



2017 Air Quality Annual Status Report (ASR)

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

February, 2018

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Executive Summary

Air Quality in Our Area:

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and take account of Government guidance when undertaking such work.

The Annual Status Report (ASR) has been undertaken in accordance with technical guidance note LAQM.TG(09) and the web based ASR template on the Review and Assessment Report Submission Website.

Air Quality in Daventry 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.

In the Daventry area there are currently no air quality issues which require intervention under guidance. The main pollutant of concern within this district (NO₂) arises from traffic sources. There are no Air Quality Management Areas declared, nor is it intended that any will be declared in the near future based on recent monitoring data.

This Annual Status Report has concluded that Daventry District Council is not required to carry out a Detailed Review and Assessment for carbon monoxide, benzene, 1,3-butadiene, lead, nitrogen dioxide, PM₁₀ or Sulphur dioxide at the current time.

The recent Updated Screening Assessment 2015 was completed in March 2016. The data for NO₂ monitoring results in the vicinity of the M1 (the data included results to the end of 2014) concluded that there was no exceedance of the annual average at points representative of relevant exposure. Therefore no detailed assessments were recommended in the report.

The collective monitoring data for NO₂ across the district from the years 2012 to date has been scrutinised and it appears that overall there are very minor increases and decreases being noted throughout the district over the five year period. None of the increases or decreases are of a significant nature and are therefore no cause for concern when considered individually. There is a significant decrease in levels recorded at the background monitor N12, alongside the M1 at Lilbourne, however there is no obvious cause for this decrease.

Previously kerbside monitoring sites close to the M1 have shown slight exceedances, however these are now within acceptable limits. Only one location in Daventry District exceeds the annual average limits and this is alongside the M1 at Lilbourne, but there are no appropriate receptors that exceed the annual average. A recent change in monitoring location means that additional residential properties close to this location are now being scrutinised and will be reviewed in this and future reports to check that levels have decreased appropriately by the time receptors are introduced.

It is therefore not necessary to proceed to a detailed assessment for NO₂ in Daventry district, however diffusion tube monitoring throughout the district will continue and due regard will be given to the data obtained in relation to sensitive receptors.

All of the monitoring locations are periodically reviewed, but it is not felt that changes are necessary at the current time, this will be reviewed as part of the next assessment report.

Actions to Improve Air Quality:

Due to the fact that there are no areas of concern in relation to air quality within the district at the current time, no particular sources of pollution have been targeted.

Local Priorities and Challenges:

Due to the fact that there are no recognised exceedances within the district, air quality has not been a high priority for the Council historically. Changes due to

legislation and the likely focus on improving air quality regardless of declaration of AQMA will mean that this becomes more of a focus for the Council moving forward.

There will be challenges in respect of funding and resource allocation to be overcome should we determine that additional work is required in this area. Political support would be obtained through clear discussion on the issues and legislative changes.

How to Get Involved:

Members of the public within Daventry District have access to a reasonable cycle network and the bus service provided by local operators allows fairly easy access to other towns and villages in the locality.

The Council is currently working towards a health and well-being strategy that on a longer term basis will encourage members of the public to become involved in initiatives such as car sharing and encouraging use of open spaces for exercise and walking.

There are currently four electric vehicle charge points available in and around the Council car parks which are available free of charge to encourage members of the public to utilise cleaner technology. There are ongoing discussions about expanding the number of points provided, with another two points identified for inclusion in the Council car park. Discussions are ongoing with policy and planning teams to consider the viability of installing further points across the wider district as part of the planning process.

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1 Local Air Quality Management

This report provides an overview of air quality in Daventry District Council during 2016. 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 Daventry 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.

Daventry District Council currently does not have any AQMA's and it is not intended to declare any in the coming year.

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.

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

- Planning conditions are imposed on planning consents requiring the submission and approval of construction/demolition management plans where the development is likely to generate dust near to an existing residential area – the schemes must dust and mud control such as damping down road areas, proactively planning mitigation measures in response to weather forecasts and proactively carrying out site inspections regularly to assess if further mitigation is needed in response to local conditions. In addition, the Environmental Health team actively engage with developers in the event of complaints to ensure that the required standard of dust/mud control is on place, taking enforcement action where necessary;
- The Council has no smoke control zones, however, when enquires are received regarding the installation of wood burners, the Environmental Health Team encourage the use of smokeless fuels or approved appliances that burn smokeless;
- The Environmental Health team actively responds to complaints about the burning of waste, dust/mud from construction sites etc. and takes steps where necessary through enforcement to ensure that there is an adequate level of dust control. This will reduce the generation of PM_{2.5}; We will also work with the Environment Agency where complaints allege waste is being burnt
- Taxi licensing – Hackney cabs and private hire vehicles are restricted by an age policy that requires vehicles to be less than 4 years old at first licence. Thereafter vehicles will only be licenced if they can prove compliance with an

increasingly tough testing regime. It is estimated 5% of taxi provision within the district are hybrid vehicles.

- Environmental Permitting – installations such as incinerators and the crematorium are inspected regularly to ensure that they are compliant with permit conditions that require the control and abatement of total particulate matter to the atmosphere;
- Local highways and roads are wet swept as part of a proactive maintenance scheme to reduce the amount of dust build up that could become mobile in warmer weather.
- Discussions with planning and policy colleagues are ongoing to ensure that Air Quality measures are included in Local Plans and Local Requirements where appropriate.

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

Daventry District Council do not currently operate any automatic monitoring stations and there are no plans to do so in the near future.

3.1.2 Non-Automatic Monitoring Sites

Daventry District Council undertook non- automatic (passive) monitoring of NO₂ at 26 sites during 2016. Table A.1 – 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)
N1	A361, Byfield	Roadside	451734	253421	NO ₂	N	15	1	N	3
N2	Boughton Road, Moulton	Kerbside	476848	265802	NO ₂	N	25	1	N	2.5
N3	A361 Kilsby	Roadside	456213	270717	NO ₂	N	No exposure	1	N	2.5
N4	A428 roundabout, West Haddon	Roadside	462960	271794	NO ₂	N	5	1	N	2.5
N5	Park View, Moulton	K	479378	266384	NO ₂	N	35	1	N	2.5
N6	Morrison Road, West	Suburban/	463424	272119	NO ₂	N	10	5	N	2.5

Daventry District Council

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)
	Haddon									
N7	Post Office, Moulton	R	478300	266200	NO ₂	N	5	1	N	2.5
N8	Church St, Moulton	S/R	478382	266386	NO ₂	N	1	5	N	2.5
N9	New Street, Daventry	R	457420	262439	NO ₂	N	100	1	N	3.5
N10	London Road, Daventry	R	457592	261745	NO ₂	N	25	1	N	3
N11	Watling St, Kilsby	K	456407	271205	NO ₂	N	No exposure	1	N	3
N12	M1, Lilbourne	R	456572	276826	NO ₂	N	No exposure	1	N	2
N13	Yelvertoft Road, Lilbourne	R	456461	276872	NO ₂	N	5	1	N	2.5
N14	Haythog Farm, Crick	R	457573	273884	NO ₂	N	No exposure	N/A	N	2.5
N15	Hillmorton Lane, Lilbourne	S/R	455422	275971	NO ₂	N	No exposure	1	N	2
N1	Haythog Farmhouse	S/R	45767	27388	NO ₂	N	1	N/A	N	2

Daventry District Council

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)
6			3	4						
N17	Long Buckby Station	K	462354	266701	NO ₂	N	No exposure	1	N	3
N18	Long Buckby Wharf	S/R	461358	265469	NO ₂	N	10	1	N	2
N19	William Road, Long Buckby	k	462688	267426	NO ₂	N	10	1	N	2
N20	A5, Weedon	K	463170	259931	NO ₂	N	25	1	N	2.5
N21	A45, Weedon	R	462862	259867	NO ₂	N	10	5	N	2
N22	A45, Flore	R	464353	260282	NO ₂	N	5	5	N	2.5
N23	Welton Road, Daventry	K	457690	264473	NO ₂	N	5	1	N	2
N24	A361, Middlemore, Daventry	K	456817	265197	NO ₂	N	25	1	N	2.5
N25	Ashby Road, Daventry	K	457067	263051	NO ₂	N	5	1	N	2.5
N26	Braunston Road, Daventry	K	456477	262953	NO ₂	N	5	1	N	2.5

- (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.

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 (NO₂)

Table A.1 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

For diffusion tubes, the full 2016 dataset of monthly mean values is provided in Appendix B.

The site which shows the highest annual readings relates to background monitoring undertaken at the side of the M1 at the point where it passes closest to receptors (location N12). A further monitoring tube (N16) is located directly outside the nearest residential property and this demonstrates that there is a sufficient reduction of NO₂ by the time it reaches that property to ensure compliance with annual objectives.

Appendix A: Monitoring Results

Table A.1 – 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)
N1	A361, Byfield	Roadside	451734	253421	NO ₂	N	15	1	N	3
N2	Boughton Road, Moulton	Kerbside	476848	265802	NO ₂	N	25	1	N	2.5
N3	A361 Kilsby	Roadside	456213	270717	NO ₂	N	No exposure	1	N	2.5
N4	A428 roundabout, West Haddon	Roadside	462960	271794	NO ₂	N	5	1	N	2.5
N5	Park View, Moulton	K	479378	266384	NO ₂	N	35	1	N	2.5
N6	Morrison Road, West Haddon	Suburban/	463424	272119	NO ₂	N	10	5	N	2.5
N7	Post Office, Moulton	R	478300	266200	NO ₂	N	5	1	N	2.5
N8	Church St, Moulton	S/R	478382	266386	NO ₂	N	1	5	N	2.5
N9	New Street, Daventry	R	457420	262439	NO ₂	N	100	1	N	3.5

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)
N10	London Road, Daventry	R	457592	261745	NO ₂	N	25	1	N	3
N11	Watling St, Kilsby	K	456407	271205	NO ₂	N	No exposure	1	N	3
N12	M1, Lilbourne	R	456572	276826	NO ₂	N	No exposure	1	N	2
N13	Yelvertoft Road, Lilbourne	R	456461	276872	NO ₂	N	5	1	N	2.5
N14	Haythog Farm, Crick	R	457573	273884	NO ₂	N	No exposure	N/A	N	2.5
N15	Hillmorton Lane, Lilbourne	S/R	455422	275971	NO ₂	N	No exposure	1	N	2
N16	Haythog Farmhouse	S/R	457673	273884	NO ₂	N	1	N/A	N	2
N17	Long Buckby Station	K	462354	266701	NO ₂	N	No exposure	1	N	3
N18	Long Buckby Wharf	S/R	461358	265469	NO ₂	N	10	1	N	2
N19	William Road, Long Buckby	k	462688	267426	NO ₂	N	10	1	N	2
N20	A5, Weedon	K	463170	259931	NO ₂	N	25	1	N	2.5

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)
N21	A45, Weedon	R	462862	259867	NO ₂	N	10	5	N	2
N22	A45, Flore	R	464353	260282	NO ₂	N	5	5	N	2.5
N23	Welton Road, Daventry	K	457690	264473	NO ₂	N	5	1	N	2
N24	A361, Middlemore, Daventry	K	456817	265197	NO ₂	N	25	1	N	2.5
N25	Ashby Road, Daventry	K	457067	263051	NO ₂	N	5	1	N	2.5
N26	Braunston Road, Daventry	K	456477	262953	NO ₂	N	5	1	N	2.5

(3) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(4) N/A if not applicable.

Table A.1 – Annual Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2015 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2012	2013	2014	2015	2016
N1	Roadside	Diffusion Tube	100	100	19.78	17.46	19.27	18.39	19.77
N2	Kerbside	Diffusion Tube	100	100	N/A	N/A	18.55	18.72	20.42
N3	Roadside	Diffusion Tube	100	100	25.09	22.94	25.35	24.61	26.00
N4	Roadside	Diffusion Tube	100	100	21.93	16.52	20.52	19.30	20.82
N5	Kerbside	Diffusion Tube	100	100	N/A	22.64	26.17	25.93	26.45
N6	Rural	Diffusion Tube	100	100	16.52	13.06	14.73	13.23	15.23
N7	Roadside	Diffusion Tube	100	100	25.42	21.56	24.93	21.99	23.82
N8	Suburban/Rural	Diffusion Tube	100	100	16.66	14.56	16.36	15.38	17.43
N9	Roadside	Diffusion Tube	100	100	22.81	24.54	23.89	29.29	29.99
N10	Roadside	Diffusion Tube	100	92	19.27	17.24	18.73	16.14	18.83
N11	Kerbside	Diffusion Tube	100	100	N/A	29.33	38.09	35.79	35.29
N12	Roadside	Diffusion Tube	100	100	67.45	75.77	60.55	54.52	47.24
N13	Suburban/Rural	Diffusion Tube	100	100	N/A	N/A	28.32	24.87	26.17
N14	Roadside	Diffusion Tube	100	100	35.12	32.22	31.74	31.02	31.57
N15	Rural	Diffusion Tube	100	100	N/A	30.48	28.61	28.26	28.56
N16	Suburban/Rural	Diffusion Tube	100	100	29.57	24.90	27.55	23.63	24.74
N17	Kerbside	Diffusion Tube	100	92	N/A	17.28	22.16	21.80	20.94
N18	Suburban/Rural	Diffusion Tube	100	100	25.60	23.42	25.54	24.98	25.94
N19	Kerbside	Diffusion Tube	100	100	N/A	14.70	20.59	19.37	20.43
N20	Kerbside	Diffusion Tube	100	100	N/A	22.70	27.54	27.67	27.68
N21	Roadside	Diffusion Tube	100	100	18.55	16.34	17.81	16.97	18.59
N22	Roadside	Diffusion Tube	100	92	18.61	22.43	17.77	15.49	17.23
N23	Roadside	Diffusion Tube	100	100	N/A	16.89	21.01	21.08	21.79
N24	Kerbside	Diffusion Tube	100	100	N/A	23.29	23.90	23.30	26.88
N25	Kerbside	Diffusion Tube	100	100	N/A	22.90	19.88	20.12	19.27
N26	Kerbside	Diffusion Tube	100	92	N/A	20.65	25.60	24.33	24.25

- Diffusion tube data has been bias corrected
- If applicable, all data has been distance corrected

Notes:

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

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

(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.

Appendix B: Full Monthly Diffusion Tube Results for 2016

Table B.1 – NO₂ Monthly Diffusion Tube Results - 2016

Site ID	NO ₂ Mean Concentrations (µg/m ³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure
N1	18.78	22.86	19.53	21.54	20.29	17.63	16.08	17.54	22.67	27.43	27.24	26.29	21.49	19.77	13.8
N2	34.65	23.71	16.90	18.48	12.62	16.31	13.07	15.87	22.92	21.98	34.84	34.97	22.19	20.41	12.9
N3	28.85	32.24	29.17	24.60	21.88	22.60	19.50	24.45	28.69	34.21	35.44	37.49	28.26	25.99	N/a
N4	27.81	22.85	19.56	21.05	15.99	16.16	15.84	17.75	20.85	26.82	32.06	34.87	22.63	20.82	16.9
N5	31.39	26.94	28.83	24.93	24.11	27.24	21.50	27.68	16.55	33.62	44.88	41.29	28.75	26.44	12.3
N6	20.66	19.31	11.45	13.90	9.53	10.09	10.59	12.29	15.32	20.67	24.38	28.45	16.56	15.23	13.9
N7	29.95	26.94	21.89	23.13	17.98	21.47	19.16	23.82	26.76	30.84	31.21	37.52	25.89	23.81	19.0
N8	22.21	17.97	16.17	14.68	10.18	13.02	11.60	14.59	31.20	20.07	26.36	29.31	18.95	17.43	14.7
N9	31.77	32.07	27.12	27.76	23.56	29.73	27.98	30.80	35.79	38.92	37.30	48.43	32.60	29.99	13.3
N10	22.10	23.69	17.48	19.99	14.96	12.01	10.43	17.52	N/A	26.93	28.19	31.85	20.47	18.82	12.4
N11	31.61	39.13	34.25	32.47	41.30	32.35	29.67	32.19	42.85	44.10	50.10	50.31	38.36	35.29	N/a
N12	47.51	69.30	51.22	55.29	62.84	35.91	25.75	41.18	54.37	56.74	60.31	55.70	51.34	47.23	N/a
N13	23.62	28.15	24.99	31.34	39.05	22.07	15.14	21.61	32.46	35.78	33.92	33.20	28.44	26.16	20.5
N14	46.57	33.99	35.16	29.51	22.99	34.86	34.91	32.08	26.30	34.19	39.20	42.01	34.31	31.56	N/a
N15	33.62	30.57	25.37	26.66	26.32	29.94	26.82	28.89	32.74	32.98	36.06	42.53	31.04	28.55	13.0
N16	38.45	28.73	27.28	25.53	15.62	23.87	26.53	24.83	22.93	26.36	27.41	35.14	26.89	24.73	N/a
N17	30.51	25.62	21.15	18.83	14.06	16.53	19.23	21.67	18.61	27.45	N/A	36.70	22.76	20.93	11.4

N18	22.36	28.04	27.29	28.08	32.58	19.82	17.49	21.91	33.55	37.47	38.29	31.44	28.19	25.93	18.0
N19	27.22	22.33	18.29	18.15	16.09	19.96	15.25	19.33	20.76	27.40	27.87	33.87	22.21	20.43	15.1
N20	33.72	33.68	25.63	24.35	19.39	26.97	24.31	34.67	32.98	32.86	35.46	37.01	30.08	27.67	15.5
N21	19.37	23.86	18.41	22.92	19.15	13.63	11.83	17.46	19.28	25.04	24.87	26.60	20.20	18.58	16.6
N22	18.06	23.98	16.94	19.31	14.89	12.22	9.79	14.18	N/A	23.62	26.96	26.10	18.73	17.23	17.2
N23	26.47	25.10	21.13	18.67	16.58	19.42	17.89	21.56	25.70	28.66	28.83	34.21	23.69	21.79	17.6
N24	42.06	31.01	26.70	27.90	26.00	23.27	16.69	19.67	27.62	35.80	37.91	36.03	29.22	26.88	15.2
N25	27.67	23.01	18.73	21.17	14.50	16.28	15.63	15.01	8.69	27.60	28.22	34.89	20.95	19.27	15.9
N26	25.93	N/A	20.14	21.93	17.70	22.95	23.05	25.10	25.70	33.07	34.83	39.51	26.36	24.24	19.3

Notes:

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

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

(1) See Appendix C for details on bias adjustment

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

Diffusion Tube Bias Adjustment Factors:

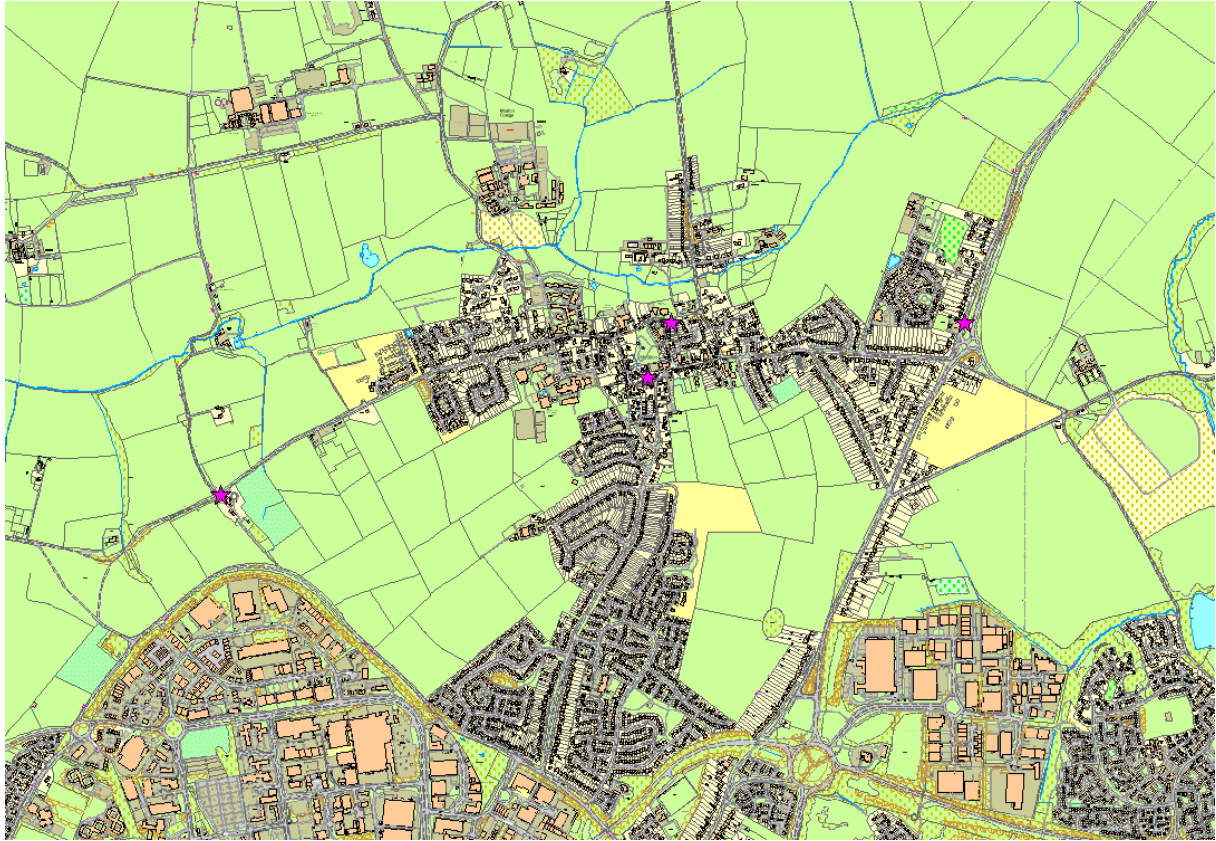
Diffusion tubes require a bias factor to be determined to ensure the accuracy of the measurements. This is done by co-location of tubes with a continuous analyser or that tubes are in triplicate at the measurement location so to improve precision and accuracy in the results. However bias of diffusion tubes is largely associated with the laboratory and preparation method used. The bias correction factor for monthly exposure of Gradko tubes made up with 20% TEA in water is calculated each year.

All analysis is undertaken in a laboratory operating and holding both UKAS and MCERTS accreditation. Gradko International Ltd (Gradko) is a UKAS accredited laboratory and participates in the AIR-PT Scheme2 (a continuation of the Workplace Analysis Scheme for Proficiency (WASP)) for NO₂ tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO₂ concentrations are reported to a high level of accuracy.

In the 2016 AIR-PT results, AIR-PT AR012 (January to February 2016), AIR-PT AR013 (April to May 2016), AR015 (July to August 2016) and AR016 (September to October 2016), Gradko scored 100%. The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$.

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

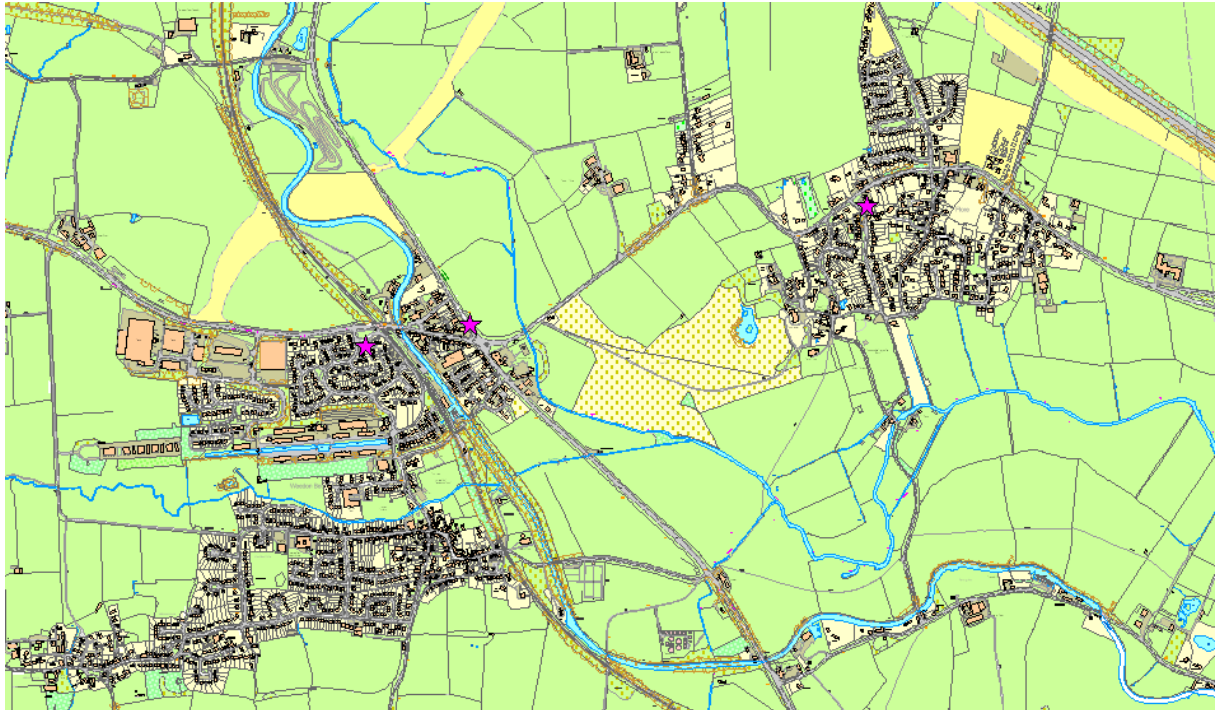
Moulton – N2, N5, N7 & N8:



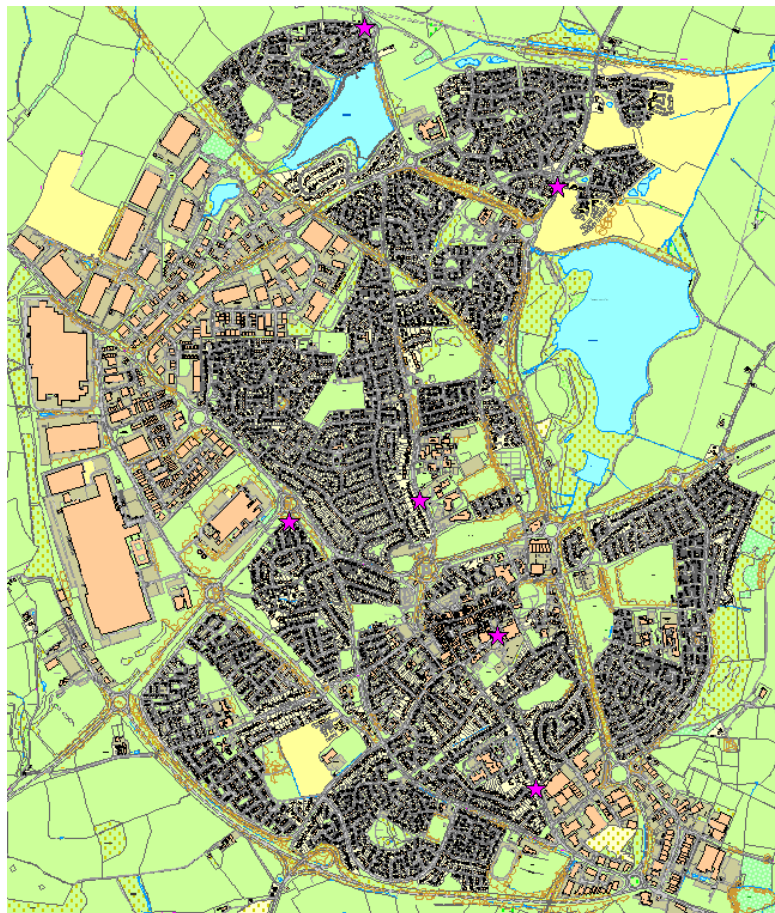
Byfield – N1:



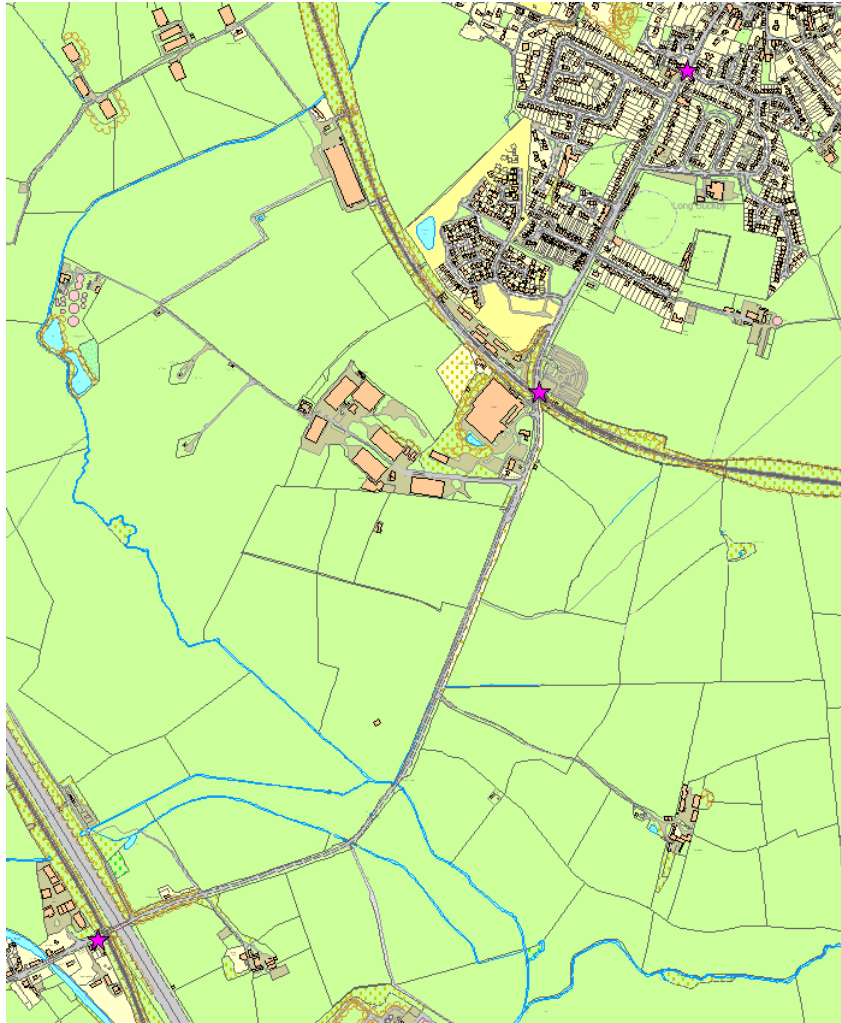
Weedon & Flore – N20, N21 & N22:



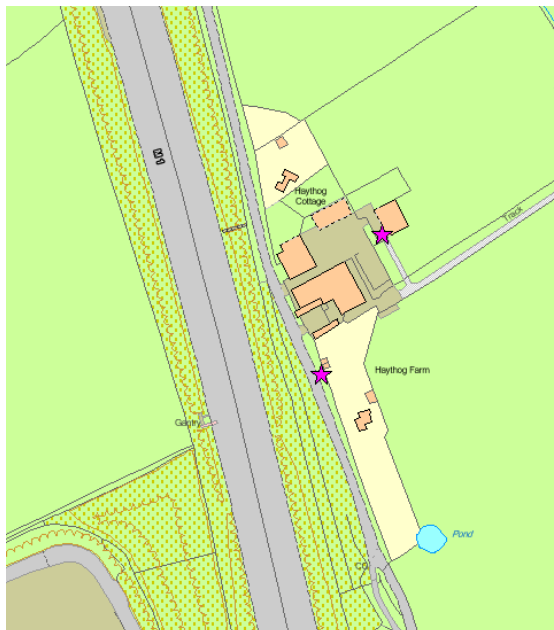
Daventry – N9, N10, N23, N24, N25 & N26:



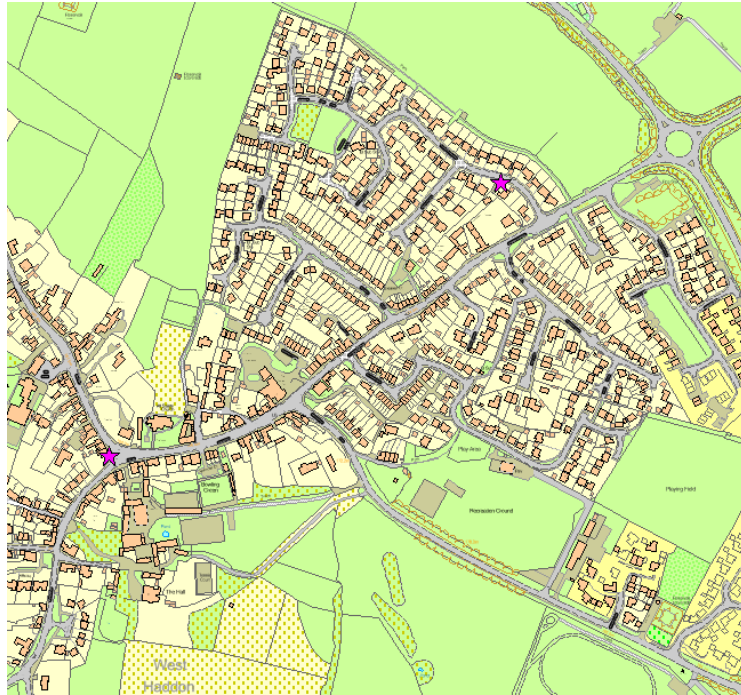
Long Buckby – N17, N18 & N19:



Crick – N14 & N16:



West Haddon – N4 & N6:



Kilsby – N3 & N11:



Lilbourne – N15:



Lilbourne – N12 & N13:



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective ³	
	Concentration	Measured as
Nitrogen Dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
	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
	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
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

³ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Glossary of Terms

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

- Department for Environment, Food and Rural Affairs (Defra) (2016) Local Air Quality Management Technical Guidance LAQM.TG (16).
- Department for Environment, Food and Rural Affairs (Defra) (2016) Local Air Quality Management Policy Guidance LAQM.PG (16).
- Daventry District Council 2015 – Annual Status Report
- <https://laqm.defra.gov.uk/assets/airptrounds7to18apr2015feb2017.pdf>
- National Diffusion Tube Bias Adjustment Factor Spreadsheet, version 03/17 published in March 2017