



2018 Air Quality
Annual Status Report (ASR)
In fulfilment of
Part IV of the Environment Act 1995
Local Air Quality Management

Date (September, 2018)

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Report Reference number	ASR_HDC_2018
Date	Tuesday, 12 June 2018

1 Executive Summary: Air Quality in Our Area

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 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 exceedances are considered likely, the local authority must then 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 report covers the period 1 January 2017 to 31st December 2017

1.1 Air Quality in Harborough 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 billion³.

The Council has one AQMA in Lutterworth declared for exceedances of the annual mean Air Quality Objective (AQO) for Nitrogen Dioxide (NO₂). Copies of the Air Quality Management Orders and a map showing the area covered is available from the Council website

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

http://www.harborough.gov.uk/info/20025/environmental_health/101/air_pollution/3

The Council has found that an area in Kibworth in the vicinity of the A6 is exceeding the annual mean Air Quality Objective (AQO) for Nitrogen Dioxide (NO₂) and declared an AQMA on 29th November 2017.

1.2 Actions to Improve Air Quality

The Council have worked with Leicestershire County Council to implement a gating system for HGV's travelling through the AQMA in Lutterworth in order to smooth the flow of traffic through Lutterworth town centre.

The gating system consists of a sensor in the road to detect the approach of a HGV along Rugby Road this is linked to the pelican crossings on High Street at the junction with Rugby Road and the junction with Church Street. The system will either stop the HGV at the High Street / Rugby Road pelican crossing or it will ensure the HGV has a green light through the town centre and does not have to stop on the hill.

The Council has been working with Leicestershire County Council to develop a draft action plan for the new AQMA in the Kibworths which will be considered for approval during 2018.

1.3 Conclusions and Priorities

The ASR concludes that

- there are no new areas likely to be exceeding air quality objectives
- that the Lutterworth and Kibworth AQMAs are exceeding the annual mean air quality objective for NO₂

In 2018 the council plans to

- Develop, publish and implement the Kibworth AQMA action plan

- Install real time monitoring for Nitrogen Dioxide in the Kibworth AQMA
- Undertake feasibility study for the installation of electrical charging points within the district

1.4 Local Engagement and How to get Involved

The main contributions that our community can make to improving air quality are around minimising emissions from traffic and other sources and limiting exposure at times of poor air quality. Specifically that means avoiding unnecessary car use for short journeys, utilising public transport where possible, buying and maintaining low emissions vehicles and being linked in to the national alert system for predicted episodes of poor air quality.

The public can get further information on Air Quality from the following websites

- Harborough District Council Air quality website
http://www.harborough.gov.uk/info/20025/environmental_health/101/air_pollution
- DEFRA's UK-AIR: Air information Resource website
<https://uk-air.defra.gov.uk/>
- DEFRA's Local Air Quality Management (LAQM) Support website
<http://laqm.defra.gov.uk/>
- Environmental Protection UK Air Pollution website
<http://www.environmental-protection.org.uk/policy-areas/air-quality/about-air-pollution/>
- Joint Air Quality Initiative (JOAQUIN) website
<http://www.joaquin.eu>

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3 Local Air Quality Management

This report provides an overview of air quality in Harborough District Council during 2017. 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 Harborough 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 F-1 in Appendix F.

4 Actions to Improve Air Quality

4.1 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 Harborough District Council can be found in Table 4-1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=118 or on the Council's website at:

https://www.harborough.gov.uk/info/20025/environmental_health/101/air_quality

Alternatively, see Appendix D Map(s) of Monitoring Locations and AQMAs, which includes maps of air quality monitoring locations and the area of the AQMAs.

Appendix A

Harborough District Council

Table 4-1 – 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)				Action Plan (inc. date of publication)		
						At Declaration	Now			Name	Date of Publication	Link
Lutterworth	Declared 18/07/2001, Amended 04/04/2011, Amended 16/04/2013	NO ₂ Annual Mean	Lutterworth	An area encompassing properties adjacent to Rugby Road, High Street and Market Street.	NO			45	µg/m ₃	2013 Lutterworth Air Quality Management Area Action Plan Framework for Harborough District Council		http://www.harborough.gov.uk/download/downloads/id/145/lutterworth_air_quality_action_plan.pdf
Kibworth	Declared 28/11/2017	NO ₂ Annual Mean	Kibworth	Area encompassing dwelling with close proximity to the kerb line along the A6 between the roundabout with Wistow Road south to the junction with Church Road	No	55	µg/m ₃	59	µg/m ₃	Currently being drafted		

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

4.2 Progress and Impact of Measures to address Air Quality in Harborough District Council

Harborough District Council has taken forward a number of direct measures during the current reporting year of 2017 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 4-2.

The Council has been working with Leicestershire County Council Highways Department to implement a HGV gating system in Lutterworth town centre.

The gating system consists of a sensor in the road to detect the approach of a HGV along Rugby Road this is linked to the pelican crossings on High Street at the junction with Rugby Road and the junction with Church Street. The system will either stop the HGV at the High Street / Rugby Road pelican crossing or it will ensure the HGV has a green light through the town centre and does not have to stop on the hill.

The Council commissioned a detailed assessment to determine the area likely to be exceeding Air quality objectives in the Kibworths is attached as https://www.harborough.gov.uk/info/20025/environmental_health/101/air_pollution

The detailed assessment consisted of

- traffic counts on the A6, Main Street, and Church Road.
- Dispersion modelling using the ADMS roads model for the A6 in the Kibworths to determine the area likely to be exceeding the annual mean air quality objective for Nitrogen Dioxide

The Council undertook consultation on the area to be declared between June and August 2017.

The consultation found that

- Source of air quality problem is generally understood to be traffic related though the impact of small changes in traffic volumes is perceived to be larger than is likely to occur
- People are concerned about air quality on smaller roads leading to the A6
- People are concerned of the effect of short term exposure on health

As a result of the consultation the Council has

- commissioned 3 additional diffusion tube monitoring locations, 2 on Church Road and 1 on Main Street
- investigated the costs of placing an automatic monitor within the AQMA and applied for grant funding
- applied for grant funding to under take micro simulation of possible junction improvements in the Kibworths.

The Kibworth AQMA was declared on 29th November 2017

Harborough District Council's priorities for the coming year are

- Draft an action plan for the AQMA in Kibworth
- Negotiate with Leicestershire County Council Highways Department on the way forward in Lutterworth and Kibworth.

The principal challenges and barriers to implementation that Harborough District Council anticipates facing are:

- Resources to implement schemes
- Resources for research and modelling to show schemes have the desired impact

Whilst the measures stated above and in Table 4-2 will help to contribute towards compliance, Harborough District Council anticipates that further

additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of the current AQMAs.

Table 4-2 – 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	20mph zone	Traffic Management	Reduction of speed limits, 20mph zones	LA, Funding: Defra AQ grant	Apr-18	Apr-20	Determine reduction in traffic emissions		Complete	Complete	Lengthy Timescale
							Determine impact on air quality		Complete	Nov-16	
							Determine exact area of the speed reduction (likely required to be larger than AQMA by Highway authority) and costs of implementation and undertake cost benefit		none	Apr-18	First phase successful, second phase complete. LCC Highways require further evidence of likely reduction before they would be willing to consider implementation

Appendix A

Harborough District Council

							analysis				
2	HGV gating system	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	LCC highway maintenance	Jul-17	Aug-17	implement gating system		ongoing	Apr-18	equipment was installed between September and December 2017 – work to commence 2018

4.3 **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.

The Public Health Outcomes Framework (PHOF)

(<http://www.phoutcomes.info/>) is a Department of Health data tool for England, intended to focus public health action on increasing healthy life expectancy and reducing differences in life expectancy between communities. The tool uses indicators to assess improvements. Recognising the significant impact that poor air quality can have on health, the PHOF includes an indicator relating to fine particulate matter (PM_{2.5}).

The indicator in the PHOF reports the estimates fraction of all-cause adult mortality attributable to anthropogenic particulate air pollution (measured as fine particulate matter).

Based on the latest available figures the position in Harborough District can be compared to the situation across the rest of England, Harborough District Council has

- the lowest fraction of attributable deaths to particulate air pollution in Leicestershire and;
- the 4th lowest in the east midlands region;

Harborough District Council is not currently taking any specific measures to address PM_{2.5}. However the following measures and activities undertaken by Harborough District Council will improve PM_{2.5} concentrations:

- The Council controls dust and combustion emissions from permitted processes within the district
- Promoting the use of green waste collection and Leicestershire County Council run waste bring sites over bonfires to dispose of garden waste
- Robust planning process

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

5.1 Summary of Monitoring Undertaken

5.1.1 Automatic Monitoring Sites

The Council does not currently operate any automatic monitoring stations.

Bureau Veritas currently operate an AURN network site on behalf of DEFRA during 2017. Table A-1 in Appendix A shows the details of the site.

Maps showing the location of the monitoring sites are provided in Appendix D or https://uk-air.defra.gov.uk/networks/site-info?site_id=MKTH&view=View . Further details on how the monitors are calibrated and how the data has been adjusted are available from the AURN Network <https://uk-air.defra.gov.uk/networks/network-info?view=aurn> .

5.1.2 Non-Automatic Monitoring Sites

Harborough District Council undertook non-automatic (passive) monitoring of NO₂ at 23 sites during 2017. 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.

5.2 Individual Pollutants

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

5.2.1 Nitrogen Dioxide (NO₂)

Table A-3 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 2017 dataset of monthly mean values is provided in Appendix B.

Figure A-4 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

5.2.1.1 Lutterworth

The council has 10 monitoring locations in Lutterworth.

- Former Lutterworth Service Shop (01n)
- Day Nursery (11n)
- Jazz Hair (18n)
- 77 Leicester Load Lutterworth (22n)
- 6 The Terrace Rugby Road (23n)
- Regent Court (24n)
- 26 Market Street Lutterworth (25n)
- 24 Rugby Road Lutterworth (26n)

- 17 Rugby Road Lutterworth (27n)
- 40 Regent Street Lutterworth (30n)

The monitoring location at the former Lutterworth service shop and 24 Rugby Road exceeded the air quality standard.

All other locations, after façade correction to the nearest receptor, were significantly below the air quality standard.

5.2.1.2 Kibworth

The Council has 5 monitoring locations which have data for the full year

- A6 Kibworth (12n),
- 69 Leicester Road Kibworth (31n), and
- Sign outside 64 Leicester Road (34n)
- Lamppost outside 78 Leicester Road (35n), and
- Signpost north of 11 Leicester Road (36n)

The Council commissioned 3 new monitoring locations in December of 2017

- Coach and Horse Kibworth (38n)
- Lamppost outside 29 Church Road Kibworth (39n)
- 106 Main Street Kibworth (40n)

Monitoring at A6 Kibworth (12n), 69 Leicester Road Kibworth (31n), Lamppost outside 78 Leicester Road (35n), did not record exceedances of the air quality annual average standards for nitrogen dioxide.

Monitoring at signpost outside 64 Leicester Road (34n) recorded an exceedance of the annual average air quality standard when façade corrected to the nearest receptor.

There is insufficient data to annualise the data at the 3 new monitoring locations to be included in this report.

5.2.1.3 Market Harborough

The Council monitored one location in Market Harborough

- Pizza express St Marys Road (37n)

This location did not exceed the air quality standard for nitrogen dioxide

5.2.1.4 Theddingworth

The Council has 2 monitoring points in Theddingworth.

- Spencerdene, Main Street Theddingworth (28n), and
- Homeside, Main Street Theddingworth (29n)

No exceedances of air quality standards were recorded.

5.2.1.5 A5

The Council has 2 monitoring points along the A5.

- Alma House, Watling Street Claybrooke Parva Leicestershire LE17 5BE (32n), and
- Sign post outside White House Farm Watling street (33n)

No exceedances of air quality standards were recorded.

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)
1A	Market Harborough AURN site	Rural	483335	295896	NO; NO ₂ ;	N	Unknown	N/A	N/A	unknown

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)
01n	Lutterworth Service Shop	Roadside	454475	284560	NO2	Y	0	4.2	N	2
11n	Day Nursery	Roadside	454539	284932	NO2	N	9	1.3	N	2
12n	A6 Kibworth	Roadside	468425	294314	NO2	N	10.7	1.3	N	2
18n	Jazz Hair	Roadside	454443	284348	NO2	N	0	3	N	2
22n	77 Leicester Road Lutterworth	Roadside	454533	284872	NO2	N	0	13.5	N	2
23n	6 The Terrace Rugby Road	Roadside	454428	284274	NO2	N	0	2.5	N	2
24n	4-9 Regent Court	Roadside	454410	284326	NO2	N	0	16.25	N	2
25n	26 Market Street Lutterworth	Roadside	454497	284618	NO2	Y	1.6	4.8	N	2
26n	24 Rugby Road Lutterworth	Roadside	454432	284229	NO2	N	0	2	N	2
27n	17 Rugby Road Lutterworth	Roadside	454476	284178	NO2	N	3.7	5.2	N	2
28n	Spencerdene Main Street	Roadside	466535	285545	NO2	N	1.2	0.2	N	2

Appendix A

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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)
	Theddingworth									
29n	Homeside Main Street Theddingworth	Roadside	466651	285607	NO2	N	0.2	1.4	N	2
30n	40 Regent Street Lutterworth	Roadside	454318	284288	NO2	N	0	2.5	N	2
31n	Lamppost outside 69 Leicester Road Kibworth	Roadside	467933	294660	NO2	N	3.5	4	N	2
32n	Alma House, Watling Street Claybrooke Parva	Roadside	448065	287719	NO2	N	0	7	N	2
33n	Signpost outside White House Farm Watling Street	Roadside	448948	286554	NO2	N	14	1	N	2
34n	Sign outside 64 Leicester Road Kibworth	Roadside	468143	294351	NO2	N	0.5	2.3	N	2
35n	Lamppost outside 78 Leicester	Roadside	468022	294450	12	NO2	N	3.1	6.4	2

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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)
	Road Kibworth									
36n	Signpost just north of 11 Leicester Road Kibworth	Roadside	468309	294352	15	NO2	N	0	1.4	2
37n	Pizza Express St Marys Road	Roadside	473479	287214	16	NO2	N	0	1	2
38n	Coach and Horse Kibworth	Roadside	468403	294298	21	NO2	N	2.2	2.5	2
39n	Lamppost 29 Church Road Kibworth	Roadside	468412	294218	22	NO2	N	10.2	2	2
40n	106 Main Street Kibworth	Roadside	468027	294570	23	NO2	N	0	1.7	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 NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2016 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µgm ⁻³) ⁽³⁾				
					2013	2014	2015	2016	2017
A1	Rural	Automatic	93.64	93.64	13.12	14.29	9.02	10.66	9.40
01n	Roadside	Diffusion Tube	83.3%	83.3%	45.51	39.8	43.52	42.27	42.44
11n	Roadside	Diffusion Tube	100.0%	100.0%	36.24	35.8	36.11	26.59	26.65
12n	Roadside	Diffusion Tube	91.7%	91.7%	30.43	28.2	29.72	21.74	23.82
18n	Roadside	Diffusion Tube	66.7%	66.7%	42.15	39.2	37.52	34.10	34.99
22n	Roadside	Diffusion Tube	100.0%	100.0%	20.96	19.93	19.45	19.12	19.80
23n	Roadside	Diffusion Tube	91.7%	91.7%	34.18	27.6	28.87	28.49	30.08
24n	Roadside	Diffusion Tube	83.3%	83.3%	47.45	38.84	47.8	38.06	37.08
25n	Roadside	Diffusion Tube	100.0%	100.0%	37.8	34.87	34.38	28.18	31.98
26n	Roadside	Diffusion Tube	66.7%	66.7%	41.02	40.67	40.63	38.96	40.09
27n	Roadside	Diffusion Tube	100.0%	100.0%	32.85	29.8	32.32	27.05	28.04
28n	Roadside	Diffusion Tube	100.0%	100.0%	19.3	21.13	19.43	16.89	16.45

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Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2016 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µgm ⁻³) ⁽³⁾				
					2013	2014	2015	2016	2017
29n	Roadside	Diffusion Tube	100.0%	100.0%	30.36	27.53	28.15	26.77	27.90
30n	Roadside	Diffusion Tube	100.0%	100.0%		20.89	21	20.30	22.56
31n	Roadside	Diffusion Tube	100.0%	100.0%			33.12	30.48	33.57
32n	Roadside	Diffusion Tube	91.7%	91.7%			25.27	29.93	29.23
33n	Roadside	Diffusion Tube	75.0%	75.0%			26.5	18.13	18.84
34n	Roadside	Diffusion Tube	100.0%	100.0%			55	52.87	56.91
35n	Roadside	Diffusion Tube	91.7%	91.7%				33.36	32.53
36n	Roadside	Diffusion Tube	91.7%	91.7%				42.67	44.31
37n	Roadside	Diffusion Tube	58.3%	58.3%				50.44	29.70
38n	Roadside	Diffusion Tube	100.0%	8.3%					22.53
39n	Roadside	Diffusion Tube	0.0%	0.0%					
40n	Roadside	Diffusion Tube	100.0%	8.3%					24.41

- ☒ Diffusion tube data has been bias corrected
- ☒ Annualisation has been conducted where data capture is <75%
- ☒ If applicable, all data has been distance corrected for relevant exposure

Notes:

Exceedances of the NO₂ annual mean objective of 40µgm⁻³ 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.

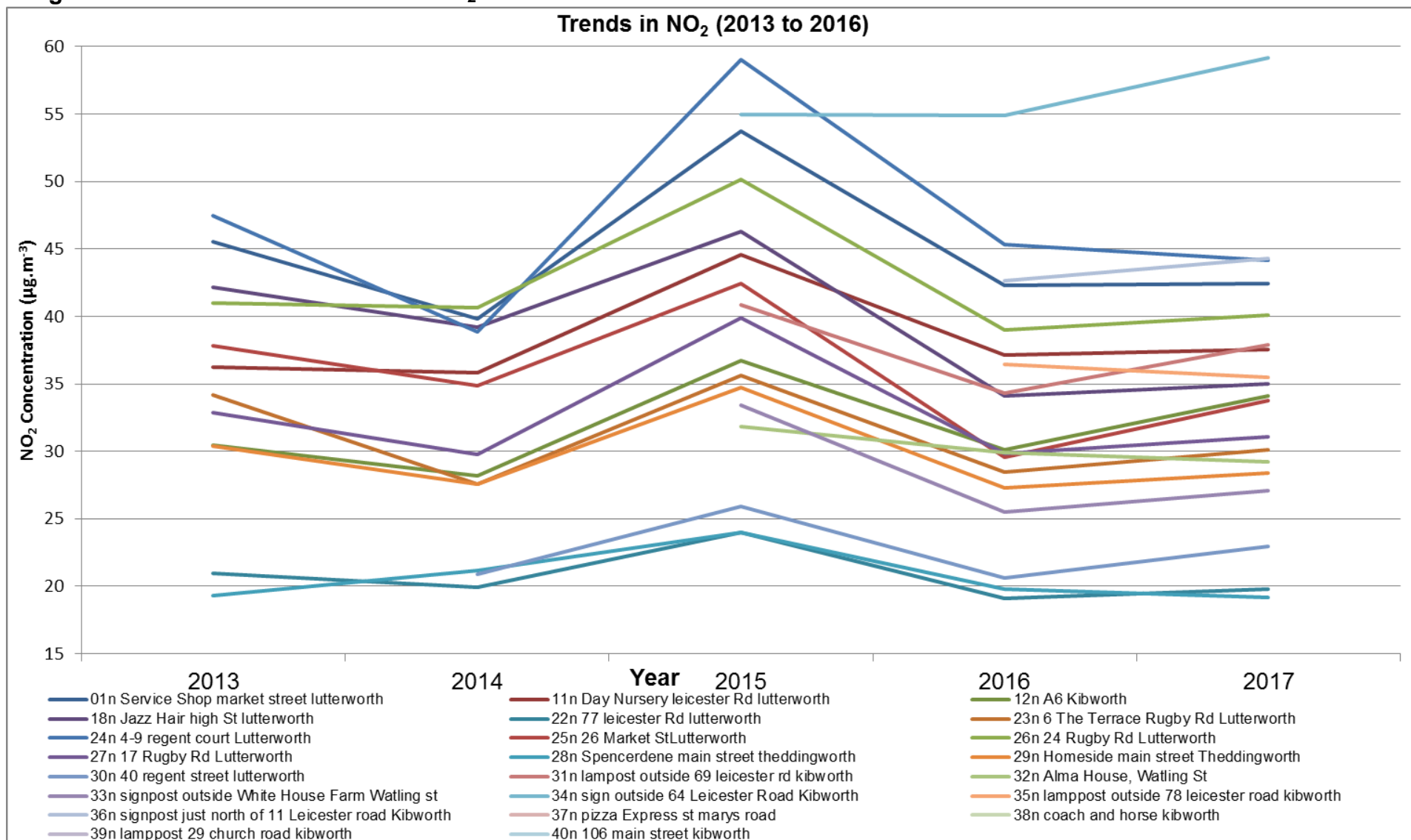
Figure A-4– Trends in Annual Mean NO₂ Concentrations

Table A-5– 1-Hour Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2016 (%) ⁽²⁾	NO ₂ 1-Hour Means > 200µg/m ³ ⁽³⁾				
					2013	2014	2015	2016	2017
A1	Rural		93.64	93.64	0	0	0	0	0

Notes:

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ 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.

Appendix B. Full Monthly Diffusion Tube Results for 2017

Table B.1 – NO₂ Monthly Diffusion Tube Results - 2017

Site ID	NO ₂ Mean Concentrations (µg/m ³)												Annual Mean		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.77) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
01n			64	65	54	57	52	59	59	53	61	28	55.12	42.44	
11n	55	62	52	44	46	36	37	43	47	50	50	63	48.80	37.58	26.65
12n	65	51		48	32	31	30	36	42	46	53	53	44.28	34.10	23.82
18n	34	55	48	52	55	42	36	42					45.44	34.99	
22n	44	31	27	25	22	18	18	22	24	23	27	28	25.72	19.80	
23n	67	45		40	40	30	28	32	30	35	42	40	39.06	30.08	
24n	64	62	56	74	49		42	47	53		72	56	57.34	44.15	37.08
25n	57	50	47	46	44	37	35	36	42	43	50	40	43.85	33.76	31.98
26n		57	63	58		48		45	50		55	42	52.06	40.09	
27n	57	50	42	41	37	30	32	37	39	39	47	34	40.39	31.10	28.04
28n	50	28	22	19	21	21	19	22	23	23	26	25	24.86	19.14	16.45
29n	57	49	40	33	31	29	26	34	32	37	41	33	36.92	28.43	27.90
30n	45	36	27	24	24	20	18	21	25	24	32	61	29.78	22.93	22.56
31n	63	53	47	58	41	36	38	46	46	44	69	50	49.22	37.90	33.57
32n	53	42	37	48	40	32	27	31	41		38	28	37.95	29.23	
33n		40			26	27	28	32.8	44	37	48	35	35.18	27.09	18.84
34n	94	92	87	71	68	64	55	66.1	67	84	89	84	76.80	59.14	56.91

Appendix A

Harborough District Council

35n	61	54	46	38	41	34	34		45	51	55	47	46.05	35.46	32.53
36n	79	67	58	55	56	49	46		55	57	54	57	57.55	44.31	
37n	38	36	42	39	39	35						42	38.57	29.70	
38n												32	31.70	24.41	22.53
39n															
40n												32	31.70	24.41	

☐ Local bias adjustment factor used

☒ National bias adjustment factor used

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

Notes:

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

NO₂ annual means exceeding 60µgm⁻³, 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 and annualisation.

(2) Distance corrected to nearest relevant public exposure.

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

Harborough District Councils Diffusion Tubes are provided by Environmental Scientifics Group and are undertaken using the 50% TEA in Acetone method. see Figure C-2

The bias adjustment factor used in 0.77 taken from the National Diffusion Tube Bias Spreadsheet for 2017

Table C-1 – Details of Annualisation and Façade Correction undertaken

Site ID	location	Measurement Period (µgm ⁻³)												BIAS =		Façade Correction (See Box 2.3 pg 2-6 LAQM.TG(09))				
		(01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	(10)	(11)	(12)	0.77		find relevant background concentration			Façade Corrected Bias Adjusted Mean (µgm ⁻³)	
		Environmental scientifics group												arithmetic mean (µgm ⁻³)	Bias adjusted arithmetic Mean (µgm ⁻³)					
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			X	Y	background nd NO ₂ (µgm ⁻³)		
01n	Lut. Service Shop			64	65	54	57	52	59	59	53	61	28	55.12	42.44	453500	284500	12.76		
11n	Day Nursery	55	62	52	44	46	36	37	43	47	50	50	63	48.80	37.58	453500	284500	12.76	26.65	
12n	A6 Kibworth	65	51		48	32	31	30	36	42	46	53	53	44.28	34.10	467500	293500	12.37	23.82	
18n	Jazz Hair	34	55	48	52	55	42	36	42					45.44	34.99	453500	283500	12.20		
22n	77 Leicester Rd Lutterworth	44	31	27	25	22	18	18	22	24	23	27	28	25.72	19.80	453500	284500	12.76		
23n	6 The Terrace Rugby Road	67	45		40	40	30	28	32	30	35	42	40	39.06	30.08	453500	283500	12.20		
24n	Regent Court	64	62	56	74	49		42	47	53		72	56	57.34	44.15	453500	283500	12.20	37.08	
25n	26 Market Street Lutterworth	57	50	47	46	44	37	35	36	42	43	50	40	43.85	33.76	453500	284500	12.76	31.98	
26n	24 Rugby Road Lutterworth		57	63	58		48		45	50		55	42	52.06	40.09	453500	283500	12.20		
27n	17 Rugby road Lutterworth	57	50	42	41	37	30	32	37	39	39	47	34	40.39	31.10	453500	283500	12.20	28.04	
28n	Spencerdene Main Street Theddingworth	50	28	22	19	21	21	19	22	23	23	26	25	24.86	19.14	465500	285500	10.06	16.45	
29n	Homeside Main Street Theddingworth	57	49	40	33	31	29	26	34	32	37	41	33	36.92	28.43	465500	285500	10.06	27.90	
30n	40 Regent Street Lutterworth	45	36	27	24	24	20	18	21	25	24	32	61	29.78	22.93	465500	285500	10.06	22.56	
31n	69 Leicester Road Kibworth	63	53	47	58	41	36	38	46	46	44	69	50	49.22	37.90	466500	294500	13.27	33.57	
32n	Alma House, Watling Street Claybrooke Parva Leicestershire LE17 5BE	53	42	37	48	40	32	27	31	41		38	28	37.95	29.23	447500	287500	12.25		
33n	Sign post outside White House Farm Watling street		40			26	27	28	32.8	44	37	48	35	35.18	27.09	447500	286500	11.97	18.84	
34n	Sign outside 64 Leicester Rd Kibworth	94	92	87	71	68	64	55	66.1	67	84	89	84	76.80	59.14	467500	293500	12.37	56.91	
35n	Lamppost outside 78 Leicester Rd Kibworth	61	54	46	38	41	34	34		45	51	55	47	46.05	35.46	467500	293500	12.37	32.53	
36n	Signpost just north of 11 Leicester Rd Kibworth	79	67	58	55	56	49	46		55	57	54	57	57.55	44.31	467500	293500	12.37		
37n	Pizza Express St Marys Rd	38	36	42	39	39	35						42	38.57	29.70	472500	286500	12.48		
38n	Coach and Horse Kibworth													32	31.70	24.41	467500	293500	12.37	22.53
39n	Lamppost 29 Church Rd Kibworth																467500	293500	12.37	#DIV/0!
40n	106 main Street Kibworth													32	31.70	24.41	467500	294500	14.27	

Figure C-2– Laboratory Diffusion tube QA/QC procedure

The diffusion tubes are supplied and analysed by Environmental Scientifics Group Ltd (ESG) Didcot using the 50% triethanolamine (TEA) in acetone method. ESG participates in the Annual Field Inter-Comparison Exercise and the laboratory also participates in Defra's AIR NO2 Proficiency Testing Scheme. The ESG laboratory follows the procedures set out in the Harmonisation Practical Guidance and is UKAS accredited.

<https://laqm.defra.gov.uk/assets/AIR-PT-Rounds-13-to-24-Apr-2016-Feb-2018.pdf>

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

FigureD-1– Map of Automatic Monitoring Locations

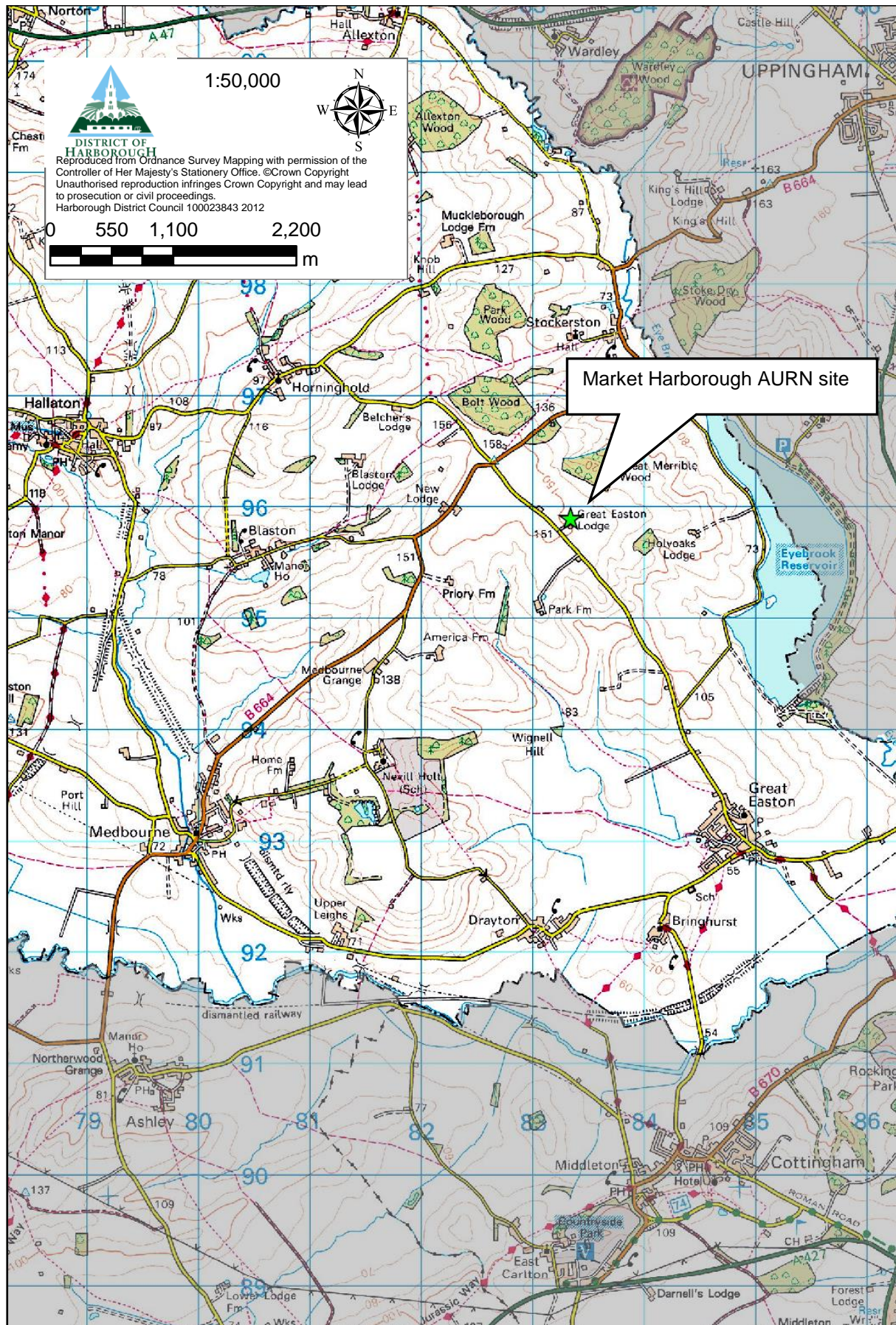
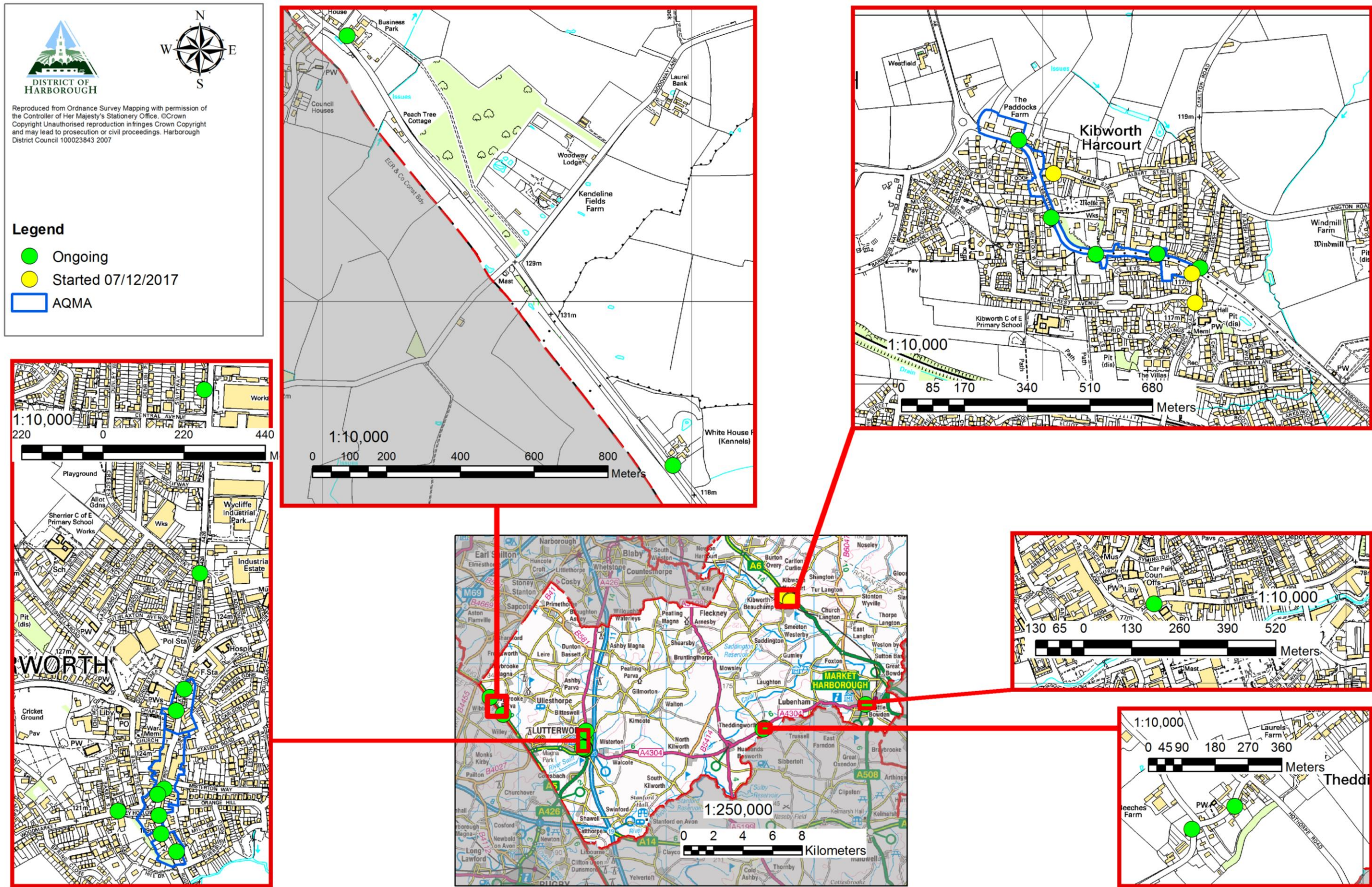


Figure D-2 – Map of Diffusion Tube Monitoring Locations and AQMA



Appendix E. Kibworth DA

A detailed assessment was undertaken to determine the extent of the Air Quality Management Area in the Kibworths.

A copy of the detailed assessment can be found on the Council's website

https://www.harborough.gov.uk/info/20025/environmental_health/101/air_pollution

Appendix F. Summary of Air Quality Objectives in England**Table F-1– Air Quality Objectives in England**

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

6 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
...	...