim of this initiative is to monitor the actual levels of exposure for most sensitive receptors near major roads. Sufficient data should be available to report in 2021 ASR.

Further consideration has been given to air quality and its improvement across the district, in line with the Council's key objective to 'Being green to our core'[4]. The Supporting actions are summarised here:

- The Zero Carbon Strategy, adopted in May 2020, outlines the actions supporting the district to halve carbon emissions by 2030 and reduce them to zero by 2050[5].
- Zero Carbon Communities Grant[6], is a funding for community initiatives to improve sustainability. A total of 19 projects including eight to promote cycling and four tree-planting projects was granted in 2019 – 2020.
- The Greater Cambridge Shared Waste Service has been developing an approach to reduce the environmental impact of the Refuse service that is provided to the residents on South Cambridgeshire District council. While the introduction of fully electric refuse vehicle's is high on the services agenda, the first vehicle has now been ordered and should hopefully be on site collecting bins for the end of September 2020. In addition to the electric option the service is also investigating other options such as hydrogen as the solution to reducing our CO_2 impact to the environment.

[4] Being green to our core https://www.scambs.gov.uk/your-council-and-democracy/performance-and-plans/our-business-plan/
[5] Zero Carbon Strategy https://www.scambs.gov.uk/environment/pollution/air-pollution/local-air-quality-management/
[6] Zero Carbon Communities Grant https://www.scambs.gov.uk/climate-change/zero-carbon-communities/zero-carbon-communities-grant/

Conclusions

The review of the monitoring data in 2019 has identified the following:

- No exceedances of national air quality objectives were reported at any of the monitoring locations.
- The monitoring data relating to the AQMA also achieved relevant objectives.
- Good data capture for all monitoring locations was achieved.
- No new sources of pollution have been identified.

Local Engagement and How to get Involved

Details and reports of Air Quality Service are available online[7] for public. Share your views and concerns via email address air.quality@scambs.gov.uk and follow our Facebook page[8] for general updates and news. Please do your share to improve air quality in South Cambs:

- Avoid using your car for short trips (under 2 miles) – short trips are very polluting as modern engines needs to reach a very high temperature to work efficiently; on short trips it will not reach that temperature.
- Try using public transport, cycling, or walking more often.
- Walking and cycling help you to stay healthy plus save you money in fuel costs.
- Switch it off – turn off your engine if you are caught in a traffic jam or have to wait at level crossings; not only will this reduce your emissions, but you will save fuel too.
- When driving, use techniques that help you use less fuel, like driving more slowly and smoothly.
- You could use 10% less fuel and save money by following the tips on the AA website[9].
- Consider using an alternative fuel vehicle – There is a growing market for electric vehicles.
- Consider living car free.
- Join a car club.
- Use journey-planning apps such as MyBusTrip or MotionMap for travel by bus, train, walking and cycling.
- Consider working at home occasionally or car sharing.
- Use less energy at home – wood, coal, oil and gas burning all contribute to air pollution.
- Make your children aware of the impact that day to day activities have on air quality.

[7] https://www.scambs.gov.uk/environment/pollution/air-pollution/local-air-quality-management/
[8] https://www.facebook.com/SouthCambridgeshireDistrictCouncil/
[9] http://www.theaa.com/motoring_advice/fuels-and-environment/drive-smart.html

South Cambridgeshire District Council

Table of Contents

1. Local Air Quality Management

This report provides an overview of air quality in South Cambridgeshire District Council 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 South Cambridgeshire 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.1in Appendix E.

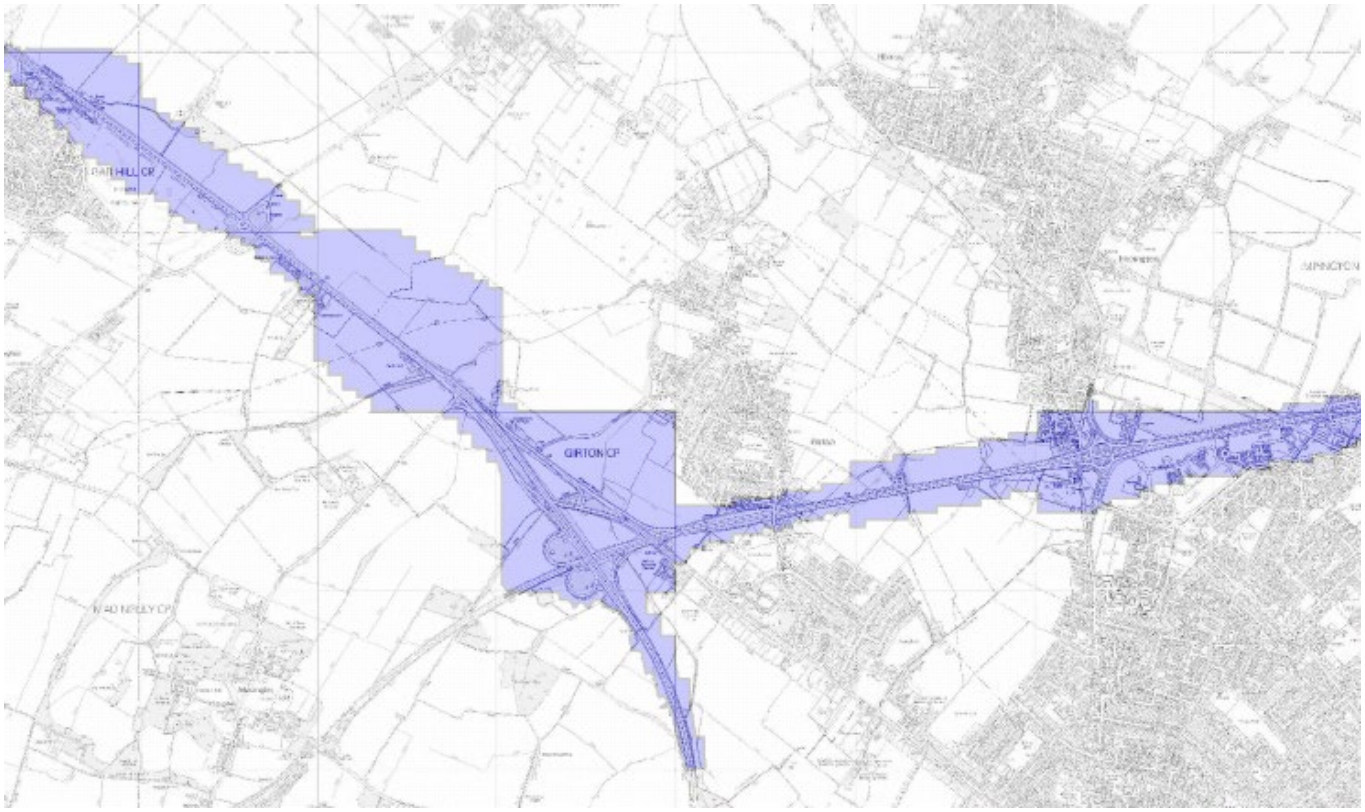
2. Actions to Improve Air Quality

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.

SCDC declared an Air Quality Management Area (AQMA) along the A14 between Bar Hill and Milton in 2008 for annual mean Nitrogen Dioxide (NO_2) and 24-hour Particulate Matter (PM_{10}) objectives. These have been monitored through a network of diffusion tubes and automatic monitors. A decreasing trend in pollution levels have been recorded within the AQMA over the past six years.

Figure1. Air Quality Management Area



We propose to revoke this AQMA as repeatedly recommended by Defra in previous years. The consistent compliance with the objective levels since 2014 is the main evidence for this decision.

Furthermore, Highways England has commenced a major improvement scheme on A14 between Cambridge and Huntingdon since 2017. The scheme is expected to be completed in 2020 and is likely to alleviate impacts on local air quality within the AQMA. In addition, there

have been several improvements on A14 such as additional lane between junctions 31 and 32 which have resulted in a better traffic flow in parts of the AQMA[10].

Whilst the revocation order for this AQMA is awaiting approval, the Council will continue to monitor the air quality in this area. However, alternative locations will be considered as part of the new review and up-date of the Council's monitoring programme in accordance with the recent changes to the road layout.

Figure 2. Monitoring locations and data within AQMA

Figure 2.a Diffusion Tubes locations between Bar Hill and Girton

[10] In 2015, additional lane was provided between junctions 31 and 32 under the Government's 'Pinch-Point' programme.

Figure 2.b Diffusion Tubes locations between Girton and Milton (Impington and Orchard Park)

Figure 2.c Automatic Monitors locations between Bar Hill and Milton

Figure 2.c Diffusion Tubes data within AQMA

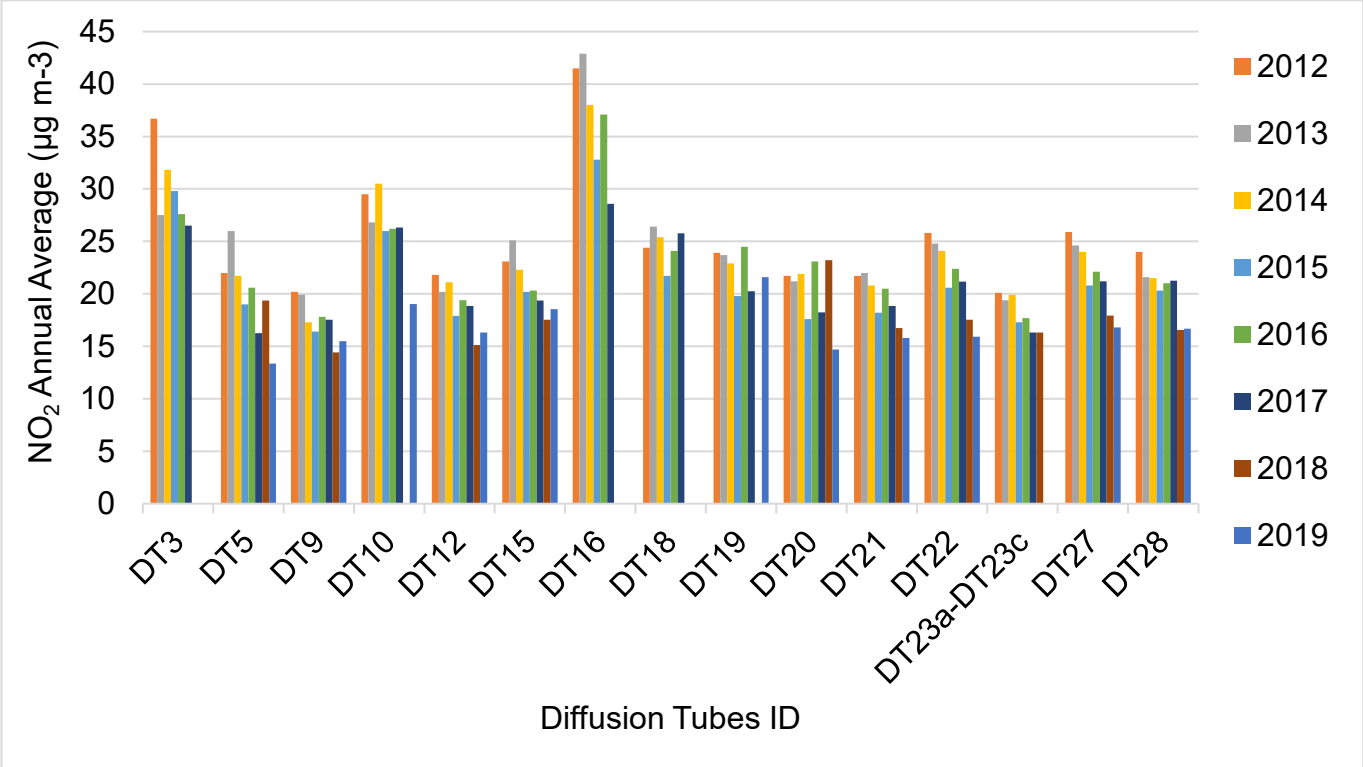
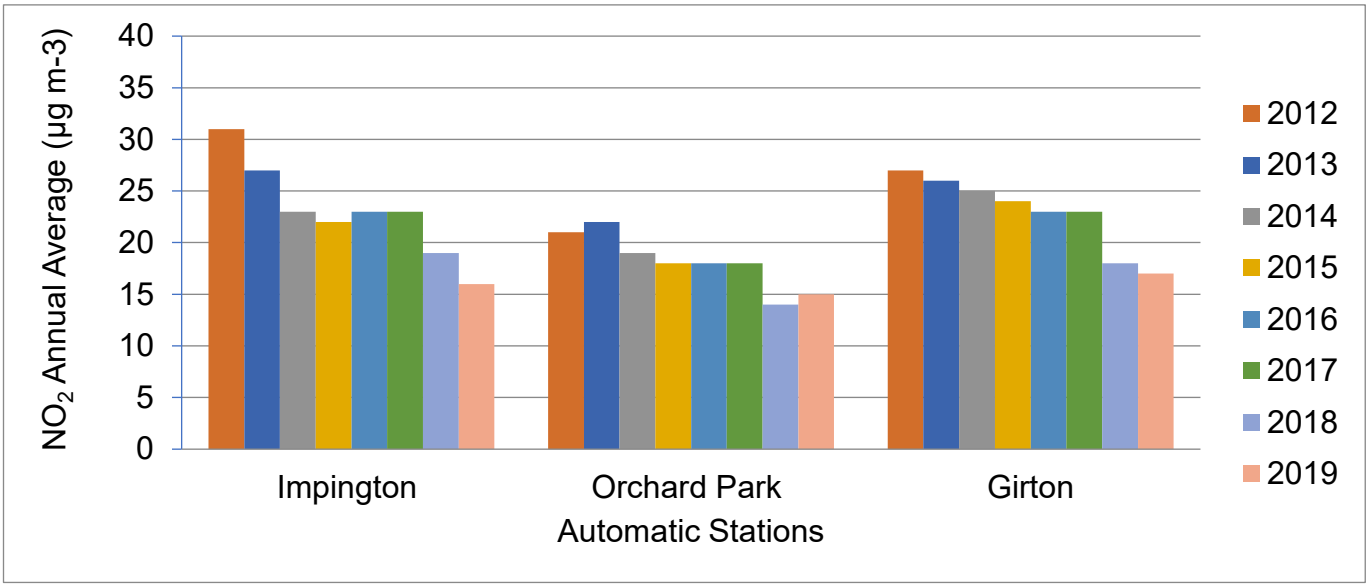


Figure 2.d Automatic Monitors data within AQMA



Monitoring results for PM_{10} 24-Hour Mean are shown in Table A.5.

A summary of AQMAs declared by South Cambridgeshire can be found in Table 0.1.

Further information related to declared AQMA, including maps of AQMA boundaries are available online[11] .

For reference, a complete map of South Cambridgeshire's monitoring locations is available in Appendix D.

[11] https://www.scambs.gov.uk/environment/pollution/air-pollution/local-air-quality-management/

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored / modelled concentration at a location of relevant exposure) – At Declaration	Level of Exceedance (maximum monitored / modelled concentration at a location of relevant exposure) – Now	Action Plan – Name	Action Plan – Date of Publication	Action Plan – Link
AQMA 1 (Revoked)	2007	NO_2 Annual Mean	Bar Hill to Milton	Area Along A14	Yes	42 µg/m3	- -	-	-	-
AQMA 1	2008	NO_2 Annual Mean	Bar Hill to Milton	Area Along A14	Yes	42 µg/m3	16 µg/m3	Air Quality Action Plan for Cambridgeshire Growth Areas	2009	Link[12]

[12] https://www.scambs.gov.uk/environment/pollution/air-pollution/local-air-quality-management/

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored / modelled concentration at a location of relevant exposure) – At Declaration	Level of Exceedance (maximum monitored / modelled concentration at a location of relevant exposure) – Now	Action Plan – Name	Action Plan – Date of Publication	Action Plan – Link
AQMA 1	2008	PM_{10} Daily Mean	Bar Hill to Milton	Area Along A14	Yes	52 Exceedances	1 Exceedances	Air Quality Action Plan for Cambridgeshire Growth Areas	2009	Link

☒ South Cambridgeshire 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 South Cambridgeshire District Council

Defra's appraisal of last year's ASR concluded that SCDC should review the evidence to revoke the current AQMA since no exceedances of objective levels have occurred since 2014 and review the current monitoring programme to reflect the growth across the district.

Defra's recommendations have been acknowledged and the following actions have been taken:

1- We have proposed to revoke the AQMA and the Revocation Order is submitted for approval. Details are discussed in section 2.1.

2- The proposal for review and up-grade of the monitoring network was approved and is underway. The aim of this review is to ensure the wider area of the district is monitored to reflect the ongoing growth.

3- The monitoring at Northstowe New Town is continued and is likely to be expanded as the construction of additional phases of the town continues.

South Cambridgeshire has taken forward a number of measures during the current reporting year of 2019 in pursuit of improving and maintaining good air quality in wider district. These are as follows;

- A new Air Quality Strategy with emphasis on improving air quality district wide and beyond any existing Air Quality Management Areas is prepared and proposed to the Cabinet.
- A review and up-grade of the monitoring network was approved and is underway. The aim of this review is to ensure the wider area of the district is monitored to reflect the ongoing growth.
- Hotspot monitoring initiative was approved which enables the Council to test the reliability of alternative technologies in air quality monitoring.
- Detailed list of air quality requirements has been provided in the newly adopted Supplementary Planning Document (SPD)[13] in support of the Local Plan (2018). These requirements range from low emission and sustainable transport to behavioural change through infrastructure and schemes.

Details of all measures completed, in progress or planned are set out in Table 0.2.

[13] Supplementary Planning Document on Sustainable Design & Construction (adopted in January 2020) in support of Council's Local Plan (September 2018)

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Low Emission Strategies	Policy Guidance and Development Control, Alternatives to private vehicle use	Promotion of Sustainable Transport, Car Clubs, Cycling	Developers Contributions	2019 – 2019	Present Local Plan	To be confirmed – May involve ratio of PPs issued with LES	N / A	In progress	N / A	-
2	Guided Bus Way	Transport Planning & Infrastructure	Bus Route Improvements	Cambridgeshire County Council (CCC)	2009 2010	2011	N / A	None	Completed	N / A	-

Measure No.	Measure	EU Category	EU Classi-fication	Organi-sations involved and Funding Source	Planning Phase	Imple-mentation Phase	Key Perfor-mance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to imple-mentation
3	A14 Improve-ment – Junction 31 – 32 (E / B & W / B)	Traffic Manage-ment	Strategic highway improve-ments	CCC	N / A	2015	N / A	None	Completed Autumn 2015	N / A	-
4	A14 / M11 Re-alignment	Traffic Manage-ment	Strategic high-way improve-ments	CCC / Highways England	N / A	2016 – 2020	Central Gov't / Highways England Commitment	None	Work to commence 2016 / 2017 (Package 1)	2020	-
5	Policy Guidance and Develop-ment Control	Policy Guidance and Develop-ment Control	Air Quality Planning and Policy Guidance	South Cambridge-shire District Council (SCDC)	2015	2016	LDF Policy NE / 16	None	SPD or Developers Guide for Low Emission Strategy measures	2016	-

Measure No.	Measure	EU Category	EU Classi-fication	Organi-sations involved and Funding Source	Planning Phase	Imple-mentation Phase	Key Perfor-mance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to imple-mentation
6	City Deal	Transport Planning & Infra-structure Promoting Travel Alter-natives	Bus-route improve-ments & Promotion of cycling / Sustain-able Transport	CCC / Cambridge City Council	2015 – 2030	2016	Connect existing & new residential & employment areas with high quality public transport networks, including new orbital bus routes around Cambridge & comprehend-sive network of pedestrian & cycle route.	None	Proposed scheme for making bus, cycle and walking journeys more convenient and safer from Northstowe announced.	Tranche 1 schemes by 2019	-

2.2 $PM_{2.5}$ – 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.

South Cambridgeshire District Council undertakes monitoring for $PM_{2.5}$ on Huntingdon Road. The $PM_{2.5}$ concentrations monitored at Girton site were slightly higher than that predicated by Defra in 2019 confirming an area affected by traffic.

An additional monitor was installed at Orchard Park School near the A14 in September. The aim of this initiative is to monitor the actual levels of exposure for most sensitive receptors near major roads. Sufficient data should be available to report in 2021 ASR.

The Council has participated in the publicity campaigns on the impacts of wood burning stoves on local air quality by Defra, providing information about what type of wood to burn and how to burn it efficiently[14].

Public Health England (PHE) considers the health impacts of Particulate Matter ($PM_{2.5}$) on mortality for different regions. This was reported 5.3% for Cambridgeshire in 2016[15].

Cambridgeshire County Council (CCC) elected members have noted the impacts of poor air quality and have passed a resolution to work with different councils and other public bodies more collaboratively across Cambridgeshire.

Greater Cambridgeshire Partnership (GCP) is working on a network of twelve separate routes into Cambridge from surrounding towns and villages to increase the level of safe cycling and walking and to reduce traffic congestion[16].

[14] Wood Burning Stoves https://www.scambs.gov.uk/environment/pollution/air-pollution/air-quality-air-definition-and-open-fire-guide/
[15] Public Health Outcomes Framework (PHOF), Fraction of all-cause mortality attributable to anthropogenic particulate air pollution https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/1/gid/1000049/pat/6/par/E12000006/ati/102/are/E10000003
[16] Greenways Project https://www.greatercambridge.org.uk/transport/transport-projects/greenways/

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

3.1 Summary of Monitoring Undertaken

South Cambridgeshire District Council operates Automatic Monitoring Stations at three sites and undertakes non-automatic (passive) monitoring of NO_2 at 27 sites within the District. Automatic Monitoring Stations are located at Orchard Park, Girton and Impington. All stations monitor PM_{10} and NO_2. Girton site and Orchard Park measure $PM_{2.5}$. However, the $PM_{2.5}$ monitor at Orchard Park was installed in September and sufficient data is not available to report in this ASR.

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how it compares with objectives. The Automatic Monitoring Stations at Girton and Impington sites are representative of nearby receptors. The Orchard Park monitor is a background site located within the school grounds. Both Orchard Park and Impington site are located within the Air Quality Management Area for NO_2 and PM_{10}.

NO_2 data capture was 99% for Orchard Park and Girton site and 92% for Impington site. PM_{10} data capture was 97% for Orchard Park and Girton sites and 92% for Impington site. $PM_{2.5}$ data capture was 98%.

The monitoring results show that:

- No exceedances of annual mean objective for NO_2 or PM_{10} was recorded
- No exceedances of annual mean objective for $PM_{2.5}$ was recorded
- The hourly mean objective for NO_2 hourly mean was achieved at all sites
- The daily mean objective for PM_{10} was achieved at all sites

Table A.1 in Appendix A shows the details of the sites. Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

SCDC undertook non-automatic (passive) monitoring of NO_2 at 27 sites during 2019. The following tubes were removed from the network as summarised below:

- DT16 and DT18 along A14 due to dangerous access
- DT23a – DT23c as co-located study ceased
- DT-30N on Denny road, Waterbeach due to access issues

Diffusion tube monitoring network for Northstowe has been in place since June 2016 with no changes and it is likely to expand as construction phases of the new town continues.

Table A.2 in Appendix A shows the details of the sites. Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance / Quality Control (QA / QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. “annualisation” and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, “annualisation” and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Data capture was over 75% for all diffusion tubes. Following National Bias Adjustment, results for all diffusion tubes remain below the annual mean objective for 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. For diffusion tubes, the full 2019 dataset of monthly mean values is provided in Appendix B. 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.

3.2.2 Particulate Matter (PM_{10})

No exceedances above objective limits have been recorded. Table A.5 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.

3.2.3 Particulate Matter ($PM_{2.5}$)

Monitored levels remain below the objective levels. Table A.6 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past 5 years.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
IMP	Impington (A14)	Roadside	543739	261625	NO_x (NO_2) PM_{10}	Yes	ET M200E / ET BAM1020	Y (12m)	2	2
ORCH	Orchard Park Primary School (A14)	Urban Background	544558	261579	NO_x (NO_2) PM_{10} $PM_{2.5}$	Yes	ET M200E / ET BAM1020	Y (1m)	N / A	2
GIRT	Girton	Roadside	542676	260667	NO_x (NO_2) PM_{10} $PM_{2.5}$	No	ET M200E / ET BAM1020	Y (5m)	5	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.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DT1	1 Coppice, Histon	Urban Background	544230	262048	NO2	N	7m	0.5m	N	2
DT2	The Gables, High Street, Histon	Roadside	543770	263678	NO2	N	5m	1m	N	2
DT3	Hill Farm Cottages, A14	Roadside	536926	264956	NO2	Y	N	4m	N	2
DT4	96 High Street, Sawston	Urban Background	548600	249136	NO2	N	5m	1m	N	2
DT5	Rhadegund Farm Cottage, Bar Hill, A14	Roadside	538744	263640	NO2	Y	1m	33m	N	2
DT6	64 High Street, Linton	Roadside	556179	246815	NO2	N	7m	0.5m	N	2
DT7	20 High Street, Tadlow	Roadside	528131	247399	NO2	N	10m	2m	N	2
DT8	47 High Street, Harston	Urban Background	542554	251002	NO2	N	5m	1m	N	2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DT9	3 Garner Close, Milton	Urban Background	547452	263175	NO2	N	5m	1m	N	2
DT10	1A Weavers Field, Girton	Urban Background	542537	261467	NO2	Y	15m	1m	N	2
DT11	Heath House, A505, Thriplow	Urban Background	544034	244585	NO2	N	10m	1m	N	2
DT12	Lone Tree Avenue, Impington	Roadside	544119	261862	NO2	Y	7m	0.5m	N	2
DT13	1 Brook Close, Histon	Urban Background	543955	263588	NO2	N	2m	1m	N	2
DT14	22 Water Lane, Histon	Roadside	544050	263306	NO2	N	2m	0.5m	N	2
DT15	72 Cambridge Road, Impington	Urban Background	544243	261819	NO2	Y	7m	0.5m	N	2
DT16	Hackers Fruit Farm, A14	Roadside	539846	262826	NO2	Y	5m	12m	N	2
DT17	5 Mill Lane, Sawston	Roadside	548545	249366	NO2	N	15m	1m	N	2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DT18	1 Catchall Farm Cottages, A14	Roadside	540509	262290	NO2	Y	1m	10m	N	2
DT19	Crafts Way, Bar Hill	Roadside	538472	263675	NO2	N	15m	1m	N	2
DT20	Chieftain Way, Orchard Park	Roadside	544828	261738	NO2	Y	1m	0.5m	N	2
DT21	Neal Drive, Orchard Park	Roadside	545056	261784	NO2	Y	1m	0.5m	N	2
DT22	Flack End, Orchard Park	Roadside	545435	261906	NO2	Y	2m	35m	N	2
DT23a-DT23c	Orchard Park School	Urban Background	544557	261571	NO2	Y	1m	50m	Y	2
DT26	Co-op, High Street, Histon	Roadside	543768	263708	NO2	Y	1.5m	2.6m	N	2
DT27	Engledow Drive, Orch. Park	Urban Background	545259	261873	NO2	Y	5m	4.5m	N	2
DT28	22 Topper Street, Orch. Park	Roadside	545169	261764	NO2	Y	4.2m	0.2m	N	2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DT29	Church Lane, Little Abington	Urban Background	552961	249251	NO2	No	14m	2.0m	N	2
DT-6N	22 High St, Linton	Roadside	555942	246680	NO2	No	1m	2m	N	2
DT-8N	47 High Street, Harston	Roadside	542555	251001	NO2	No	5m	2m	N	2
DT-28N	73 Cambridge Road, Milton	Roadside	547436	262295	NO2	No	10m	2m	N	2
DT-30N	63, Denny End Rd, Waterbeach	Roadside	549154	266006	NO2	No	5m	2m	N	2
DT-32N	Banworth, Ely Road, A10	Roadside	548742	264698	NO2	No	10m	2m	N	2
DT-LN1	Old Railway Tavern	Roadside	539847	268169	NO2	No	5m	1m	N	2
DT-LN2	75 High St Longstanton	Roadside	539570	266842	NO2	No	2m	1m	N	2
DT-LN3	1 Rampton Drift	Roadside	540553	266869	NO2	No	5m	1m	N	2
DT-LN4	37 Longstanton	Roadside	540963	264474	NO2	No	5m	1m	N	2
DT-LN5a	Longstanton bypass	Roadside	539614	267484	NO2	No	20m	1m	N	2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DT-LN5b	Longstanton bypass	Roadside	539614	267484	NO2	No	20m	1m	N	2
DT-LN5c	Longstanton bypass	Roadside	539614	267484	NO2	No	20m	1m	N	2

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on / adjacent to 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 Concen-tration ($\mu g/m^3$) (3) (4) – 2015	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2016	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2017	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2018	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2019
IMP	332395	433175	Roadside	Automatic	92	92	22.0	23.0	23.0	19.0	16
ORCH	332200	433540	Urban Background	Automatic	99	99	18.0	18.0	18.0	14.0	15
GIRT	332395	433175	Roadside	Automatic	99	99	24.0	23.0	23.0	18.0	17
DT1	544230	262048	Urban Background	Diffusion Tube	100	100	17.4	21.3	17.2	14.7	14.7
DT2	543770	263678	Roadside	Diffusion Tube	92	92	30.6	27.8	27.4	27.1	27.2
DT3	536926	264956	Roadside	Diffusion Tube	0	0	29.8	27.6	26.5	-	-
DT4	548600	249136	Urban Background	Diffusion Tube	100	100	23.8	26.6	26.1	24.7	23.0
DT5	538744	263640	Roadside	Diffusion Tube	92	92	19.0	20.6	16.2	19.4	13.4
DT6	556179	246815	Roadside	Diffusion Tube	0	0	27.4	27.9	29.2	-	-

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 Concen-tration ($\mu g/m^3$) (3) (4) – 2015	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2016	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2017	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2018	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2019
DT7	528131	247399	Roadside	Diffusion Tube	100	100	10.4	11.8	12.1	8.6	10.2
DT8	542554	251002	Urban Background	Diffusion Tube	0	0	28.4	28.6	27.3	-	-
DT9	547452	263175	Urban Background	Diffusion Tube	100	100	16.4	17.8	17.5	14.4	15.5
DT10	542537	261467	Urban Background	Diffusion Tube	75	75	26.0	26.2	26.3	25.8	19.0
DT11	544034	244585	Urban Background	Diffusion Tube	92	92	26.1	26.0	24.6	24.9	22.5
DT12	544119	261862	Roadside	Diffusion Tube	92	92	17.9	19.4	18.8	15.1	16.3
DT13	543955	263588	Urban Background	Diffusion Tube	100	100	17.7	19.2	18.5	17.2	16.3
DT14	544050	263306	Roadside	Diffusion Tube	100	100	24.4	27.0	26.4	23.6	22.3

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 Concen-tration ($\mu g/m^3$) (3) (4) – 2015	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2016	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2017	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2018	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2019
DT15	544243	261819	Urban Background	Diffusion Tube	100	100	20.2	20.3	19.4	17.5	18.5
DT16	539846	262826	Roadside	Diffusion Tube	0	0	32.8	37.1	28.6	-	-
DT17	548545	249366	Roadside	Diffusion Tube	100	100	14.3	16.4	14.1	13.1	13.8
DT18	540509	262290	Roadside	Diffusion Tube	0	0	21.7	24.1	25.8	33.1	-
DT19	538472	263675	Roadside	Diffusion Tube	0	0	19.8	24.5	20.3	-	-
DT20	544828	261738	Roadside	Diffusion Tube	100	100	17.6	23.1	18.2	23.2	14.7
DT21	545056	261784	Roadside	Diffusion Tube	92	92	18.2	20.5	18.8	16.7	15.8
DT22	545435	261906	Roadside	Diffusion Tube	100	100	20.6	22.4	21.2	17.5	15.9

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 Concen-tration ($\mu g/m^3$) (3) (4) – 2015	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2016	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2017	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2018	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2019
DT23a	544557	261571	Urban Background	Diffusion Tube	0	0	17.3	17.8	16.6	16.4	-
DT23b	544557	261571	Urban Background	Diffusion Tube	0	0	16.8	17.9	16.2	16.5	-
DT23c	544557	261571	Urban Background	Diffusion Tube	0	0	17.9	17.4	15.9	16.1	-
DT26	543768	263708	Roadside	Diffusion Tube	100	100	18.6	19.7	18.9	17.8	17.1
DT27	545259	261873	Urban Background	Diffusion Tube	100	100	20.8	22.1	21.2	17.9	16.8
DT28	545169	261764	Roadside	Diffusion Tube	92	92	20.3	21.0	21.3	16.6	16.7
DT29	552961	249251	Urban Background	Diffusion Tube	100	100	11.3	12.5	11.0	10.0	10.9
DT-6N	555942	246680	Roadside	Diffusion Tube	83	83	-	-	-	20.2	21.0

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 Concen-tration ($\mu g/m^3$) (3) (4) – 2015	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2016	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2017	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2018	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2019
DT-8N	542555	251001	Roadside	Diffusion Tube	92	92	-	-	-	17.3	15.3
DT-28N	547436	262295	Roadside	Diffusion Tube	100	100	-	-	-	22.8	23.0
DT-30N	549154	266006	Roadside	Diffusion Tube	0	0	-	-	-	16.0	-
DT-32N	548742	264698	Roadside	Diffusion Tube	100	100	-	-	-	23.4	21.6
DT-LN1	539847	268169	Roadside	Diffusion Tube	83	83	-	22.7	18.5	18.6	17.4
DT-LN2	539570	266842	Roadside	Diffusion Tube	75	75	-	16.9	16.6	14.5	14.6
DT-LN3	540553	266869	Roadside	Diffusion Tube	83	83	-	13.2	12.7	11.8	11.1
DT-LN4	540963	264474	Roadside	Diffusion Tube	0	0	-	15.2	14.6	12.1	-

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 Concen-tration ($\mu g/m^3$) (3) (4) – 2015	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2016	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2017	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2018	NO_2 Annual Mean Concen-tration ($\mu g/m^3$) (3) (4) – 2019
DT-LN5a	539614	267484	Roadside	Diffusion Tube	83	83	-	26.7	26.3	24.3	22.8
DT-LN5b	539614	267484	Roadside	Diffusion Tube	83	83	-	26.0	26.7	23.9	24.0
DT-LN5c	539614	267484	Roadside	Diffusion Tube	83	83	-	25.6	27.4	24.6	23.7

☒ Diffusion tube data has been bias corrected ☒ Annualisation has been conducted where data capture is <75%

Notes:

(*) Annualised data

(NA) Not Active

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

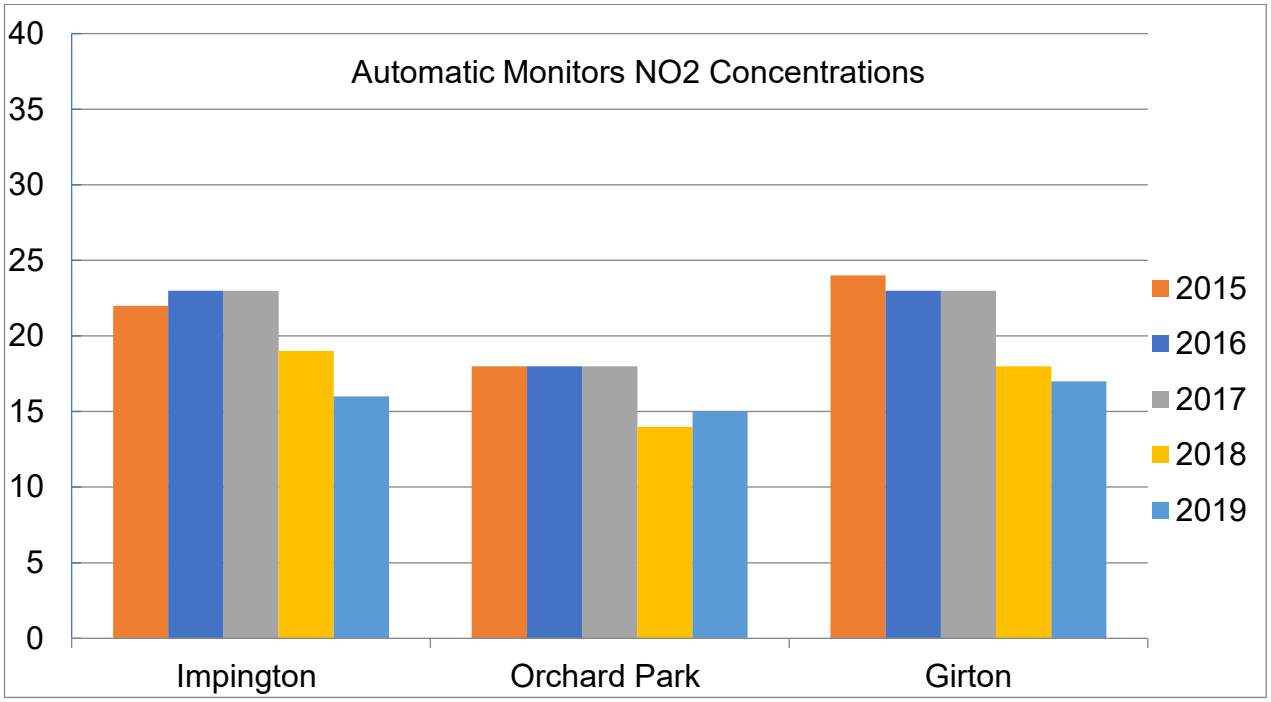
NO_2 annual means exceeding 60$\mu g/m^3$, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

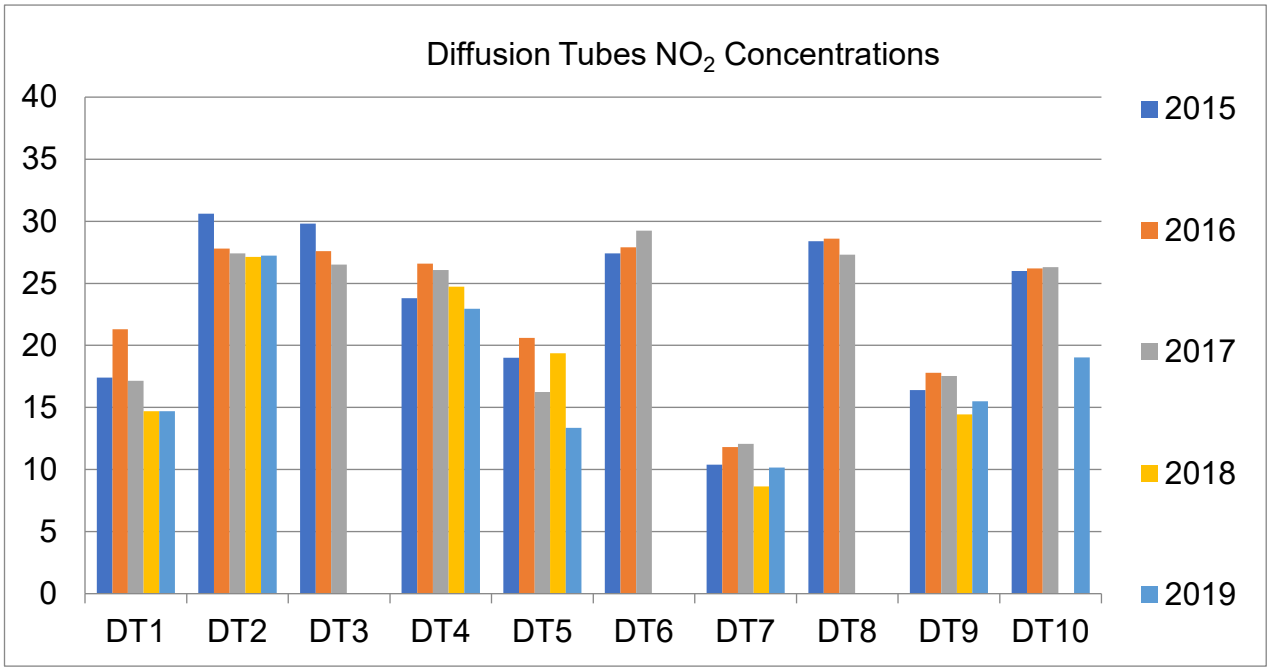
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(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%).

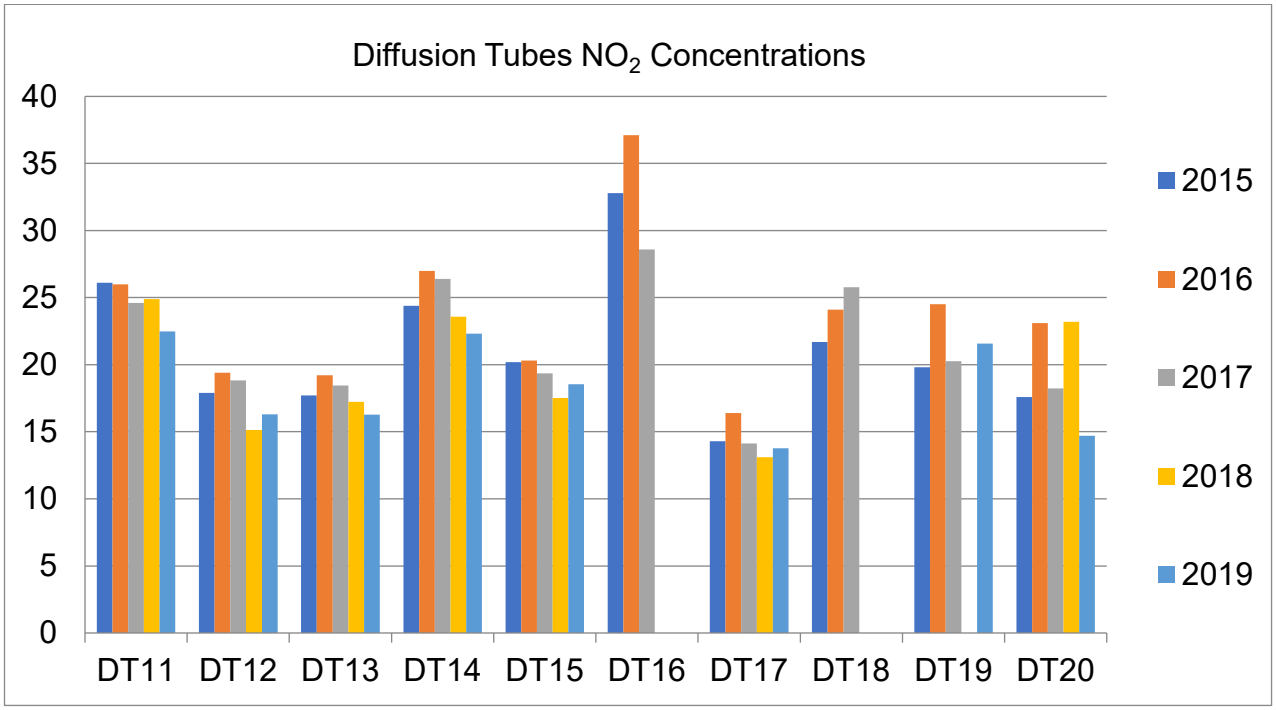
(3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

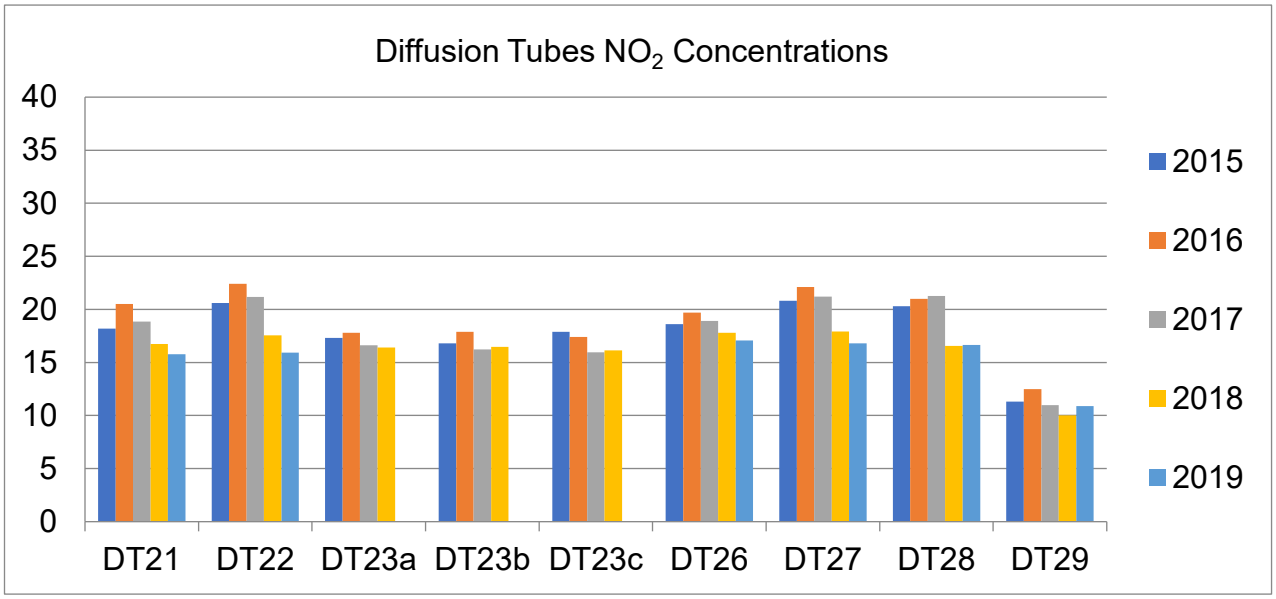
Figure A.1 – Trends in Annual Mean NO_2 Concentrations (µg m^{-3})





Trends in Annual Mean NO_2 Concentrations – Continued





Trends in Annual Mean NO_2 Concentrations – Continued

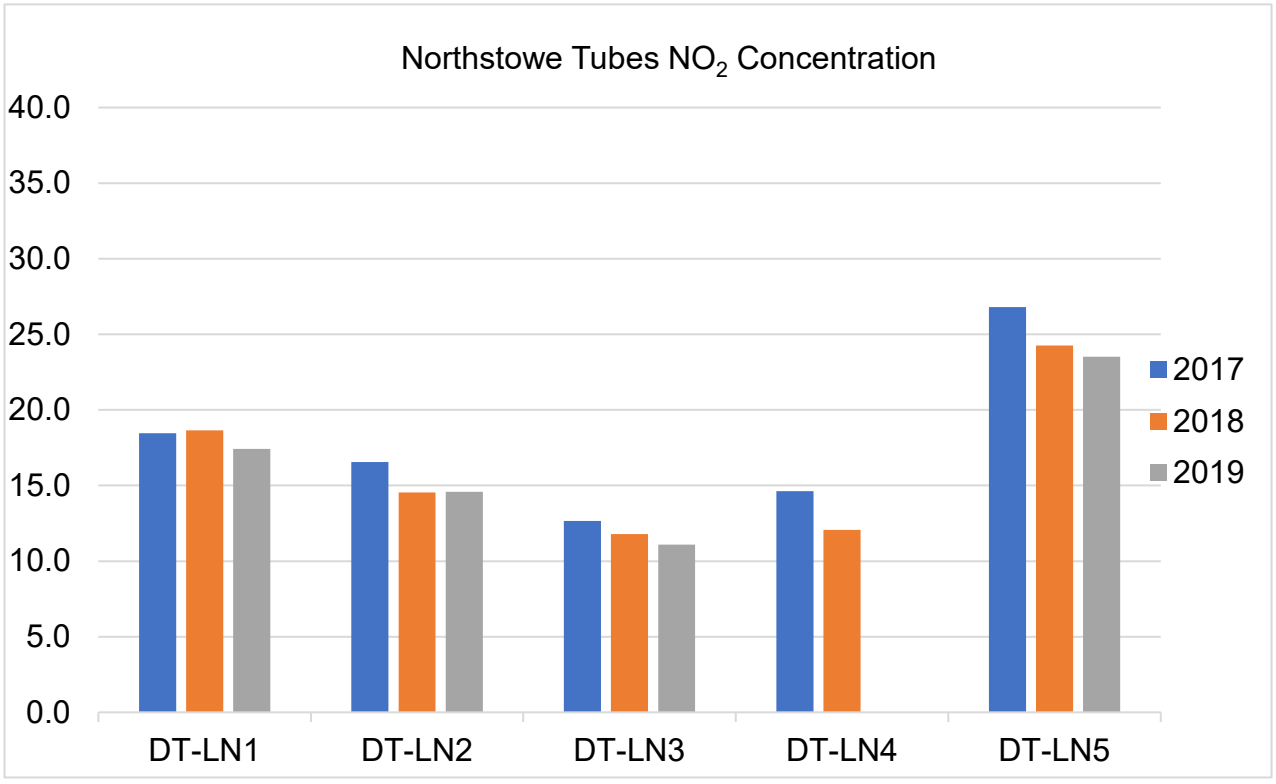


Table A.4 – 1-Hour Mean NO_2 Monitoring Results

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)	NO_2 1-Hour Means > 200µg/m^3 (3) – 2015	NO_2 1-Hour Means > 200µg/m^3 (3) – 2016	NO_2 1-Hour Means > 200µg/m^3 (3) – 2017	NO_2 1-Hour Means > 200µg/m^3 (3) – 2018	NO_2 1-Hour Means > 200µg/m^3 (3) – 2019
IMP	543739	261625	Roadside	Automatic	92	92	0	0	0	0	0
ORCH	544558	261579	Urban Background	Automatic	99	99	0	0	0	0	0
GIRT	542676	260667	Roadside	Automatic	99	99	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 - PM_{10} Annual Mean Concentration ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3) – 2015	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3) – 2016	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3) – 2017	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3) – 2018	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3) – 2019
IMP	543739	261625	Roadside	92	92	18	17	16	17	16
ORCH	544558	261579	Urban Background	97	97	16	16	14	14	14
GIRT	542676	260667	Roadside	97	97	11	17	17	17	17

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

Notes:

Exceedances of the PM_{10} annual mean objective of 40$\mu g/m^3$ 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

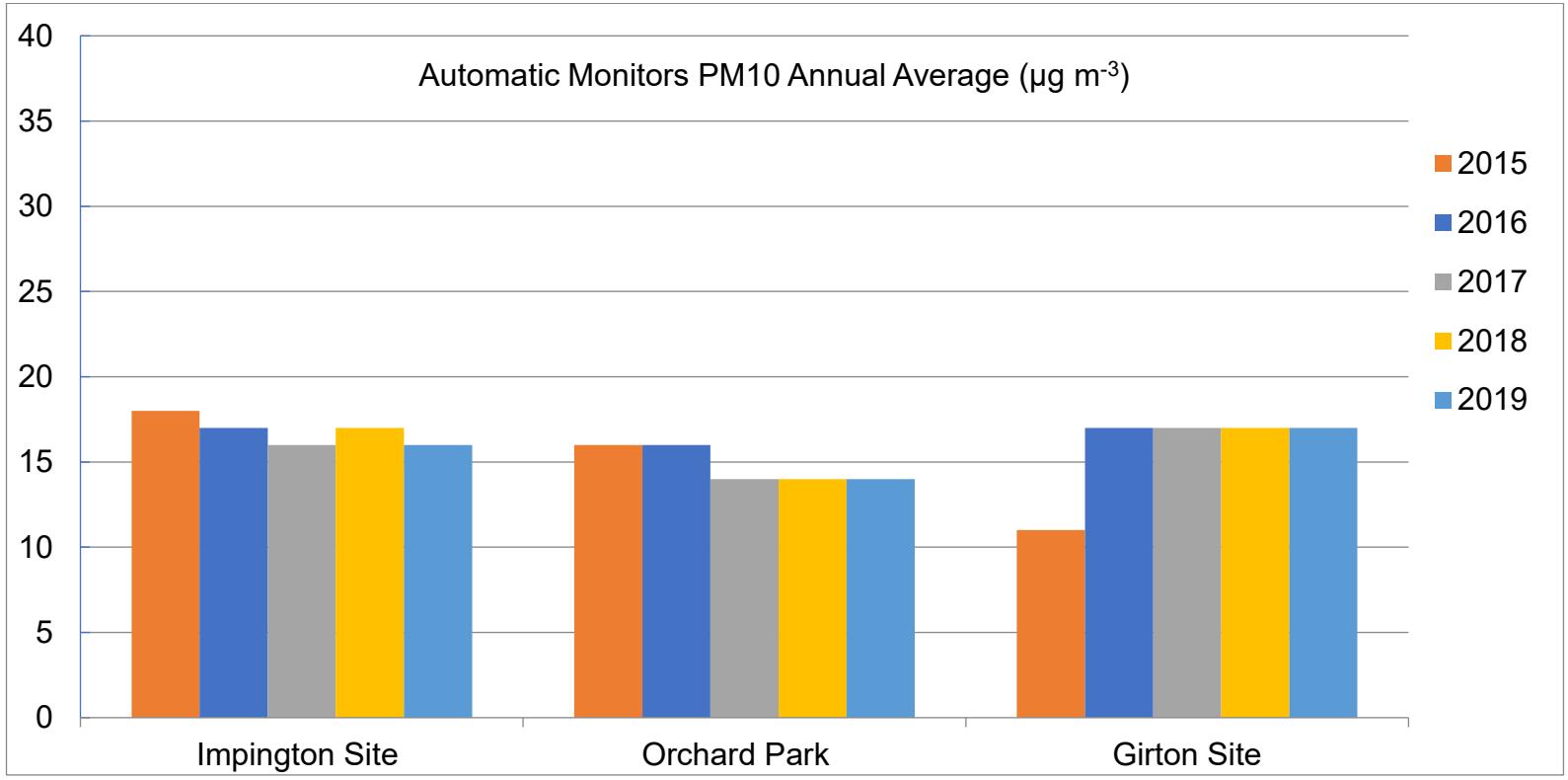


Table A.5 – 24-Hour Mean PM_{10} Monitoring Results

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)	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3) – 2015	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3) – 2016	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3) – 2017	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3) – 2018	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3) – 2019
IMP	543739	261625	Roadside	92	92	2	1	2	1	2
ORCH	544558	261579	Urban Background	97	97	1	1	1	1	1
GIRT	542676	260667	Roadside	97	97	1	1	1	1	3

Notes:

Exceedances of the PM_{10} 24-hour mean objective (50$\mu g/m^3$ 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.

Table A.6 – $PM_{2.5}$ 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)	PM_{10} 24-Hour Means > 50µg/m^3 (3) – 2015	PM_{10} 24-Hour Means > 50µg/m^3 (3) – 2016	PM_{10} 24-Hour Means > 50µg/m^3 (3) – 2017	2 PM_{10} 24-Hour Means > 50µg/m^3 (3) – 2018	PM_{10} 24-Hour Means > 50µg/m^3 (3) – 2019
GIRT	542676	260667	Roadside	98	98	11	13	11	11	11

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

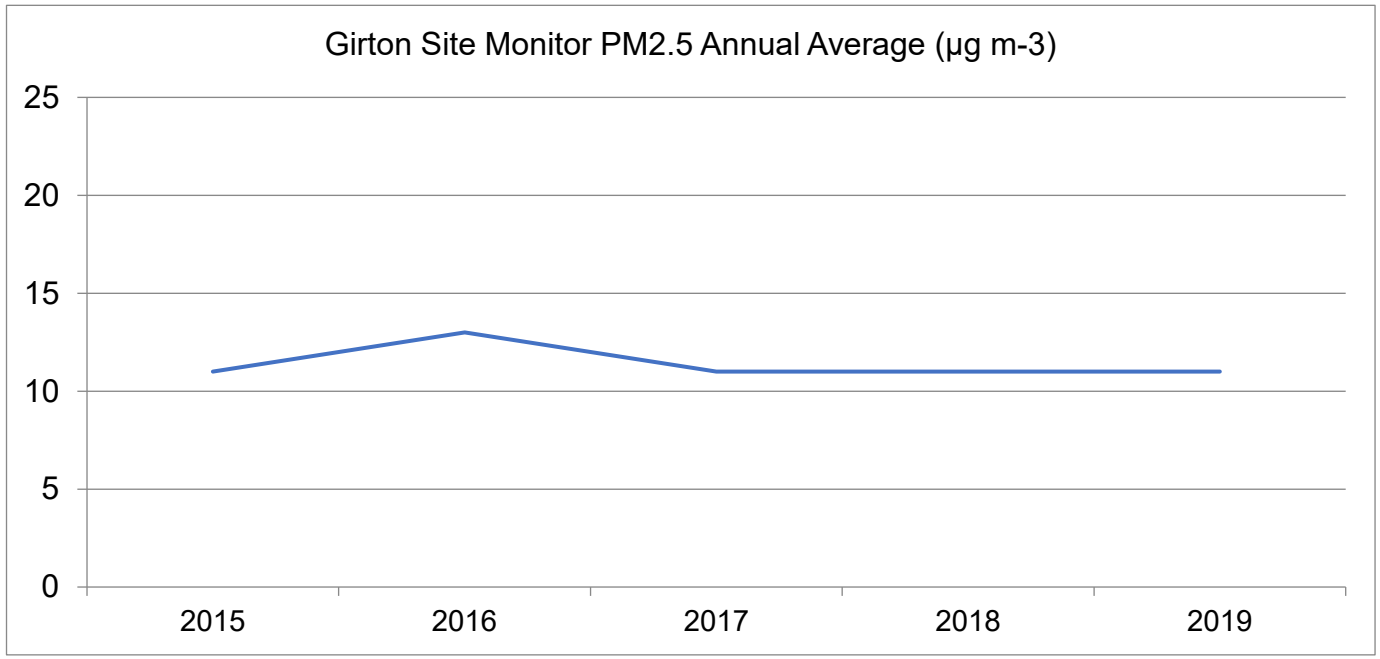
Notes:

(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.3 – 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)	NO_2 Mean Concentrations (µg/m^3)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean – Raw Data	Annual Mean – Bias Adjusted (0.75) and Annualised (1)	Annual Mean – Distance Corrected to Nearest Exposure (2)
DT1	544230	262048	24.5	24.7	-	15.2	13.4	13.3	14.7	14.1	19.4	22.5	31.6	22.3	19.6	14.7	-
DT2	543770	263678	**42.3**	**45.2**	-	32.3	29.3	-	29.2	29.8	31.0	33.3	**51.1**	39.7	36.3	27.2	-
DT4	548600	249136	**40.4**	36.3	-	28.4	25.5	24	22.9	20.9	27.1	33.7	**46.5**	30.9	30.6	23.0	-
DT5	538744	263640	1.7	-	-	33.6	20.3	17.8	15.3	9.2	15.6	20.4	27.5	16.7	17.8	13.4	-
DT-6N	555942	246680	31.8	35.8	-	26.1	20.7	-	-	21.8	22.4	28	38.4	26.5	27.9	21.0	-
DT7	528131	247399	17.1	19.1	-	11.1	7.5	7.6	7.8	10.6	10.5	15.2	23.9	18.5	13.5	10.2	-
DT-8N	542555	251001	29.4	27.5	-	22.3	15.5	-	15.9	14.7	17	22.2	14.7	24.8	20.4	15.3	-
DT9	547452	263175	31.6	28.8	-	16.9	12	12.8	14.3	13.4	16.2	23.1	31.8	26.3	20.7	15.5	-
DT10	542537	261467	33.7	33.2	-	24.4	20.6	20.4	18.7	20.7	-	-	-	31.4	25.4	19.0	-
DT11	544034	244585	25.5	40.1	-	-	24.4	23.4	23	28.4	27.2	36.2	**49**	22.4	30.0	22.5	-
DT12	544119	261862	27.5	29.1	-	20.5	13.2	13.9	14.2	14.7	-	25.1	35.5	23.7	21.7	16.3	-
DT13	543955	263588	27	31.6	-	19.8	12.1	15.2	13.3	13.1	19	25.5	36.2	25.8	21.7	16.3	-
DT14	544050	263306	**40.1**	38.5	-	24.1	25.9	24.6	20.5	20.2	22.3	27	**48.2**	35.9	29.8	22.3	-

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean – Raw Data	Annual Mean – Bias Adjusted (0.75) and Annualised (1)	Annual Mean – Distance Corrected to Nearest Exposure (2)
DT15	544243	261819	30.6	29.7	-	23.4	15.7	18.2	27.5	18.9	21.8	27.3	36.1	22.6	24.7	18.5	-
DT17	548545	249366	25.1	25	-	17.7	12.6	12	12.3	11.1	15.1	20.4	31.2	19.6	18.4	13.8	-
DT20	544828	261738	1.7	29.7	-	23.3	15.9	15.6	14.4	13.3	18.9	25.2	32.2	25.5	19.6	14.7	-
DT21	545056	261784	30.1	26.6	-	22.1	14.5	13.7	12.7	12.2	16.7	24.6	37.3	-	21.1	15.8	-
DT22	545435	261906	31.7	26	-	25.4	16.5	8.1	14.8	11.9	16.5	23.3	36.1	23.2	21.2	15.9	-
DT26	543768	263708	9.5	29.3	-	25.1	18.8	20.4	19.8	15.5	21.2	26.2	37.2	27.2	22.7	17.1	-
DT27	545259	261873	24.9	28.5	-	24.5	18.6	17.7	16.4	11.8	20	25.2	34.8	23.9	22.4	16.8	-
DT28	545169	261764	34.3	-	-	20.9	15.9	16.6	15.7	13.6	17.6	25.9	35.8	25.9	22.2	16.7	-
DT29	552961	249251	22	17.2	-	12.6	10.3	13.8	8.5	8.9	10.6	14.9	24.2	16.5	14.5	10.9	-
DT-28N	547436	262295	**44.6**	**45.6**	-	19	19.6	20.8	20.7	26.4	23.4	35.6	**42**	38.9	30.6	23.0	-
DT-32N	548742	264698	35.9	34.7	-	23.2	24	22.6	21.9	22.6	25.9	31	42.2	32.5	28.8	21.6	-
DT-LN1	539847	268169	-	30.7	24.1	25.5	17	19.8	20.2	17.8	21.2	26.8	29.1	-	23.2	17.4	-
DT-LN2	539570	266842	-	28.3	19.5	16.8	-	13.1	13.7	14.2	16.8	23.6	29.1	-	19.5	14.6	-
DT-LN3	540553	266869	-	18.1	16.8	12.7	9.6	9.8	10.1	14.3	11.8	18.5	26.3	-	14.8	11.1	-
DT-LN4	540963	264474	-	22.4	17.9	14.5	9.7	10.2	10.6	10.3	13.2	-	-	-	13.6	10.2	-
DT-LN5a	539614	267484	-	18.2	25.2	33.3	34.3	30.6	34.3	32.5	28.1	32.4	35.1	-	30.4	22.8	-

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations ($\mu g/m^3$)													
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean – Raw Data	Annual Mean – Bias Adjusted (0.75) and Annualised (1)	Annual Mean – Distance Corrected to Nearest Exposure (2)
DT-LN5b	539614	267484	-	27.1	30	31.4	33.4	32.6	34	32.4	29.5	30.9	38.9	-	32.0	24.0	-
DT-LN5c	539614	267484	-	27.6	31.5	31.9	32	30.2	33.3	28.8	26.7	32.5	42.1	-	31.7	23.7	-

☐ National bias adjustment factor used ☒ Annualisation has been conducted where data capture is <75%

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

Automatic Monitoring

South Cambridgeshire District Council is a member of the Calibration Club, operated by AEAT now Ricardo – AEA. All NO_x analysers are chemiluminescence analysers. All particulate matter analysers are BAMs. In line with current guidance, BAM data is multiplied by 1.3 to give the gravimetric equivalent. QA / QC of automatic monitoring data is carried out by Ricardo – AEA. Tri-annual audits of the monitoring stations are carried out by Ricardo. Services of all the three AQ monitoring stations i.e. Impington, Girton and Orchard Park are carried out bi-annually by the equipment suppliers; Enviro – Technology. The sites are manually calibrated on a monthly basis by the Local Site Operative. The output from the calibrations is forwarded to Ricardo – AEA for QA / QC and ratification purposes.

Non-Automatic Monitoring

NO_2 monitoring was undertaken at 27 sites within the district using passive diffusion tubes. The samples have been analysed in accordance with SOCOTEC's standard operating procedure ANU / SOP / 1015. This method meets the guidelines set out in DEFRA's 'Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance.' The tubes were prepared by spiking acetone:triethanolamine (50:50) onto the grids prior to the tubes being assembled. The tubes were desorbed with distilled water and the extract analysed using a segmented flow autoanalyser with ultraviolet detection. Please note:

(i) As set out in the practical guidance, the results were initially calculated assuming an ambient temperature of 11^{oC}, the reported values have been adjusted to 20^{oC} to allow for direct comparison with EU limits.

(ii) The reported results have not been bias adjusted.

This analysis of diffusion tube samples to determine the amount of nitrogen dioxide present on the tube is within the scope of our UKAS schedule. Any further calculations and assessments requiring exposure details and conditions fall outside the scope of our accreditation. In the AIR PT intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, SOCOTEC currently holds the highest rank of a Satisfactory laboratory.

A national bias adjustment factor of **0.75** has been applied to the 2019 diffusion tube results. Data capture for all tube results was sufficient as to not warrant annualisation.

National Bias Adjustment Factor

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:

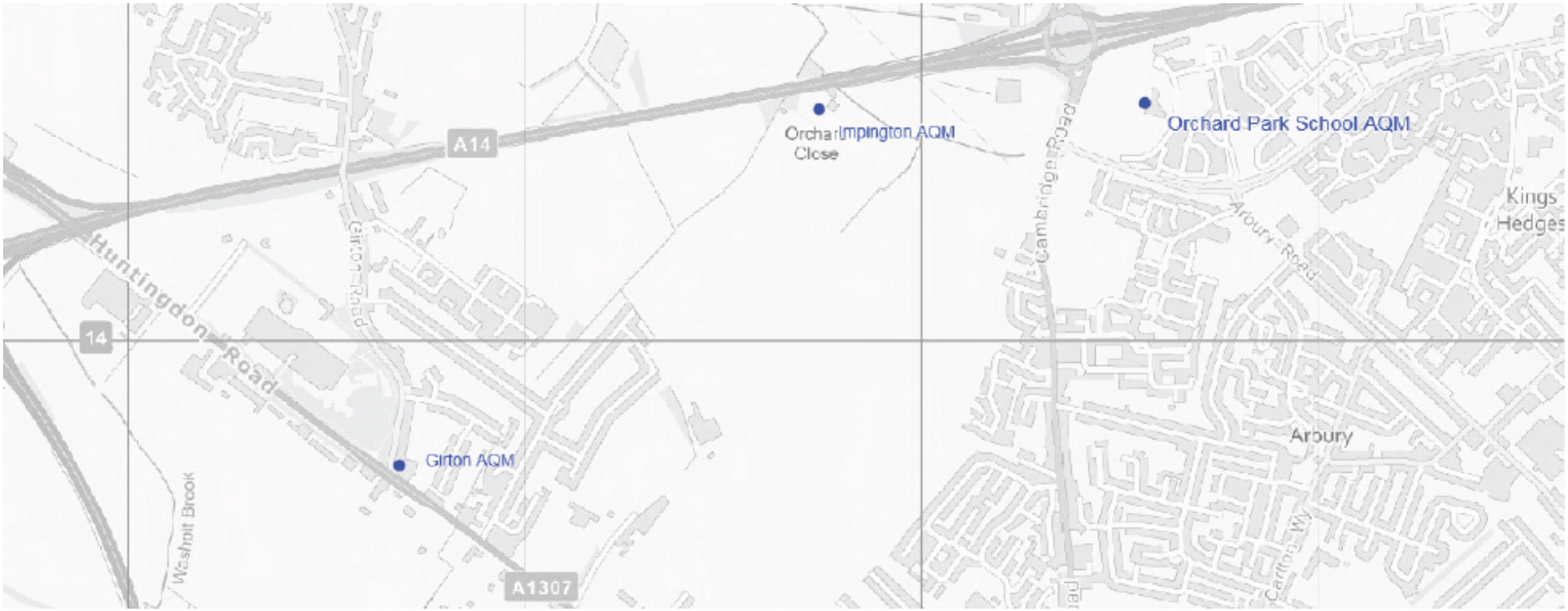
Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

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

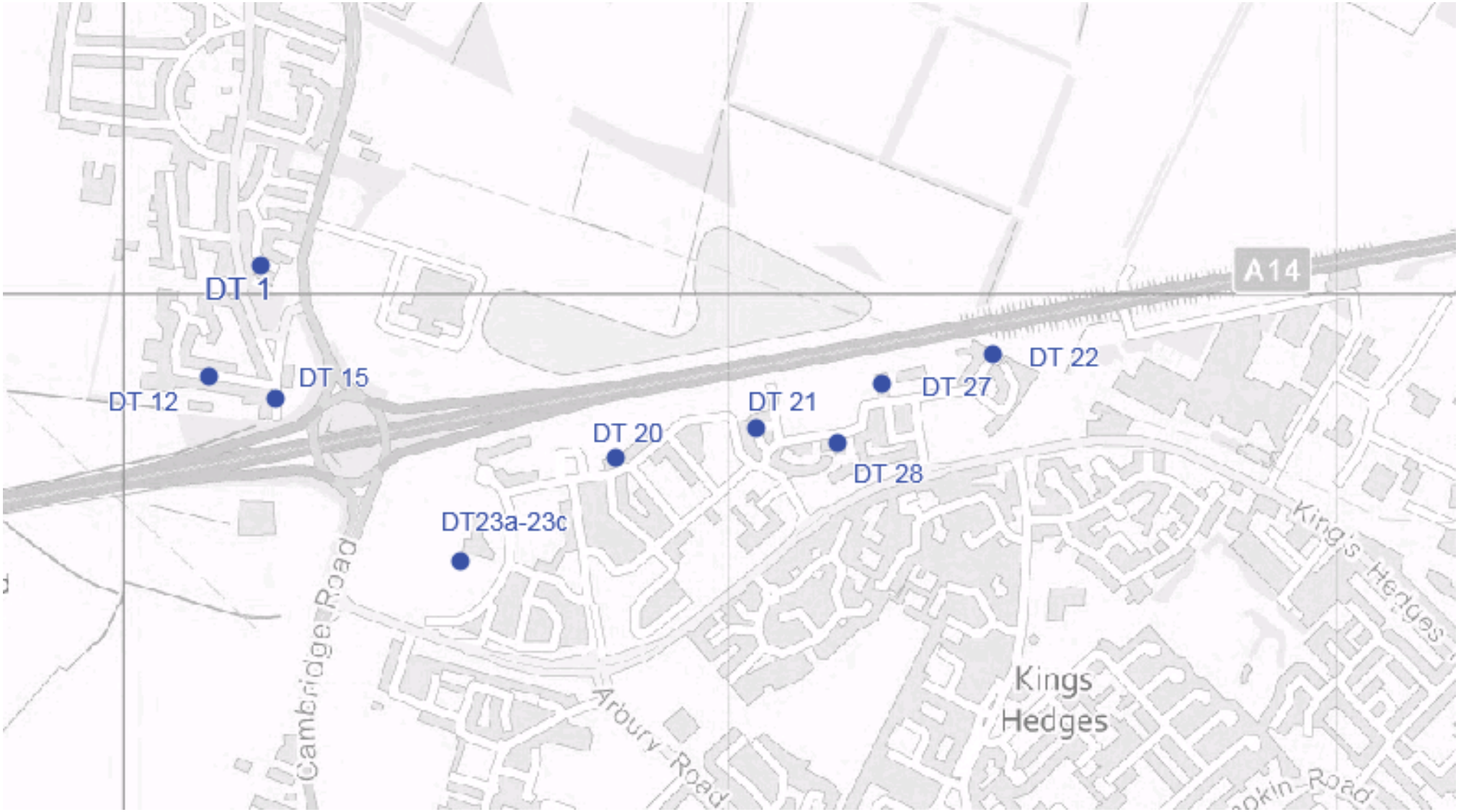
Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[5] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Socotec Didcot	50% TEA in acetone	2019	UB	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**

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

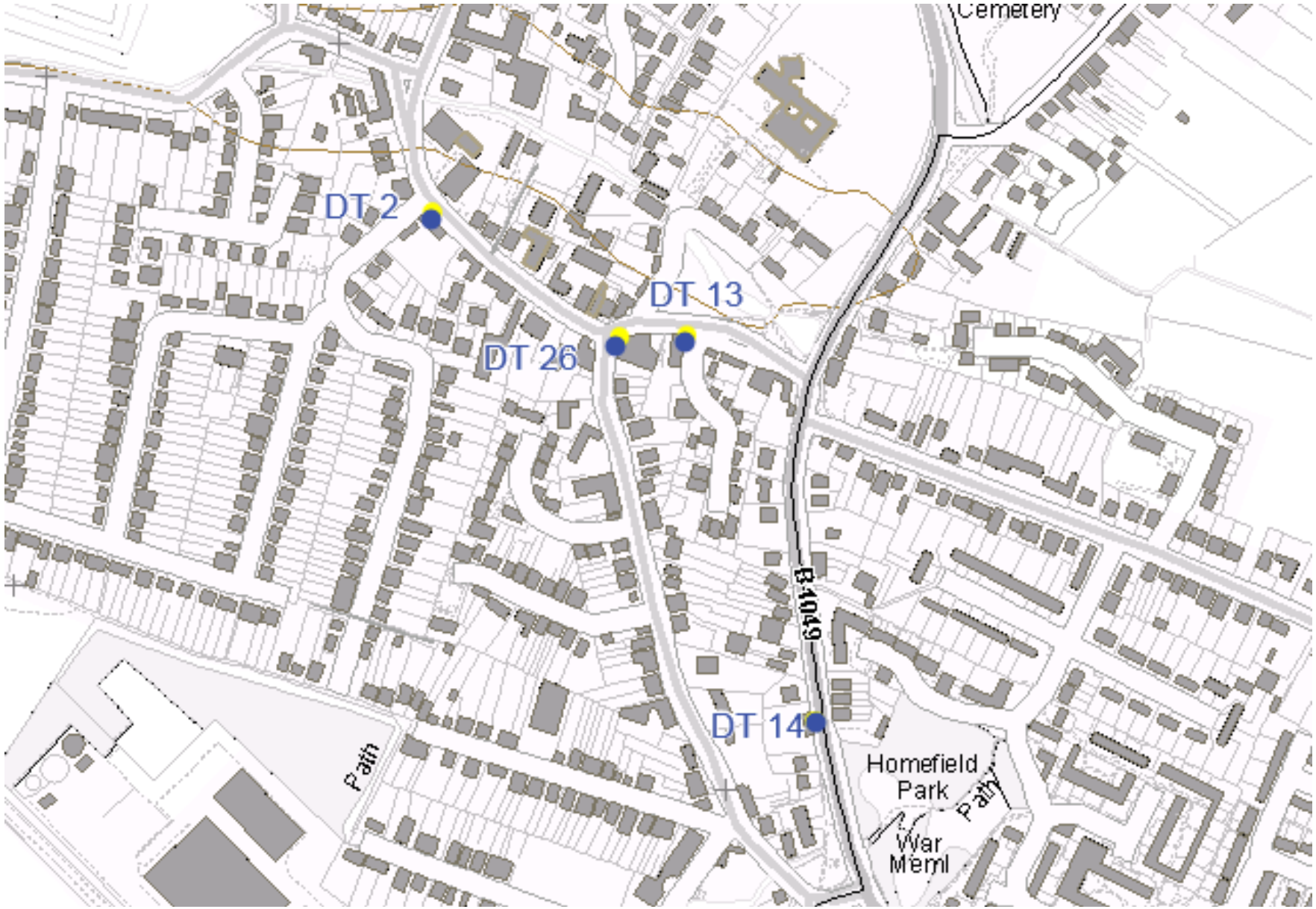
a) Automatic Monitoring Stations Location



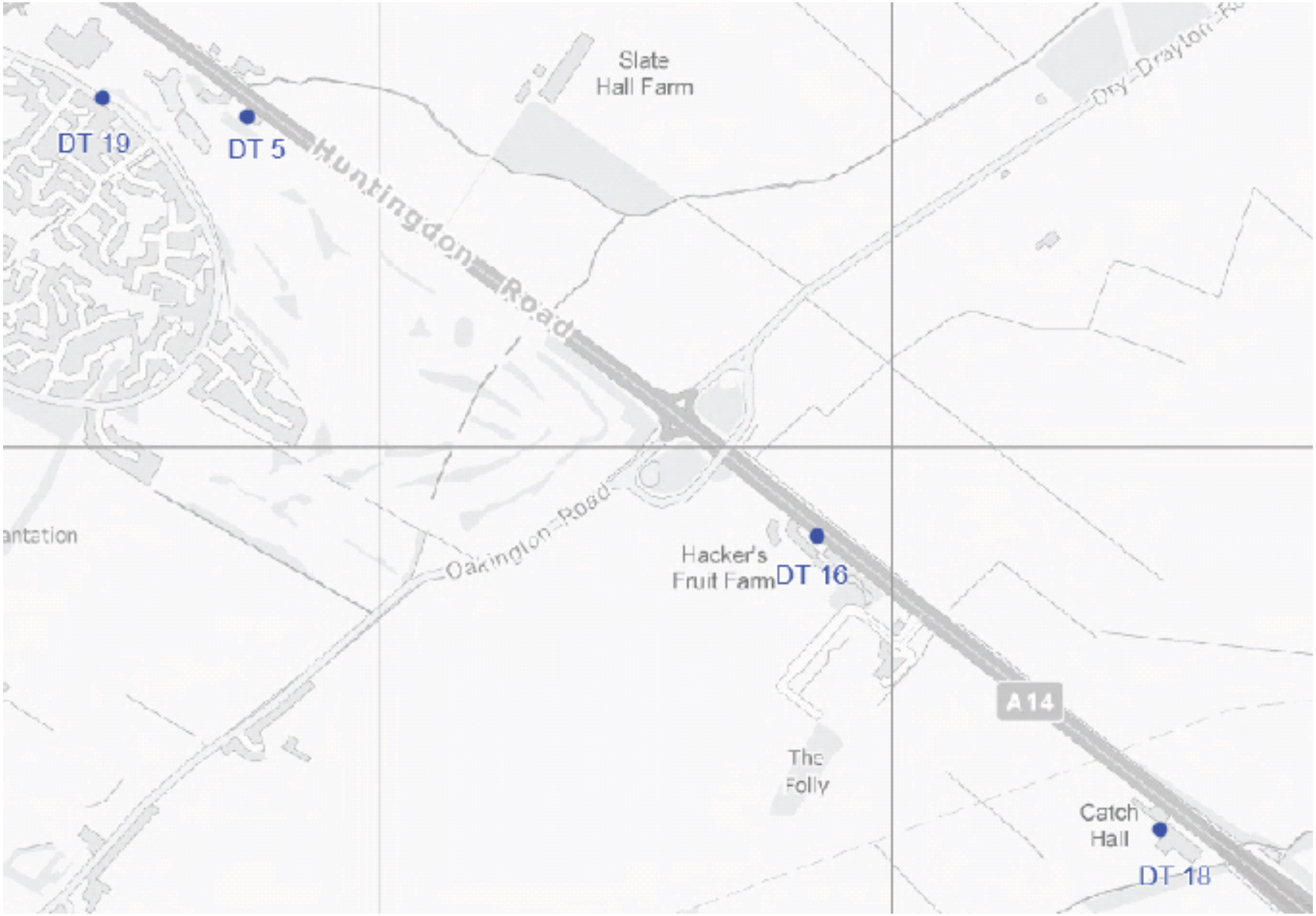
b) Tubes Locations – Orchard Park and Impington



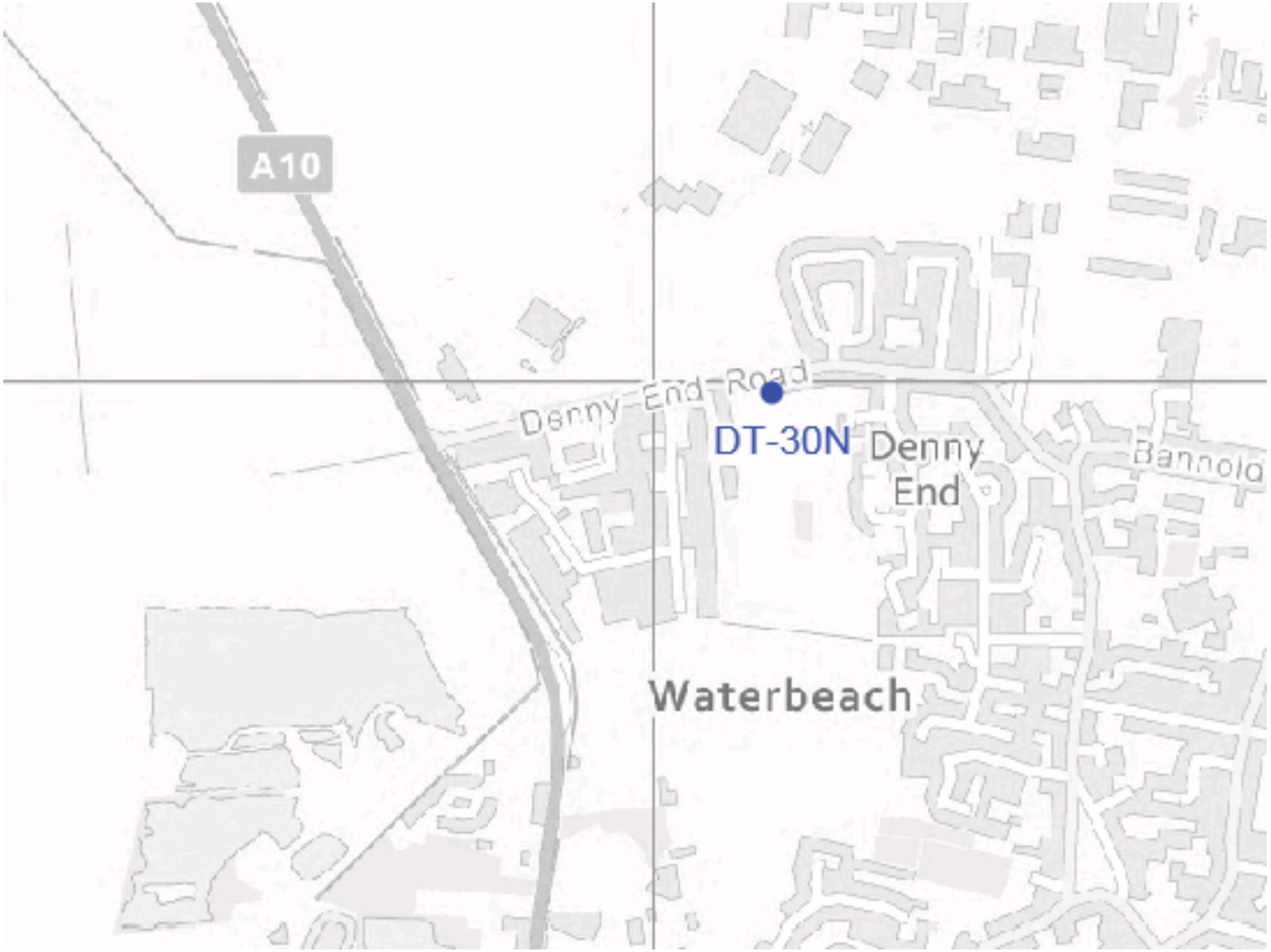
Tubes Locations – Histon

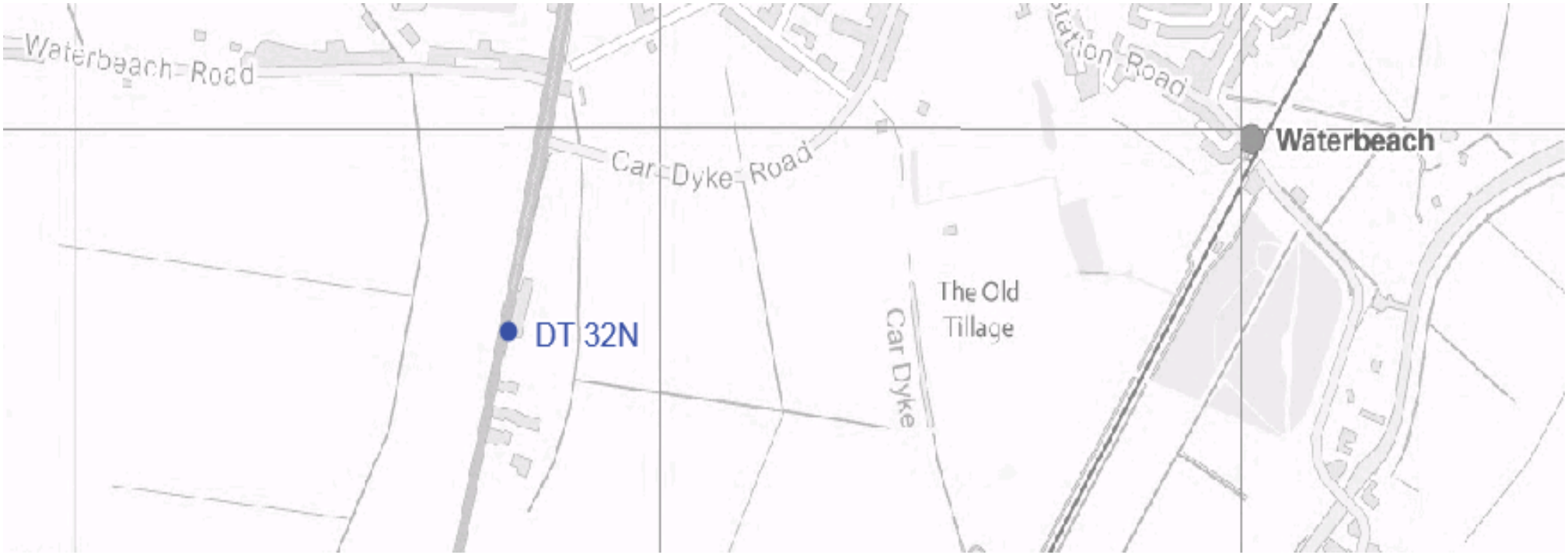


Tubes Locations – Bar Hill & A14



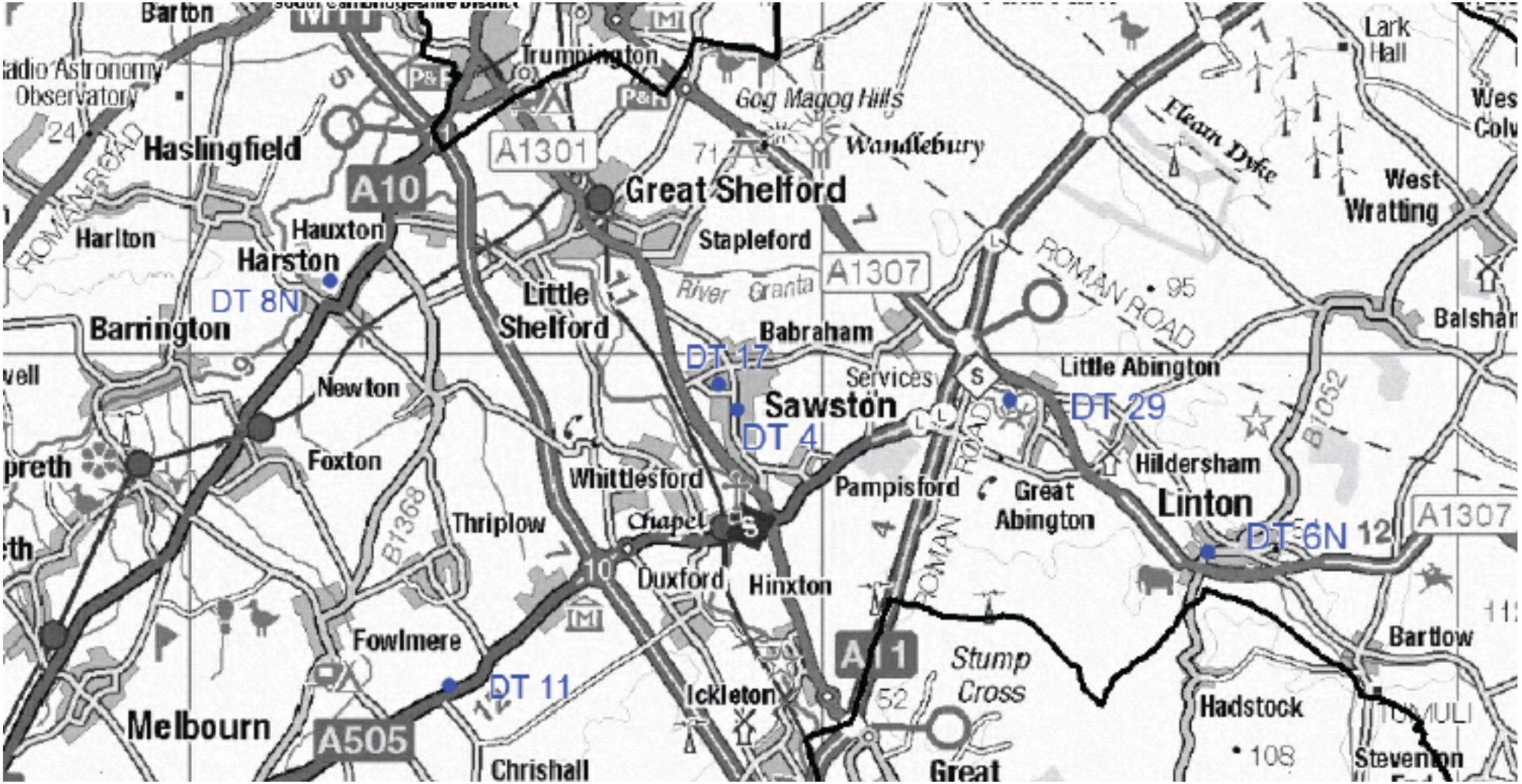
Tubes Locations – Waterbeach & A10



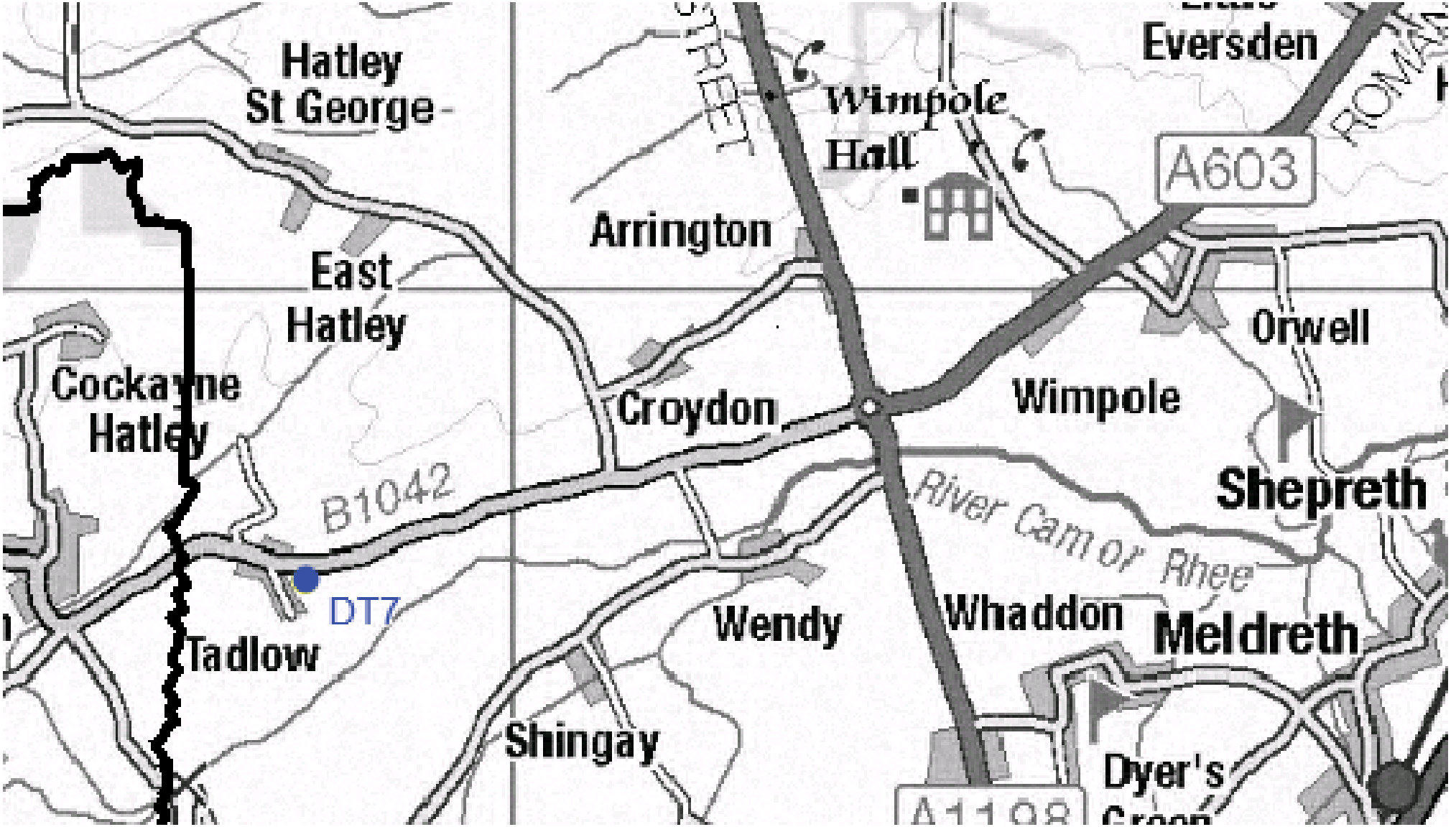

Waterbeach Road
Car Dyke Road
Station Road
Waterbeach
DT 32N
The Old
Tillage
Car Dyke

Tubes Locations – Milton

Tubes Locations – South of District



Tubes Locations – Tadlow



Tubes Locations – Northstowe

Tubes Locations – Northstowe

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[17] – Concentration	Air Quality Objective[17] – Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO_2)	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM_{10})	40 µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO_2)	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO_2)	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan – A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
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
LAQM	Local Air Quality Management
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

References

- The Local Air Quality Management, Policy Guidance LAQM. PG (16) (2016)
- The Local Air Quality Management, Technical Guidance LAQM. TG (16) (2016)
- Cambridgeshire County Council – The Local transport Plan 3 (2011 – 2031)
- Air Quality Regulations 2000 and (Amendment) regulations 2002
- Air Quality Action Plan for the Cambridgeshire Growth Areas (2010)
- Deriving NO_2 from NO_x for Air Quality Assessments of Roads – Updated to 2006
- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2000)
- The SCDC Detailed Assessment of Nitrogen Dioxide along the A14 Corridor (2006)
- The SCDC Detailed Assessment of PM_{10} along the A14 Corridor (2008)
- The SCDC Further Assessment of NO_2 and PM_{10} along the A14 Corridor (2008)