



2012 Air Quality Updating and Screening Assessment for Harborough District Council

**In fulfilment of
Part IV of the Environment Act 1995**

Local Air Quality Management

April 2012

Local Authority Officer	Gareth Rees
Department	Environment Team Regulatory Services
Address	Council Offices Adam and Eve Street Market Harborough Leicestershire LE16 7AG
Telephone	01858 828282
e-mail	airquality@harborough.gov.uk
Report Reference number	LAQM-2012USA
Date	26 April 2012

1 Executive Summary

Under Part IV of the Environment Act 1995 there is a requirement for all Local Authorities to assess their local air quality and to predict future conditions against the National Air Quality Standards.

This report has been compiled as part of the fifth round of the air quality assessment for Harborough District Council.

The Update and screening assessment has been carried out in accordance with the requirements of the DEFRA guidance LAQM.TG(09) [10].

The report has found that:

- Air quality in the district is generally within the Air Quality Standard
- That there are exceedences of the air quality standard in and around the Lutterworth Air Quality Management Area (AQMA).

The following actions are being taken by the authority

- Publish the Lutterworth AQMA Further Assessment
- Publish the draft air quality action plan for public consultation

2 Table of contents

<u>1</u>	<u>Executive Summary</u>	<u>ii</u>
<u>2</u>	<u>Table of contents</u>	<u>iii</u>
	2.1 List Of Tables	v
	2.2 List Of Figures	vi
	2.3 Appendices	vi
<u>3</u>	<u>Introduction</u>	<u>1</u>
	3.1 Description Of Local Authority Area	1
	3.2 Purpose Of Report	4
	3.3 Air Quality Objectives	4
	3.4 Summary Of Previous Review And Assessments	6
<u>4</u>	<u>Data handling and modelling</u>	<u>9</u>
	4.1 Façade Correction	9
	4.2 Annualisation	10
<u>5</u>	<u>New Monitoring Data</u>	<u>11</u>
	5.1 Summary Of Monitoring Undertaken	11
	5.1.1 Automatic Monitoring Sites	11
	5.1.2 Non-Automatic Monitoring Sites	13
	5.2 Comparison Of Monitoring Results With AQ Objectives	16
	5.2.1 Nitrogen Dioxide	16
	5.2.2 PM ₁₀	21
	5.2.3 Sulphur Dioxide	21
	5.2.4 Benzene	21
	5.2.5 Other pollutants monitored	21
<u>6</u>	<u>Summary of Compliance with Air Quality Standards [AQS]</u>	
	<u>Objectives</u>	<u>21</u>
	6.1 Nitrogen Dioxide	21
	6.1.1 Lutterworth	21
	6.1.2 Kibworth	21

6.1.3	Market Harborough	22
6.1.4	Theddingworth	22
6.1.5	Walcote	22
7	Road Traffic Sources	23
7.1	Narrow Congested Streets With Residential Properties Close To The Kerb	23
7.2	Busy Streets Where People May Spend 1-Hour Or More Close To Traffic	23
7.3	Roads with A High Flow Of Buses And/Or HGVs.	23
7.4	Junctions	23
7.5	New Roads Constructed Or Proposed Since The Last Round Of Review And Assessment	23
7.6	Roads With Significantly Changed Traffic Flows	24
7.7	Bus And Coach Stations	24
8	Other Transport Sources	25
8.1	Airports	25
8.2	Railways (Diesel and Steam Trains)	25
8.2.1	Stationary Trains	25
8.2.2	Moving Trains	25
8.3	Ports (Shipping)	25
9	Industrial Sources	26
9.1	Industrial Installations	26
9.1.1	New or Proposed Installations for which an Air Quality Assessment has been Carried Out	26
9.1.2	Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced	26
9.1.3	New or Significantly Changed Installations with No Previous Air Quality Assessment	26
9.2	Major Fuel (Petrol) Storage Depots	26
9.3	Petrol Stations	26

9.4	Poultry Farms	26
10	Commercial and Domestic Sources	27
10.1	Biomass Combustion – Individual Installations	27
10.2	Biomass Combustion – Combined Impacts	27
10.3	Domestic Solid-Fuel Burning	27
11	Fugitive or Uncontrolled Sources	27
12	Action Plan Progress Report	28
13	Conclusions and Proposed Actions	32
13.1	Conclusions From New Monitoring Data	32
13.2	Conclusions From Assessment Of Sources	32
13.3	Proposed Actions	32
14	References	33
14.1	Legislation And Statutory Instruments	33
14.2	British Standards	34
14.3	Technical Guidance	34
14.4	Previous Air Quality Reports	34
14.5	Other Documents	36
14.6	Models	38
15	Appendices	39

2.1 List Of Tables

Table 1.	Air Quality Objectives included in Regulations for the purpose of LAQM in England	5
Table 2.	Details of Automatic Monitoring Sites	11
Table 3.	Details of Non-Automatic Monitoring Sites	15
Table 4.	Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean Objective	16

Table 5.	Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective	16
Table 6.	Results of Nitrogen Dioxide Diffusion Tubes in 2011	18
Table 7.	Results of Nitrogen Dioxide Diffusion Tubes (2005 to 2011)	19
Table 8.	Action Plan Progress	29

2.2 List Of Figures

Figure. 1.	Map of Harborough District	3
Figure. 2.	Map of Lutterworth AQMA Boundary 2012	8
Figure. 3.	Box 2.3: Predicting nitrogen dioxide concentrations at different distances from road of the technical guidance [11]	9
Figure. 4.	Estimation of annual mean concentrations from short-term monitoring data	10
Figure. 5.	Map of AURN Automatic Monitoring Site	12
Figure. 6.	Map of Non-Automatic Monitoring Sites	14
Figure. 7.	Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Automatic Monitoring Site Eyebrook Reservoir	17
Figure. 8.	Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites	20

2.3 Appendices

Appendix A.	Highways Traffic Data	40
Appendix B.	Data from AURN Site Eyebrook Reservoir	41
Appendix C.	NO ₂ Diffusion Tube Data and Handling	42

3 Introduction

3.1 Description Of Local Authority Area

Harborough District Council is a diverse, largely rural authority covering approximately 590 Km² (230 square miles) of Southern Leicestershire, as shown in Figure. 1. Geographically it is the largest of the Leicestershire districts. Approximately 84,00 people (estimated June 2010 by The Office for National Statistics [34]) live within the District.

The two major population centres are the market towns of Market Harborough and Lutterworth, providing the main shopping and business services. These two towns, together with the villages of Thurnby, Bushby and Scraftoft adjoining Leicester City, and the villages of Broughton Astley, Great Glen, Kibworth and Fleckney accommodate 67% of the district population. The remaining residents live in villages varying from populations of several hundreds to hamlets comprising of a handful of dwellings.

The District borders on to the suburbs of Leicester to the north, Rutland to the east, Warwickshire to the west and Northamptonshire to the south.

Located at the heart of England, Harborough District has excellent communication links. The M1, M6 “Catthorpe” interchange connects Harborough District to Felixstowe, Birmingham, London and Edinburgh. The M1 and M6 and A14 are all identified on the Trans-European Network. The A5, A6, A5199 and A47 also run through the district which are a major part of the East Midlands road network and consequently are heavily used.

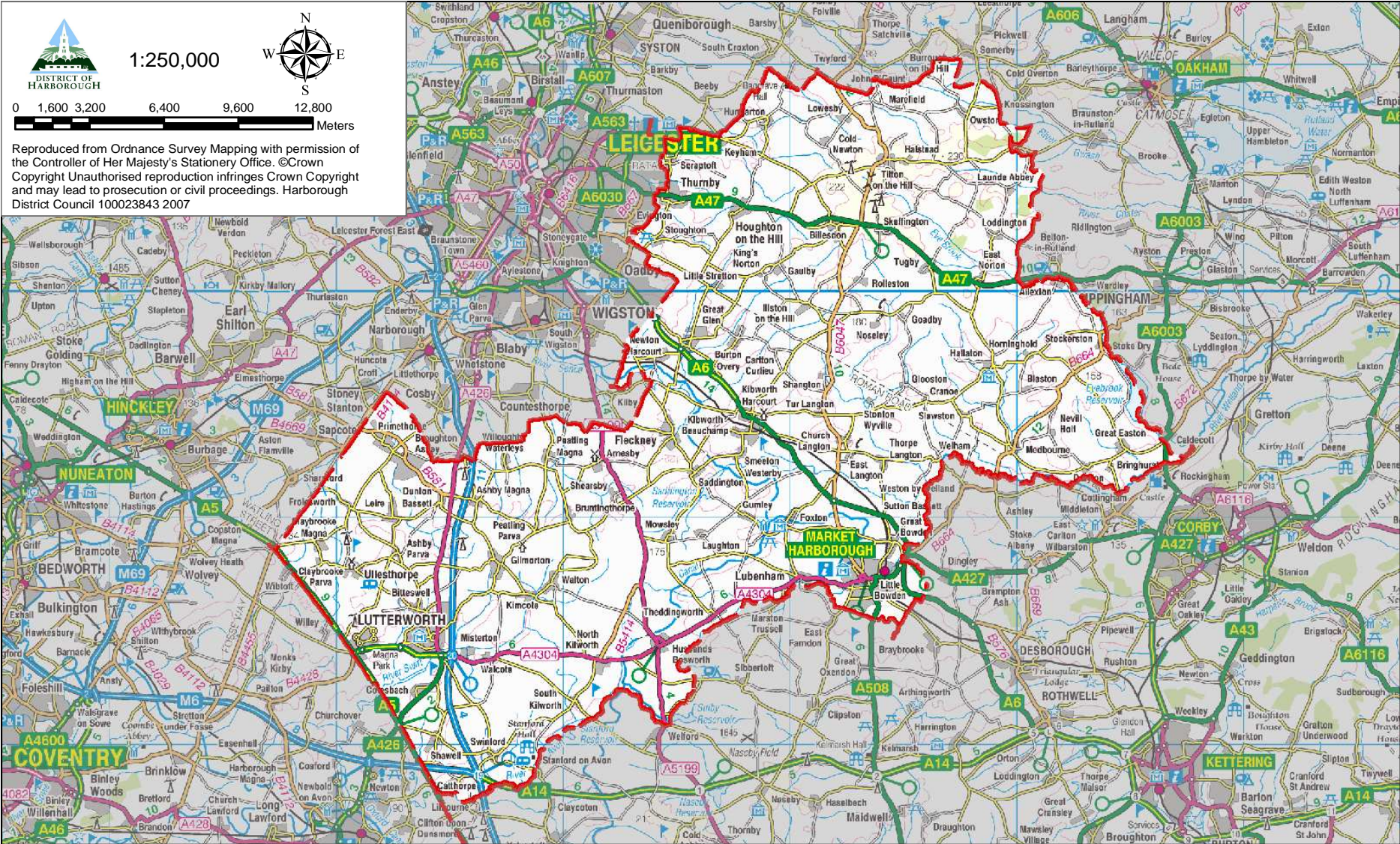
The Midland Main Line railway runs through the district and Market Harborough has an Inter-City station with direct links to London St. Pancras.

These good communication links have encouraged a number of industrial estates to develop, containing medium sized businesses carrying out a

range of coating and spraying activities, moulding, and timber processes. In the south west of the District there is a cluster of mineral activities including sand and gravel extraction, cement batching plants and other associated products.

Although agriculture still plays an important role in the local economy, manufacturing and distribution are of ever increasing importance. At the extreme western side of the District is Magna Park, which is a major warehousing and distribution site, covering approximately 2.3Km² (0.9 square miles). A number of the major manufacturers within the UK are located on this site and the 24-hour operation results in a great deal of traffic as most of the products are transported by road. Magna Park is located between the M1 and the A5, therefore a majority of the traffic is directed onto these major roads; however the nearby town of Lutterworth is affected by the increase in road traffic.

Figure. 1. Map of Harborough District



3.2 Purpose Of Report

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 exceedences 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.

The objective of this Updating and Screening Assessment (USA) is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

3.3 Air Quality Objectives

The air quality objectives applicable to Local Air Quality Management (LAQM) in England are set out in:

- the Air Quality (England) Regulations 2000 (SI2000/No.0928)[2],
- the Air Quality (England) (Amendment) Regulations 2002 (SI2002/No.3043)[3],
- The Air Quality Standards Regulations 2007 (SI2007/No.0064)[4], and
- The Air Quality Standards Regulations 2010 (SI2010/No.1001)[5].

They are shown in Table 1 includes the number of permitted exceedences in any given year (where applicable).

Table 1. Air Quality Objectives included in Regulations for the purpose of LAQM in England

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 μgm^{-3}	Running annual mean	31.12.2003
	5.00 μgm^{-3}	Running annual mean	31.12.2010
1,3-Butadiene	2.25 μgm^{-3}	Running annual mean	31.12.2003
Carbon monoxide	10.0 mgm^{-3}	Running 8-hour mean	31.12.2003
Lead	0.5 μgm^{-3}	Annual mean	31.12.2004
	0.25 μgm^{-3}	Annual mean	31.12.2008
Nitrogen dioxide	200 μgm^{-3} not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 μgm^{-3}	Annual mean	31.12.2005
Particles (PM ₁₀) (gravimetric)	50 μgm^{-3} , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 μgm^{-3}	Annual mean	31.12.2004
Sulphur dioxide	350 μgm^{-3} , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 μgm^{-3} , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 μgm^{-3} , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

3.4 Summary Of Previous Review And Assessments

The Review and Assessment of the local air quality takes place over a number of stages. The First Stage Review and Assessment [25] carried out in Harborough district concluded that further investigation would be required for Carbon Monoxide, Lead, Particulates and Nitrogen Dioxide. The Second and Third Stage review [24] concluded that with the exception of Nitrogen Dioxide all of the National Air Quality Standards would be met within the appropriate time frame. As it was anticipated that the national objective for Nitrogen Dioxide was unlikely to be met in Lutterworth Town Centre, an Air Quality Management Area (AQMA) was declared in July 2001.[6]

Following the declaration of the Air Quality Management Area a Stage 4 assessment [20] was required to give the council the opportunity to supplement any information already gathered in earlier review and assessment work.

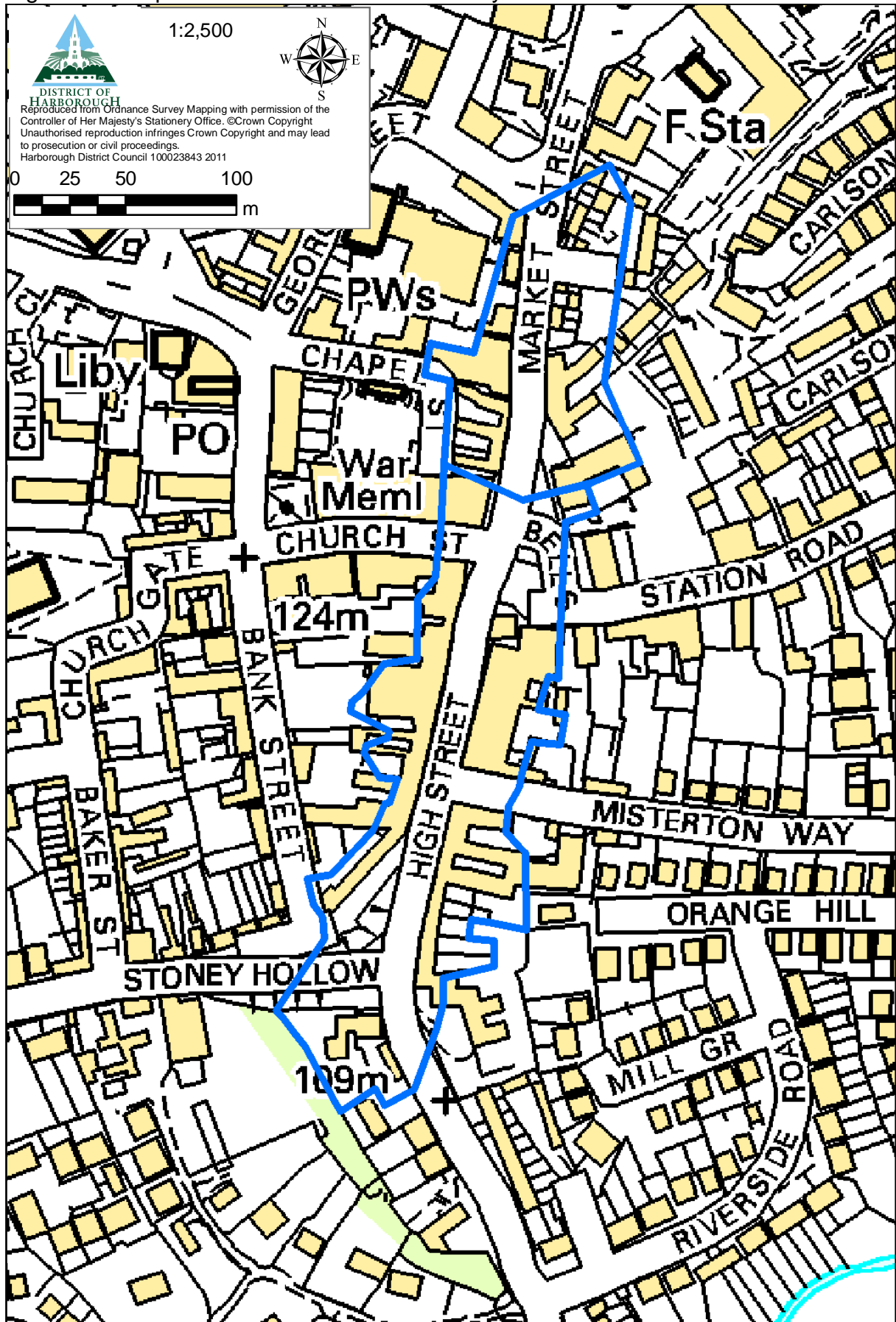
The findings of the Stage 4 assessment confirmed that the annual average National Air Quality Objective for Nitrogen Dioxide was unlikely to be achieved. New Monitoring Data confirmed the source of the problem was traffic related, then an Action Plan [21] was developed which was incorporated into the Leicestershire County Council Local Transport Plan 2.

In 2009 the Council undertook an update and screening assessment [15] which found that generally the air quality in Harborough district is very good; however the air quality in Lutterworth remains high and exceeds the national air quality objective. During 2008 it became apparent that the diffusion tubes in the area were showing a potential exceedence of the objective levels outside of the existing Air Quality Management Area (AQMA). It was necessary to relocate some of the diffusion tubes to confirm the initial findings, and was recommended that a detailed assessment of Lutterworth high street would be required to confirm whether the existing AQMA needs to be extended.

A detailed assessment of Lutterworth was conducted in 2010 [13]. The assessment found that the AQMA did not require extension to the north of the currently declared area but that the air quality standard was being exceeded to the south of the currently declared area. In order to improve the data for the further assessment of the proposed extension to the AQMA it was necessary for several NO₂ diffusion tubes to be relocated.

The Area of the AQMA has been extended to include the area to the south as shown in Figure. 2. A further assessment of the AQMA is currently being undertaken

Figure. 2. Map of Lutterworth AQMA Boundary 2012



4 Data handling and modelling

4.1 Façade Correction

Some diffusion tubes have undergone a façade correction (presented in 5.2.1.2) the corrections were undertaken using the procedure outlined in Box 2.3: Predicting nitrogen dioxide concentrations at different distances from road of the technical guidance [10] (reproduced in Figure. 3 for reference).

Figure. 3. Box 2.3: Predicting nitrogen dioxide concentrations at different distances from road of the technical guidance [10]

Box 2.3: Predicting nitrogen dioxide concentrations at different distances from roads

A method has been developed to allow NO₂ measurements made at one distance from a road to be used to predict concentrations at a different distance from the same road. It is appropriate for distances between 0.1 m and 140 m of the kerb.

Step 1: Identify the local background concentration in µgm⁻³, either from local monitoring or from the national maps published at www.airquality.co.uk. (Note that the background concentration must be less than the measured concentration).

Step 2: apply the following calculation

$$C_z = \left(\frac{C_y - C_b}{-0.5476 \times \ln(D_y) + 2.7171} \right) \times (-0.5476 \times \ln(D_z) + 2.7171) + C_b$$

Where:

- C_z is the total predicted concentration (µgm⁻³) at distance D_z ;
- C_y is the total measured concentration (µgm⁻³) at distance D_y ;
- C_b is the background concentration (µgm⁻³);
- D_y is the distance from the kerb at which concentrations were measured; and
- D_z is the distance from the kerb (m) at which concentrations are to be predicted.
- $\ln(D)$ is the natural log of the number D.

Results derived in this way will have a greater uncertainty than the measured data. Further assistance with this procedure and interpretation of the results can be obtained from the Review and Assessment helpdesk (www.uwe.ac.uk/aqm/review).

Calculator

The equation above is available as a simple calculator (available at <http://www.airquality.co.uk/archive/laqm/tools.php>). This is set up to work from 0.1 to 50 m from the kerb, as this is the range that is likely to be relevant for Local Air Quality Management (LAQM) work. Kerbside sites should be treated as being at 0.1 m from the kerb. The calculator works for receptors either closer to or further from the kerb than the monitor. The greater the distance between the receptor and monitor, the greater the uncertainty in the derived receptor concentration. It is therefore recommended that if the receptor is further from the kerb than the monitor it should be no more than 20 m away. If the receptor is closer to the kerb, then it should be no more than 10 m from the monitor.

Modified from Box 2.3 page 2-6 of the technical Guidance 2009 [10] (modification are improved layout of equation and insertion of hyperlinks where footnotes are present in the original).

4.2 Annualisation

Where data does not cover the whole year it is possible to estimate the annual mean using the method in Box 3.2 Estimation of annual mean concentrations from short-term monitoring data of the technical guidance [10] (reproduced in Figure. 4 for reference).

Figure. 4. Estimation of annual mean concentrations from short-term monitoring data

Box 3.2: Estimation of annual mean concentrations from short-term monitoring data

Example
It has only been possible to carry out a monitoring survey (automatic or diffusion tube) at site **S** for six months between July and December 2008. The measured mean concentration **M** for this period is $30.2\mu\text{gm}^{-3}$. How can this be used to estimate the annual mean for this location?

Adjustment to estimate annual mean
The adjustment is based on the fact that patterns in pollutant concentrations usually affect a wide region. Thus if a six month period is above average at one place it will almost certainly be above average at other locations in the region. The adjustment procedure is as follows:

1. Identify two to four nearby, long-term, continuous monitoring sites, ideally those forming part of the national network. These should be background sites to avoid any very local effects that may occur at roadside sites, and should, wherever possible lie within a radius of about 50 miles.
2. Obtain the annual means, **Am**, for the calendar year for these sites, 2008 in this example.
3. Work out the period means, **Pm**, for the period of interest, in this case July to December 2008. [It may be necessary to use unratified automatic data.]
4. Calculate the ratio, **R**, of the annual mean to the period mean $\left(\frac{Am}{Pm}\right)$ for each of the sites.
5. Calculate the average of these ratios, **R_a**. This is then the adjustment factor.
6. Multiply the measured period mean concentration **M** by this adjustment factor **R_a** to give the estimate of the annual mean for 2008.

Long term site	Annual mean 2008 (Am)	Period Mean 2008 (Pm)	Ratio $\left(\frac{Am}{Pm}\right)$
A	28.6	29.7	0.963
B	22.0	22.8	0.965
C	26.9	28.9	0.931
D	23.7	25.9	0.915
Average (R_a)			0.944

For this example the best estimate of the annual mean for site **S** in 2008 will be

$$S = M \times R_a$$

$$= 30.2 \times 0.944$$

$$= 28.5\mu\text{gm}^{-3}$$

Notes

- Monitoring data for the long-term sites must have adequate data capture rates: above 90% is preferable; sites with data capture below 75% should not be used.
- It may be appropriate to use diffusion tube results from a long-term survey to adjust short-term diffusion tube results. To allow for the greater uncertainty of diffusion tubes results from four or more sites should be used. Ensure that the tubes are from the same supplier using the same method of preparation.
- If the short-term period covers, for instance, February to June 2009, and the work is being carried out in August 2009, then an annual mean for 2009 will not be available. The calculation can then be carried out using the ratio to the 2008 annual mean, but the result is then an estimate of the 2008 annual mean at the short-term site.

Modified from Box 3.2 page 3-4 of the technical Guidance 2009 [10].

5 New Monitoring Data

5.1 Summary Of Monitoring Undertaken

5.1.1 Automatic Monitoring Sites

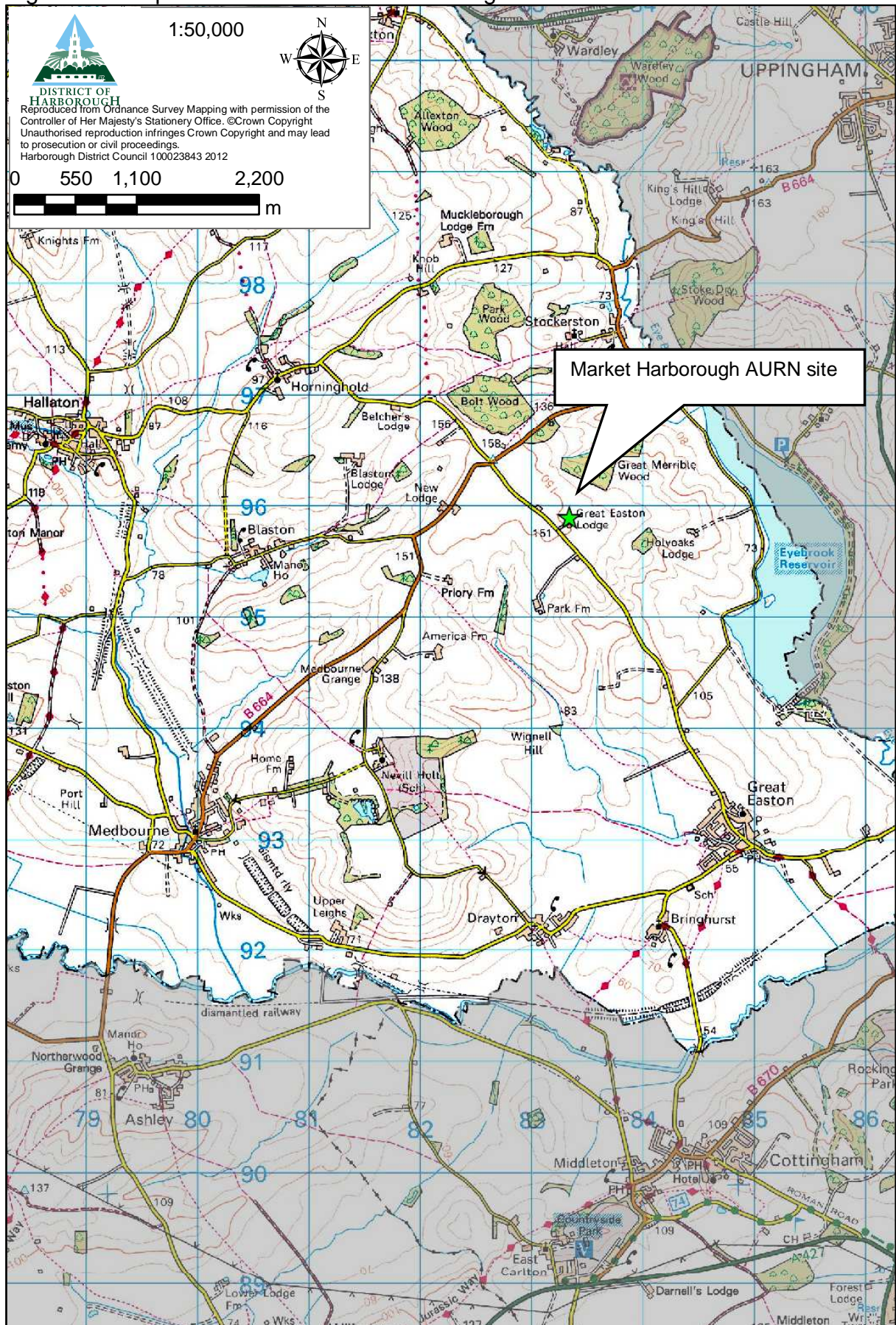
The council does not currently operate any automatic monitoring stations.

Bureau Veritas currently operate an AURN site on behalf of DEFRA near to Eye Brook Reservoir Figure. 5. This site monitors for nitrogen dioxide, carbon monoxide and ozone. Details of the site can be found at <http://aurn.defra.gov.uk/stations/viewStation.php?id=78> (correct 13/04/2012).

Table 2. Details of Automatic Monitoring Sites

Site ID		1		
Site Name		Market Harborough AURN site		
Site Type		Rural		
OS Grid Ref	X	483335		
	Y	295896		
Pollutants Monitored		NO	NO ₂	Ozone
Monitoring Technique		unknown	unknown	unknown
In AQMA ?		No		
Relevant Exposure? (Y/N with distance (m) to relevant exposure)		N/A		
Distance to kerb of nearest road (N/A if not applicable)		N/A		
Does this location represent worst-case exposure?		N/A		

Figure. 5. Map of AURN Automatic Monitoring Site



5.1.2 Non-Automatic Monitoring Sites

As part of the assessment of the local air quality, a number of diffusion tubes are located throughout the district. These tubes are a simple and cost effective method for screening air quality and provide a good indication of the annual average levels of Nitrogen Dioxide

The diffusion tube supplied and analysed by Lambeth Scientific services by spiking with 50% triethanolamine (TEA) in acetone.

The DEFRA Review and assessment helpdesk National Diffusion Tube Bias Adjustment Factor Spreadsheet 03/2012 [36] has data for Lambeth Scientific Services in 2011 the average Bias adjustment for 2011 is 1.06

Figure. 6. Map of Non-Automatic Monitoring Sites

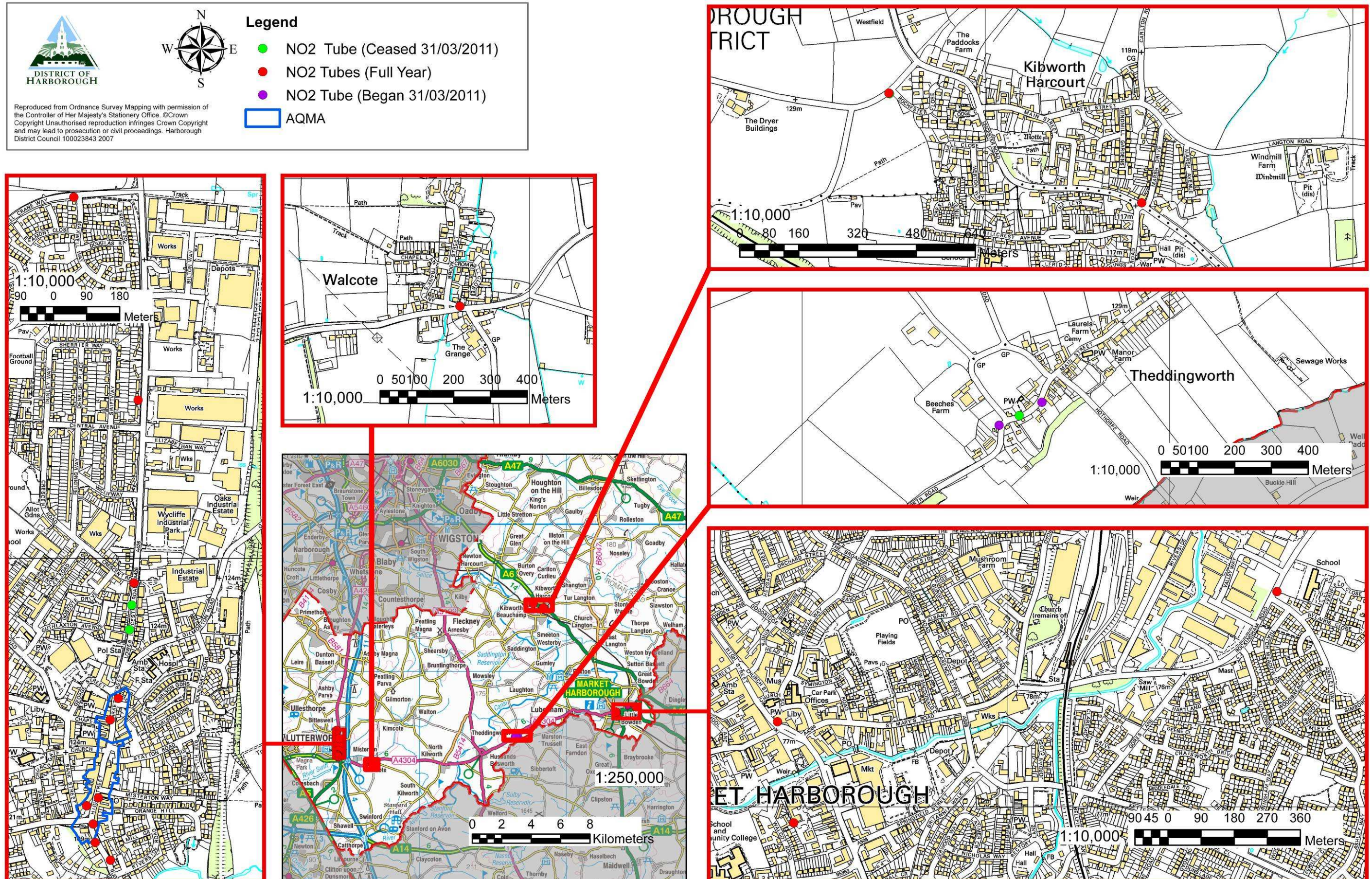


Table 3. Details of Non-Automatic Monitoring Sites

National AQ archive Site details	location	Site Type	Grid Reference		Our Tube No.	Pollutants Monitored	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (m) (N/A if not applicable)	Worst-case Location?
			X	Y						
82705- Harborough 01n	Lutterworth Service Shop	Roadside	454475	284560	2	NO ₂	Y	0	4.2	Y
82708- Harborough 03n	Brooklands (Home)	Urban background	473418	286956	3	NO ₂	N	N/A	N/A	Y
84431- Harborough 07n	Theddingworth	Roadside	466586	285571	6	NO ₂	N	0	2	N
84433- Harborough 09n	Maxwell Way	Roadside	454376	285981	8	NO ₂	N	11.1	1.2	Y
84435- Harborough 11n	Day Nursery	Roadside	454539	284932	10	NO ₂	N	9	1.3	N
84440- Harborough 12n	A6 Kibworth	Roadside	468425	294314	11	NO ₂	N	10.7	1.3	Y
84441- Harborough 13n	Rockingham Road	Roadside	474731	287585	12	NO ₂	N	9	2.8	Y
84444- Harborough 16n	Walcote	Roadside	456810	283652	15	NO ₂	N	12.5	3	Y
84446- Harborough 17n	The Square	Roadside	473373	287231	16	NO ₂	N	2.5	3	Y
84448- Harborough 18n	Jazz Hair	Roadside	454443	284348	17	NO ₂	N	0	3	Y
86155- Harborough 19n	Wistow Rd Kibworth	Roadside	467739	294611	14	NO ₂	N	2.5	5.4	Y
86383- Harborough 22n	77 Leicester road Lutterworth	Roadside	454533	284872	9	NO ₂	N	0	13.5	Y
86930 – Harborough 23n	6 The Terrace Rugby Road	Roadside	454428	284274	1	NO ₂	N	0	2.5	Y
86931 – Harborough 24n	4-9 regent court	Roadside	454410	284326	4	NO ₂	N	0	16.25	Y
86932 – Harborough 25n	26 Market Street Lutterworth	Roadside	454497	284618	5	NO ₂	Y	1.6	4.8	Y
86933 – Harborough 26n	24 Rugby Road Lutterworth	Roadside	454432	284229	13	NO ₂	N	0	2	Y
86934 – Harborough 27n	17 Rugby road Lutterworth	Roadside	454476	284178	7	NO ₂	N	3.7	5.2	Y
????? – Harborough 28n	Spencerdene main street theddingworth	Roadside	466535	285545	18	NO ₂	N	1.2	0.2	N
????? – Harborough 29n	Homeside main street Theddingworth	Roadside	466651	285607	6	NO ₂	N	0.2	1.4	Y

5.2 Comparison Of Monitoring Results With AQ Objectives

5.2.1 Nitrogen Dioxide

5.2.1.1 Automatic Monitoring Data

Table 4. Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean Objective of $40\mu\text{gm}^{-3}$

Site ID	1	
Site Name	Market Harborough AURN site	
Site Type	Rural	
Within AQMA?	N	
Valid Data Capture for period of monitoring % ^a	78.56%	
Valid Data Capture 2011 % ^b	78.35%	
Annual Mean Concentration μgm^{-3}	2007* ^c	11.57
	2008* c	10.80
	2009* c	11.98
	2010* c	11.74
	2011 c	9.27

^a i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

^c Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

*Annual mean concentrations for previous years are optional.

Table 5. Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective

Site ID	1	
Site Name	Market Harborough AURN site	
Site Type	Rural	
Within AQMA?	N	
Valid Data Capture for period of monitoring % ^a	78.56%	
Valid Data Capture 2011 % ^b	78.35%	
Number of Exceedences of Hourly Mean ($200\mu\text{gm}^{-3}$)	2007* ^c	0
	2008* c	0
	2009* c	0
	2010* c	0
	2011 c	0

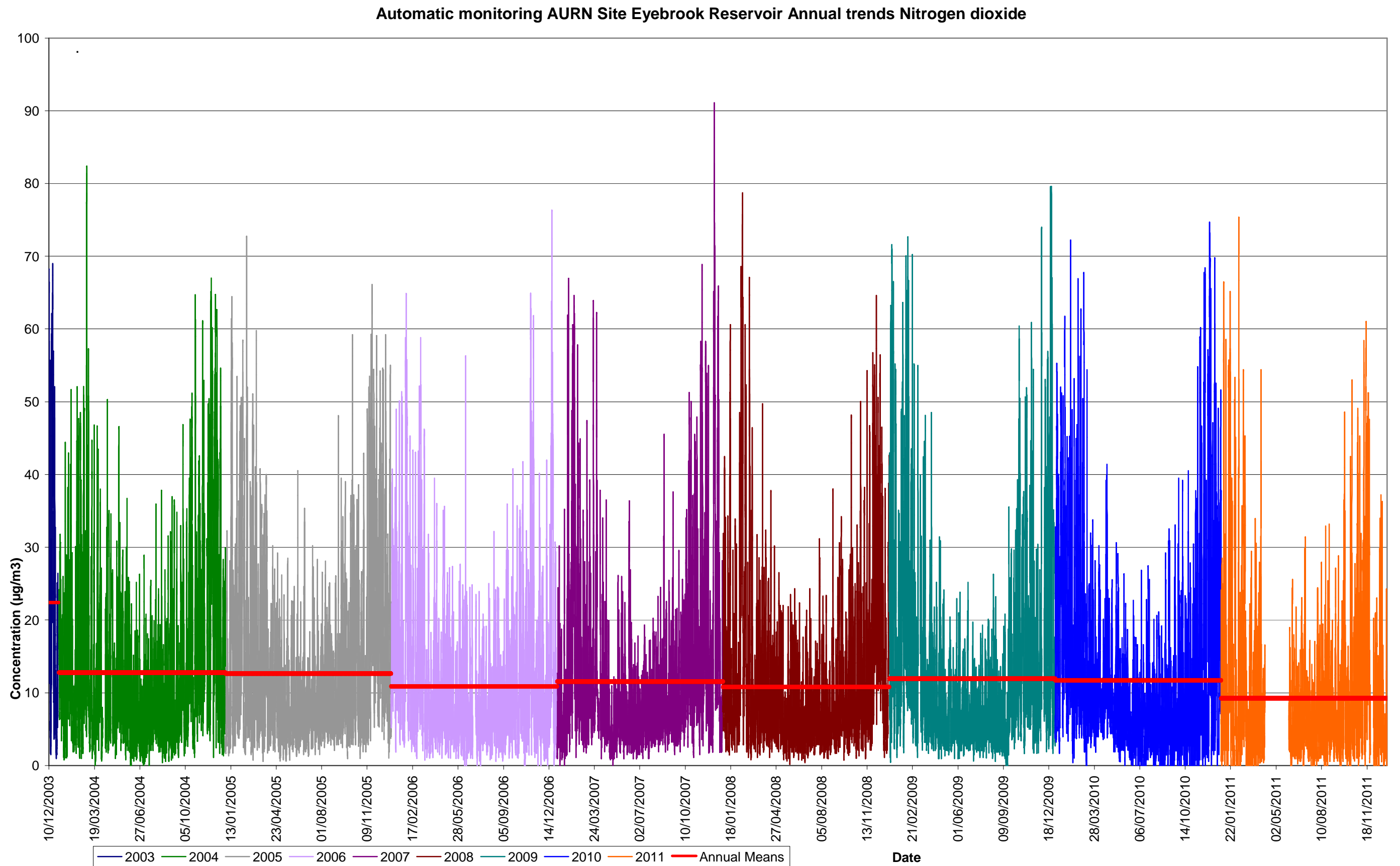
^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

^c If the period of valid data is less than 90%, include the 99.8th percentile of hourly means in brackets

*Number of exceedences for previous years are optional.

Figure. 7. Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Automatic Monitoring Site Eyebrook Reservoir



5.2.1.2 Diffusion Tube Monitoring Data

Table 6. Results of Nitrogen Dioxide Diffusion Tubes in 2011

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2011 (%) ^a	Data with less than 9 months has been annualised (Y/N) ^b	Annual mean concentration (BAF = 1.06) ^{b,c,d,e}	Façade corrected data
82705- Harborough 01n	Lutterworth Service Shop	Roadside	Y	N	100%	N	49.47	
82708- Harborough 03n	Brooklands (Home)	Urban background	N	N	92%	N	18.41	
84431- Harborough 07n	Theddingworth	Roadside	N	N	25%	Y	27.09	
84433- Harborough 09n	Maxwell Way	Roadside	N	N	100%	N	25.53	18.53
84435- Harborough 11n	Day Nursery	Roadside	N	N	100%	N	26.15	19.92
84440- Harborough 12n	A6 Kibworth	Roadside	N	N	100%	N	40.55	26.11
84441- Harborough 13n	Rockingham Road	Roadside	N	N	100%	N	37.10	28.48
84444- Harborough 16n	Walcote	Roadside	N	N	100%	N	28.97	23.29
84446- Harborough 17n	The Square	Roadside	N	N	75%	N	28.15	25.28
84448- Harborough 18n	Jazz Hair	Roadside	N	N	83%	N	45.16	
86155- Harborough 19n	Wistow Rd Kibworth	Roadside	N	N	92%	N	23.99	20.50
86383- Harborough 22n	77 Leicester road Lutterworth	Roadside	N	N	100%	N	26.15	
86930- Harborough 23n	6 The Terrace Rugby Road	Roadside	N	N	92%	N	37.49	
86931- Harborough 24n	4-9 regent court	Roadside	N	N	75%	N	26.62	
86932- Harborough 25n	26 Market Street Lutterworth	Roadside	Y	N	83%	N	35.83	33.81
86933- Harborough 26n	24 Rugby Road Lutterworth	Roadside	N	N	92%	N	49.53	
86934- Harborough 27n	17 Rugby road Lutterworth	Roadside	N	N	83%	N	36.78	32.63
???? - Harborough 28n	Spencerdene main st Thed	Roadside	N	N	75%	Y	21.97	17.85
???? - Harborough 29n	Homeside main st Thed	Roadside	N	N	67%	Y	30.28	29.64

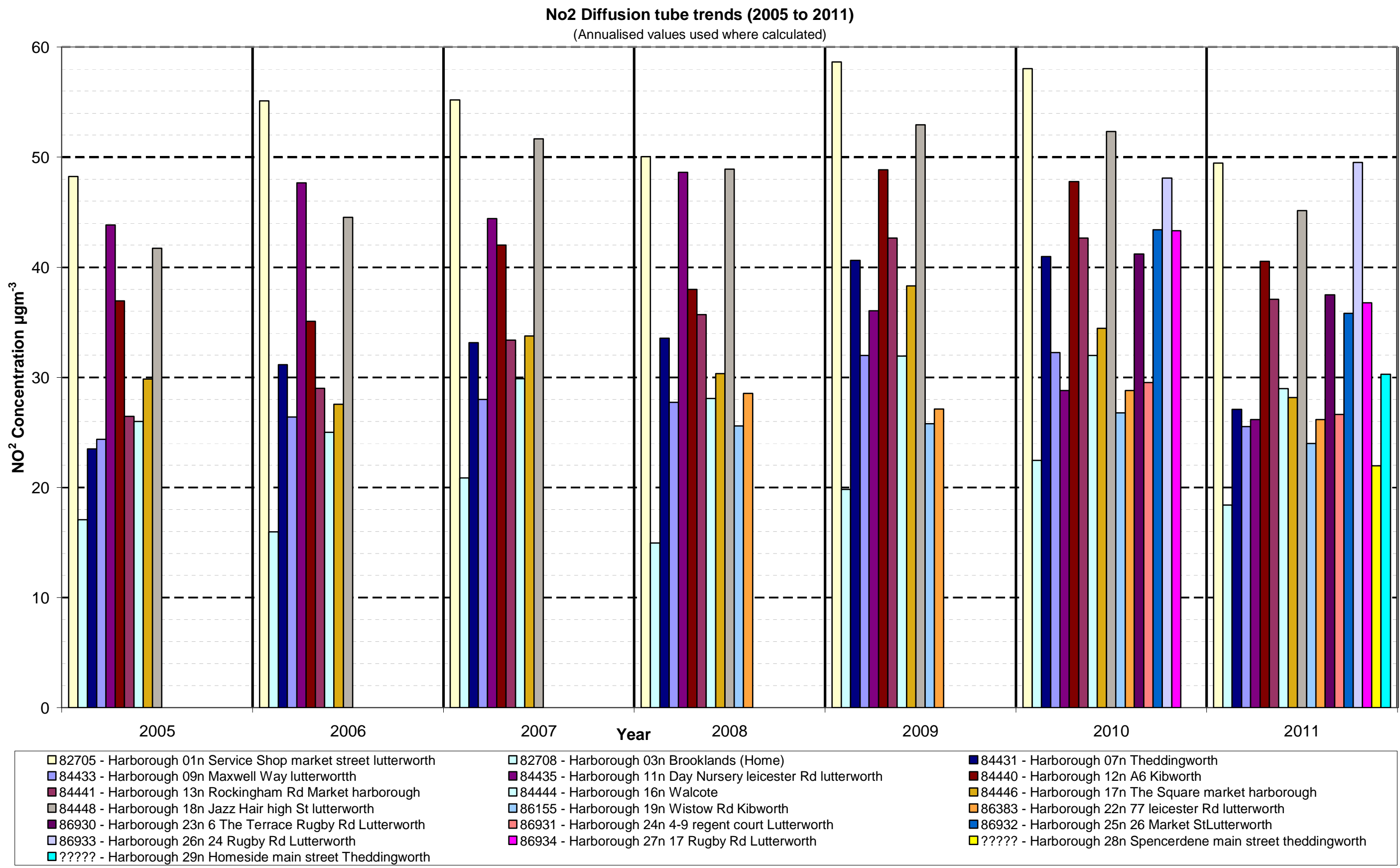
- a. i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
- b. Means should be “annualised” as in Box 3.2 of TG(09) pg3-4, if monitoring was not carried out for the full year. Annualised data highlighted in green (see Appendix C for calculations)
- c. Values exceeding the AQ objective are shown in red
- d. Values exceeding $36 \mu\text{g m}^{-3}$ (1 standard deviation below the AQ objective) are shown in Blue.
- e. BAF is Bias Adjustment Factor .

Table 7. Results of Nitrogen Dioxide Diffusion Tubes (2005 to 2011)

Site ID	Location	Within AQMA ?	Data Capture for monitoring period ^a %	Data Capture for full calendar year 2011 ^b %	Annual mean concentrations (μgm^{-3}) ^{c, d, e, f, g}						
					2005	2006	2007	2008	2009	2010	2011
					BAF = 0.81	BAF = 0.87	BAF = 0.90	BAF = 0.83	BAF = 1.02	BAF = 1.06	BAF = 1.06
82705- Harborough 01n	Lutterworth Service Shop	Y	100%	100%	48.24	55.13	55.20	50.03	51.75	58.04	49.47
82708- Harborough 03n	Brooklands (Home)	N	92%	92%	17.08	15.98	20.86	14.94	17.48	22.45	18.41
84431- Harborough 07n	Theddingworth	N	25%	25%	23.49	31.16	33.15	33.55	35.85	40.99	27.09
84433- Harborough 09n	Maxwell Way	N	100%	100%	24.38	26.39	27.98	27.74	28.23	32.24	25.53
84435- Harborough 11n	Day Nursery	N	100%	100%	43.84	47.68	44.40	48.62	31.80	28.80	26.15
84440- Harborough 12n	A6 Kibworth	N	100%	100%	36.94	35.09	42.00	37.97	43.11	47.79	40.55
84441- Harborough 13n	Rockingham Road	N	100%	100%	26.46	29.00	33.38	35.69	37.65	42.67	37.10
84444- Harborough 16n	Walcote	N	100%	100%	26.01	24.99	29.88	28.07	28.17	31.98	28.97
84446- Harborough 17n	The Square	N	75%	75%	29.84	27.55	33.75	30.34	33.81	34.45	28.15
84448- Harborough 18n	Jazz Hair	N	83%	83%	41.72	44.54	51.68	48.90	46.72	52.33	45.16
86155- Harborough 19n	Wistow Rd Kibworth	N	92%	92%				25.59	22.75	26.77	23.99
86383- Harborough 22n	77 Leicester road Lutterworth	N	100%	100%				28.54	23.93	28.80	26.15
86930- Harborough 23n	6 The Terrace Rugby Road	N	92%	92%						41.22	37.49
86931- Harborough 24n	4-9 regent court	N	75%	75%						29.51	26.62
86932- Harborough 25n	26 Market Street Lutterworth	Y	83%	83%						43.41	35.83
86933- Harborough 26n	24 Rugby Road Lutterworth	N	92%	92%						48.09	49.53
86934- Harborough 27n	17 Rugby road Lutterworth	N	83%	83%						43.33	36.78
???? - Harborough 28n	Spencerdene main st Thed	N	100%	75%							21.97
???? - Harborough 29n	Homeside main st Thed	N	89%	67%							30.28

- a) i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
- b) i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)
- c) Means should be "annualised" as in Box 3.2 of TG(09) pg3-4, if monitoring was not carried out for the full year. Annualised data highlighted in green (Appendix C for calculations)
- d) Annual mean concentrations for previous years are optional.
- e) Values exceeding the AQ objective are shown in red
- f) Values exceeding $36 \mu\text{gm}^{-3}$ (1 standard deviation below the AQ objective) are shown in Blue.
- g) BAF is Bias Adjustment Factor

Figure 8. Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites



5.2.2 PM₁₀

This Authority Does Not Currently Monitor for this pollutant

5.2.3 Sulphur Dioxide

This Authority Does Not Currently Monitor for this pollutant

5.2.4 Benzene

This Authority Does Not Currently Monitor for this pollutant

5.2.5 Other pollutants monitored

This Authority Does Not Currently Monitor for any other pollutants

6 Summary of Compliance with Air Quality Standards [AQS] Objectives

6.1 Nitrogen Dioxide

6.1.1 Lutterworth

Within the AQMA at Lutterworth 2 exceedences of the annual mean AQS for Nitrogen dioxide where detected.

1 tube just outside of the AQMA recorded an exceedence of the annual mean AQS for Nitrogen dioxide at 24 rugby road. This will require addressing in the further assessment being undertaken following the extension to the AQMA.

6.1.2 Kibworth

The diffusion tube located adjacent to the A6 in Kibworth detect an exceedence of the annual mean AQS for Nitrogen dioxide for the third year in row however once a façade correction is applied the level of nitrogen dioxide at the nearest relevant receptor is significantly below the annual mean AQS for Nitrogen dioxide.

6.1.3 Market Harborough

The diffusion tube at Rockingham road recorded a nitrogen dioxide level approaching the annual mean AQS for Nitrogen dioxide however once a façade correction is applied the nitrogen dioxide level at the nearest relevant receptor is significantly below the annual mean AQS for Nitrogen dioxide.

6.1.4 Theddingworth

Following placement of tubes at appropriate monitoring locations no exceedence at relevant receptors have been recorded

6.1.5 Walcote

No exceedences of the annual mean AQS for Nitrogen dioxide at relevant receptors have been recorded

Harborough District Council has examined the results from monitoring in the district. Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

7 Road Traffic Sources

7.1 Narrow Congested Streets with Residential Properties Close To the Kerb

Harborough District Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

7.2 Busy Streets Where People May Spend 1-Hour or More Close To Traffic

Harborough District Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

7.3 Roads with a High Flow of Buses And / Or HGVs.

Harborough District Council confirms that there are no new/newly identified roads with high flows of buses/HGVs.

7.4 Junctions

Harborough District Council confirms that there are no new/newly identified busy junctions/busy roads.

7.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

Harborough District Council confirms that there are no new/proposed roads.

7.6 Roads with Significantly Changed Traffic Flows

Harborough District Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

7.7 Bus and Coach Stations

Harborough District Council confirms that there are no relevant bus stations in the Local Authority area.

8 Other Transport Sources

8.1 Airports

Harborough District Council confirms that there are no airports in the Local Authority area.

8.2 Railways (Diesel and Steam Trains)

8.2.1 Stationary Trains

Harborough District Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

8.2.2 Moving Trains

Harborough District Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

8.3 Ports (Shipping)

Harborough District Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

9 Industrial Sources

9.1 Industrial Installations

9.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

Harborough District Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

9.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

Harborough District Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

9.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Harborough District Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

9.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the Local Authority area.

9.3 Petrol Stations

Harborough District Council confirms that there are no petrol stations meeting the specified criteria.

9.4 Poultry Farms

Harborough District Council confirms that there are no poultry farms meeting the specified criteria.

10 Commercial and Domestic Sources

10.1 Biomass Combustion – Individual Installations

Harborough District Council confirms that there are no biomass combustion plant in the Local Authority area.

10.2 Biomass Combustion – Combined Impacts

Harborough District Council confirms that there are no biomass combustion plant in the Local Authority area.

10.3 Domestic Solid-Fuel Burning

Harborough District Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

11 Fugitive or Uncontrolled Sources

Harborough District Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

12 Action Plan Progress Report

All Measures within the current action plan have now either been completed or deemed in appropriate as a result of the concerns of local residents and other highway concerns

This authority is currently in the progress of drafting a revised action plan in conjunction with Leicestershire county council highways due for publication for public comment in April 2013

Table 8. Action Plan Progress

No.	Measure	Lead authority	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Status
1	Completion of Lutterworth Western Relief Road to divert traffic from the town centre	County Council	>2 µgm ⁻³	<p>During Winter 2007/08 a traffic study of Lutterworth was completed to look at the cost and feasibility of providing a bypass to remove traffic, in particular HGVs, from the town centre. Three options were considered – a Western Relief Road, a new Western Bypass and an Eastern Bypass incorporating a split junction on the M1 Motorway.</p> <p>The study included an analysis of traffic patterns and this, combined with initial consultation, suggest that completing the Western Relief Road will not solve the problem of reducing HGV nuisance in Lutterworth, but would move it to another part of the town and would effectively constrain Lutterworth within a triangle of roads all with a high proportion of HGVs using them. The new Western route would also be unattractive due to the length of diversions that would be necessary.</p> <p>The Eastern option would provide the best overall traffic benefit to the town and received the most support during the initial consultation. However, this is a very expensive option and it will be difficult to secure funding. Leicestershire County Council Highways Department are now discussing with Harborough District Council the possibility of abandoning the reservation for the Western Relief Road and taking forward a longer-term aspiration of an Eastern Bypass. Leicestershire County Council highways department are discussing the options to formally consult on this through the Local Development Framework consultation on the Core Strategy to ensure it is considered in the context of wider planning for Lutterworth. It is also being considered in the development of Leicestershire County Councils longer-term transport plan.</p> <p>In the short-term, Leicestershire County Council made an undertaking at the Harborough Highway Forum in April 2008 to have a look at the surface and utility's equipment in the town centre to see if there were any improvements that could be made, predominantly to reduce noise and vibration. From an initial inspection there are some utility covers that are lower than the road surface and could be reset and a small area of surfacing that requires attention. There are very few other options that can be pursued in the short-term to improve levels of air quality.</p> <p>Following the transport study, consultation on abandoning the reservation of the Western Relief Road and seeking views on the eastern option has taken place through the Harborough LDF process.</p>		deemed in appropriate as a result of local concerns
2	7.5 tonne weight limit to divert lorries from A426 through the town centre.	County Council	>2 µgm ⁻³	<p>Diverting lorries away from the town centre would depend on providing an alternative route. The traffic study outlined in Action 1 suggests that completing the Western Relief Road and removing the 7.5 tonne weight restriction would only move the nuisance to another part of the Lutterworth. Initial consultation suggests that this option would meet with strong local opposition. Consultation on abandoning the Western Relief Road reservation is to take place and the Eastern option would be a longer-term proposal. This measure is therefore considered unfeasible in the short-term by Leicestershire County Council.</p>		Subject to action No.1
3	Lower emissions from district and it's contractor vehicle fleets	Harborough District	<0.2 µgm ⁻³	<p>It is a condition of all new contract renewals that vehicles use Euro 4 standard engines. PEST control, dog warden and refuse contracts have recently been renewed</p>		Completed 2008
4	Cleaner vehicles in town centre with Low Emission Zone	County Council	>2 µgm ⁻³	<p>A Low Emission Zone would only allow access to the town centre by vehicles which meet the most recent emission standards. This would have severe implications for the goods vehicles and buses which currently provide for the essential needs of the town. Such a proposal would only be feasible in the longer term when vehicles become less polluting (i.e. beyond end of LTP2).</p>		ongoing 2016
5	Planning Controls to reduce traffic impact of new development on AQMA	Harborough District	<0.2 µgm ⁻³	<p>Planning controls to reduce traffic impact from new development have been used successfully in the past through the application of lorry route agreements for new developments at the nearby Magna Park, which all exclude the use of the A426 through the town centre. Similar agreements will be imposed on future new developments of this type. See also action 12.</p>		completed 2008 Measures ongoing

No.	Measure	Lead authority	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Status
6	Road side emission testing of goods vehicles	VOSA	1 – 0.2 µgm ⁻³	Roadside emission testing has been raised with the Vehicle and Operating Services Agency (VOSA) and further consideration will be given to the inclusion of the A426 in their programme of roadside emission testing. The District Council undertook a VOSA 'dirty diesel' advertising campaign to get people to report polluting vehicles in 2008.		2008
7	Work with bus companies to reduce bus emissions	County Council	1 – 0.2 µgm ⁻³	Although the major cause of air quality problems in Lutterworth has been identified as HGV lorries, reductions in bus emissions will help to improve the overall position. Bus operators either have or are developing strategies that include initiatives to improve fuel efficiency and are designing training to reduce fuel consumption by better driving styles to help reduce emissions. An example of this is information on timetables for drivers to turn off engines if they will be at bus stops for longer than 2 minutes. The City Council are letting a study to investigate the use of alternative, fuel efficient vehicles for the new Park & Ride Site at Enderby which is being jointly delivered by the City and County Councils. As work develops to improve engine efficiency the Quality Bus Partnership provides the mechanism for local operators to share and develop best practice / experience. Bus operators are working to modernise their fleets. By working in partnership over a number of areas Arriva invested £9.6m in 54 new vehicles in 2006/07 which has significantly reduced the average age of their vehicle fleet. Older vehicles have been replaced with new vehicles containing lower emission Euro 4 engines.		Implemented 2008 Measures ongoing
8	Network management for road works, incidents and planned events	County Council	<0.2 µgm ⁻³	Network management is not a major issue for Lutterworth as there are no large venues and it is a relatively small market town. As part of the Network Management Duty Leicestershire county council highways co-ordinate streetworks, manage planned events, and have procedures for dealing with incidents. Leicestershire county council highways roadworks protocol aims to provide improved roadworks information to the public and greater involvement for the public in their approach to delivering roadworks.		2008
9	School travel planning with investment in walking and cycle routes	County Council	<0.2 µgm ⁻³	<p>School travel planning</p> <p>Concerted efforts continue to increase the number of schools with travel plans across the County. We work closely with schools to encourage and support them in the development of plans. To further encourage them to do so our capital investment programme for safer routes to school is focused on those who have travel plans or are developing them. 68% of schools in Harborough had travel plans in place at the end of 2009, which is an increase from 61% in July 2008.</p>		2008
				<p>Cycling</p> <p>A key plank of Leicestershire county council highways strategy to tackle congestion is to encourage much greater levels of cycling across the County by improving the cycling facilities available. A Cycling Network Plan which shows existing cycle routes and identifies other possible layouts for routes in Lutterworth has been developed by the Lutterworth Cycling Network Working Group as part of the Lutterworth Improvement Partnership. The group will continue to work with the County Council, District Council and Sustrans to identify funding sources for the implementation of the plan. This will form part of a wider transport strategy for Lutterworth that is in the process of being developed. A cycle park has been installed at the Lutterworth One-Stop-Shop to encourage cycle use in the town and Harborough District Council took part in 'Bike to Work Week'. Harborough have also introduced 'Cyclescheme' to allow employees to purchase tax free bikes. The intention is to roll this scheme out to local businesses. Data on cycling levels in Harborough is limited but based on figures to the end of 2008, there has been a 15% increase in cycling at counting sites in the County since 2000-03 (LTP2 base). However, this increase should be considered in the context of the inclusion of additional count sites as LTP2 has developed, significant growth that has been achieved at a couple of sites and the relatively small number of trips involved at certain sites (leading to big % changes). Further work is ongoing to identify the impact of these factors on the overall figure but these increases represent a significant achievement following a period of static growth in levels of cycling across the County during LTP1 (2006-2011).</p>		

No.	Measure	Lead authority	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Status
10	Smarter Choices and promotion building on working travel plans	County Council	<0.2 µgm ⁻³	Leicestershire County Council highways, transportation and development guide for developers requires a travel plan for new developments over a certain area or number of dwellings. Furthermore, national planning guidance (PPG13) specifies that even smaller developments will require travel plans where they might generate significant amounts of traffic in, or near to, air quality management areas. Work continues to encourage major employers across the County to put workplace travel plans in place to reduce congestion. We are working closely with District Councils where planning applications are involved. 41% of major employers (>250 employees) across the County had travel plans in place, at the end of 2009 which is an increase from 39% in July 2008. We are on track to achieve our target for 50% of major employers to have travel plans by the end of 2010/11.		Implemented 2008 Measures ongoing
11	Better vehicle use of roadspace for less disruption to free flowing traffic	County Council	<0.2 µgm ⁻³	CPE Civil Parking Enforcement (CPE) was introduced in Leicestershire from July 2007. This has seen the enforcement of parking regulations pass from the Police to the County and District Councils. We are undertaking a data gathering exercise to allow us to monitor the effectiveness of CPE. We will need at least two years worth of data before we can start identify trends and whether CPE is achieving a change in behaviour. The increased number of traffic wardens in the district will result in fewer obstructions and less disruption to the free flow from illegally parked vehicles Reduction in congestion and improved air quality, with efficient junction designs and smarter electronic controls making best use of a junction's capacity and increasing the throughput of traffic. Junction improvements The County Council's ongoing transport improvement programme includes schemes which are aimed at improving traffic flows through improvements to traffic signal and Intelligent Transport Systems, and major and minor junctions.		Implemented 2008 measures ongoing
12	Land use planning for no unnecessary additional traffic through town centre.	Harborough District	1-0.2 µgm ⁻³	Within Local Development Frameworks it is necessary for any major development, residential or commercial, to carryout a Sustainability Appraisal as part of the planning application process. This will further reduce the impact any new major development will have on the air quality within the Air Quality Management Areas.	Required Air quality assessment of planning applications likely to impact on the AQMA.	ongoing 2011

13 Conclusions and Proposed Actions

13.1 Conclusions From New Monitoring Data

- Generally air quality within the district meets the air quality standards
- Air quality within the Lutterworth AQMA is still failing to meet air quality standards
- 1 diffusion tube outside of the Lutterworth AQMA a few meters from its southern edge failed to meet air quality standards.

13.2 Conclusions From Assessment Of Sources

- There are no New or significantly changed sources of air quality pollutants

13.3 Proposed Actions

- Address the exceedence of the AQS outside of the AQMA in the Lutterworth AQMA further Assessment due for publication April 2013
- Publish the revised Air Quality Action Plan for public consultation by April 2013

14 References

14.1 Legislation And Statutory Instruments

- [1] *Environment Act 1995 Part IV s80 - 91*, Ch 25. London: HMSO.
Available at:
http://www.opsi.gov.uk/acts/acts1995/ukpga_19950025_en_1
[accessed 23rd July 2010]
- [2] *Air Quality (England) Regulations 2000* (SI2000/No.0928) London: HMSO. Available at: <http://www.opsi.gov.uk/si/si2000/20000928.htm>
[accessed 23rd July 2010]
- [3] *Air Quality (England) (Amendment) Regulations 2002* (SI2002/No.3043). London: HMSO. Available at:
<http://www.opsi.gov.uk/si/si2002/20023043.htm> [accessed 23rd July 2010]
- [4] *Air Quality Standards Regulations 2007* (SI2007/No.0064). London: HMSO. Available at
http://www.opsi.gov.uk/si/si2007/uksi_20070064_en_1 [accessed 23rd July 2010]
- [5] *The Air Quality Standards Regulations 2010* (SI2010/No.1001). London: HMSO. Available at
http://www.opsi.gov.uk/si/si2010/uksi_20101001_en_1 [accessed 23rd July 2010]
- [6] *The Harborough District Council (Air Quality Management Area No.1) Order 2001*. Market Harborough: Harborough District Council.
Available at
http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=4 [Accessed 27th January 2011]
- [7] *The Harborough District Council (Air Quality Management Area No.1) (amendment) Order 2012*. Market Harborough: Harborough District

Council. Available at

http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=4 [Accessed 25/04/2012]

14.2 British Standards

- [8] British Standards Institution, 2007. *BS EN 15259:2007 Air quality. Measurement of stationary source emissions. Requirements for measurement sections and sites and for the measurement objective plan and report*. Milton Keynes: BSI
- [9] British Standards Institution 2007. *BS ISO 4226:2007 - Air quality. General aspects. Units of measurement*. Milton Keynes: BSI

14.3 Technical Guidance

- [10] Department for Food and Rural Affairs, 2009. *Local Air Quality Management Technical Guidance LAQM.TG(09)*. London: Department for Food and Rural Affairs
- [11] Department for Food and Rural Affairs, 2009. *Local Air Quality Management Policy Guidance LAQM.PG(09)*. London: Department for Food and Rural Affairs
- [12] Department for Food and Rural Affairs, 2003. *Local Air Quality Management Technical Guidance LAQM.TG(03)*. London: Department for Food and Rural Affairs

14.4 Previous Air Quality Reports

- [13] Harborough District Council, 2010. *Air Quality Detailed Assessment of Leicester Road, High Street and Rugby Road Lutterworth 2010*. Market Harborough: Harborough District Council.
- [14] Harborough District Council. 2010. *Air Quality Progress Report 2010*. Market Harborough: Harborough District Council. Available at http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=2 [Accessed 23rd July 2010]

- [15] Harborough District Council. 2009. *Air Quality Update and Screening Assessment 2009*. Market Harborough: Harborough District Council Available at http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=2 [Accessed 23rd July 2010]
- [16] Harborough District Council. 2008. *Air Quality Progress Report 2008*. Market Harborough: Harborough District Council Available at http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=2 [Accessed 23rd July 2010]
- [17] Harborough District Council. 2007. *Air Quality Progress Report 2007*. Market Harborough: Harborough District Council Available at http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=2 [Accessed 23rd July 2010]
- [18] Harborough District Council. 2006. *Air Quality Update and Screening Assessment 2006*. Market Harborough: Harborough District Council Available at http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=2 [Accessed 23rd July 2010]
- [19] Harborough District Council. 2005. *Air Quality Progress Report 2005*. Market Harborough: Harborough District Council. Available at http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=2 [Accessed 23rd July 2010]
- [20] Harborough District Council. 2004. *Air Quality Stage 4 Report 2004*. Market Harborough: Harborough District Council. Available at http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=2 [Accessed 23rd July 2010]
- [21] Harborough District Council. 2004. *Air Quality Action Plan 2004*. Market Harborough: Harborough District Council. Available at http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=2 [Accessed 23rd July 2010]

- [22] Harborough District Council. 2004. *Air Quality Progress Report 2004*. Market Harborough: Harborough District Council. Available at http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=2 [Accessed 23rd July 2010]
- [23] Harborough District Council. 2003. *Air Quality Update and Screening Assessment 2003*. Market Harborough: Harborough District Council. Available at http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=2 [Accessed 23rd July 2010]
- [24] Harborough District Council. 2001. *Air Quality Stage 2 & 3 report 2001*. Market Harborough: Harborough District Council. Available at http://www.harborough.gov.uk/site/scripts/documents_info.php?documentID=145&pageNumber=2 [Accessed 25/04/2012]
- [25] Harborough District Council. 1999. *Air Quality Stage 1 report 1999*. Market Harborough: Harborough District Council.

14.5 Other Documents

- [26] Leicestershire County Council Highways Department. 2006. *Leicestershire Local Transport Plan 2006 – 2011 (LTP2)*. Leicestershire: Leicestershire County Council. [online] Available at: http://www.leics.gov.uk/index/highways/transport_plans_policies/ltp/current_transport_plans/local_transport_plan_pdf_index.htm [Accessed 25/04/2012]
- [27] Leicestershire County Council Highways Department. 2006. *Leicestershire Local Transport Plan 2006 – 2011 (LTP2)*. Leicestershire: Leicestershire County Council. [online] Available at: http://www.leics.gov.uk/index/highways/transport_plans_policies/ltp/current_transport_plans.htm [Accessed 25/04/2012]
- [28] Department for Transport, 2008. *Annual Average Daily Traffic Flows*. London: Department for Transport <http://www.dft.gov.uk/matrix>

- [29] Department for Food and Rural Affairs. *Air Quality Archive* [online] Available at: <http://www.airquality.co.uk> [Accessed 23rd July 2010]
- [30] Department for Food and Rural Affairs. 2007. *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland*. London: Department for Food and Rural Affairs July 2007. Cmd Paper No. 7169.
- [31] Department for Food and Rural Affairs., 2007. *National Atmospheric Emissions Inventory*. [online] Available at: <http://www.naei.org.uk> [accessed 23rd July 2010].
- [32] Highways Agency, 1992 (updated June 2010). *Design Manual for Roads and Bridges Volume 11, Section 3 Environmental Assessment Techniques*. Birmingham: Highways Agency. Available at: <http://www.standardsforhighways.co.uk/dmrb/index.htm> [accessed 25/04/2012].
- [33] Department for Food and Rural Affairs, 2009. *FAQ: Guidance on running the DMRB screening model*. London: Department for Food and Rural Affairs available at: http://laqm.defra.gov.uk/documents/DMRB_text_150409.pdf [accessed 23/03/2012].
- [34] Office for National Statistics, 2009. *Resident Population Estimates, All Persons, Mid 2010*. [Online] (updated 28th September 2011) Available at <http://neighbourhood.statistics.gov.uk/dissemination/LeadTrendView.do?a=3&c=LE16+7AG&e=13&f=26484&q=465896&i=1001x1012x1013x1003x1004x1005&j=310163&l=1813&o=322&m=1&p=-1&q=1&r=0&s=1280221263515&enc=1&adminCompld=26484&variableFamilyIds=6681&xW=1377> [Accessed 13/04/2012].
- [35] Department for Food and Rural Affairs, 2008. *Estimated Background Air Pollution Maps for 2008 and Projections for Other Years*. [Online]

Available at <http://laqm1.defra.gov.uk/review/tools/background-maps-info.php?year=2008#intro> [Accessed 23/03/2012].

- [36] Bureau Veritas, 2011, version 03/11. *National bias adjustment factors spreadsheet*. [Online] Available at <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html> [accessed 09/03/2012].

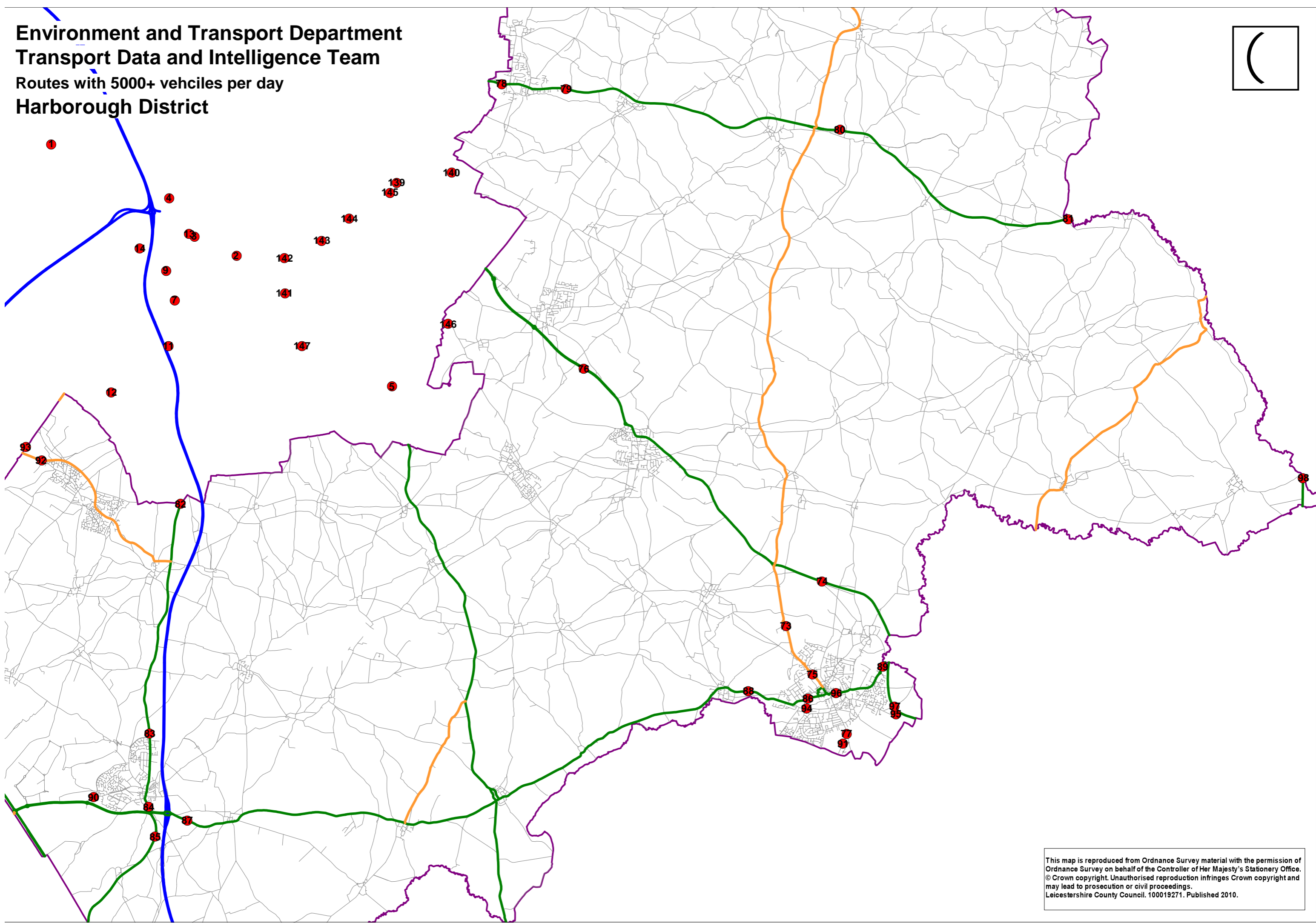
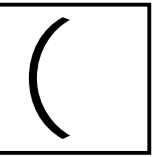
14.6 Models

- [37] The Highways Agency. 2007. *DMRB Screening method v1.03c* Birmingham: The Highways Agency Available at: [http://www.highways.gov.uk/business/documents/DMRB_Screening_Method_V1.03c_\(12-07-07\)_locked.zip](http://www.highways.gov.uk/business/documents/DMRB_Screening_Method_V1.03c_(12-07-07)_locked.zip) [accessed 20/03/2012]
- [38] Department for Food and Rural Affairs. 2010 *NO_x to NO₂ calculator*. London: Department for food and Rural Affairs Available at: <http://laqm1.defra.gov.uk/review/tools/monitoring/calculator.php> [accessed 20/03/2010]

15 Appendices

Appendix A. Highways Traffic Data

**Environment and Transport Department
Transport Data and Intelligence Team**
Routes with 5000+ vehicles per day
Harborough District



This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Leicestershire County Council. 100019271. Published 2010.

ID	Site No.	Site Location	GridE	GridN	District	2011_AWT
1	20609	Hinckley Road, W of Beggars Lane, LFE (pro)	451816	302482	BLABY	12711
2	21226	Leicester Road, S of Hall Cl, Glen Parva	456975	299386	BLABY	18892
3	21803	Soar Valley Way, E of Grove Way, Enderby	455805	299915	BLABY	48592
4	21806	Lubbesthorpe Way, N of Meridian South, Braunstone	455098	300984	BLABY	32495
5	22527	Welford Road, S of Kilby Bridge, Kilby	461294	295755	BLABY	8667
6	23203	Coventry Road, S of Village, Sharnford (Pro)	447781	291417	BLABY	7318
7	23306	Enderby Road, S of St Johns, Whetstone (pro)	455254	298144	BLABY	21828
8	23923	Coventry Rd, E of Frolesworth Rd, Sapcote (pro)	448999	292243	BLABY	8899
9	23926	St Johns, N of Blaby Rd, Enderby	455017	298966	BLABY	40111
10	24069	Hinckley Road, E of M69, Sapcote (pro)	446889	293813	BLABY	8480
11	25044	Warwick Road, E of Riverside Way, Whetstone (Pro)	455081	296872	BLABY	5962
12	25046	Croft Road, E of Coventry Road, Cosby	453483	295585	BLABY	5457
13	25098	Grove Way, S of Everard Way, Fosse Park, Enderby	455648	299994	BLABY	12094
14	25189	Leicester Lane, W of Smith Way, Enderby	454278	299588	BLABY	14047
15	25200	Grobby Road, W of County Hall, Glenfield	454219	307049	BLABY	27809
16	25205	Leicester Road, E of County Hall, Glenfield	455248	306496	BLABY	26318
17	20005	Ashby Road, E of M1, Loughborough (Pro)	449815	318403	CHARN	26077
18	20238	Derby Road, S of Hathern, Loughboro (pro)	450568	321655	CHARN	18892
19	20239	Loughborough Rd, N of Station Rd, Birstall	459006	308471	CHARN	24649
20	20240	Loughborough Road, N of Birstall, Wanlip	459177	310218	CHARN	27452
21	20241	Loughborough Road, Woodthorpe, Quorn (pro)	454860	317865	CHARN	18162
22	20243	Derby Road, N of Leopold Street, Loughborough	453097	320109	CHARN	17699
23	20250	Quorn/Mountsorrel Bypass, N of Lough Rd, Rothley	458976	314206	CHARN	34460
24	21026	Nottingham Road, W of Barrow Rd, Cotes	455330	320610	CHARN	11450
25	21028	Rempstone Road, N of Village, Hoton (Pro)	457378	322958	CHARN	7651
26	22002	Ashby Road East, W of M1, Shepshed	448867	318293	CHARN	20061
27	22207	Newark Road, Thurmaston	461423	309890	CHARN	30235
28	22211	Syston Bypass, W of Craftsmans Way, Queniborough	463480	312962	CHARN	19535
29	22214	Melton Road, N of Parkstone Rd, Syston	463244	312063	CHARN	10467
30	22215	Melton Road, N of Syston Bypass, East Goscote	464308	313041	CHARN	6840
31	22540	Leicester Rd, E of Gynsill Lane, Anstey	455502	307797	CHARN	32319
32	22655	Epinal Way, N of Forest Way, Loughborough	452679	319020	CHARN	25247
33	22658	Epinal Way Ext, S of Woodthorpe Way, Quorn (pro)	454821	317506	CHARN	22967
34	22754	Zouch Road, E of Derby Rd, Hathern	450224	323237	CHARN	11819
35	22755	East Road, E of Wymeswold	461311	323720	CHARN	7771
36	25058	Meadow Lane, N of Gordon Rd, Loughborough	453951	321166	CHARN	6047
37	25111	Leicester Road, S of Thurstaston	457488	310413	CHARN	5723
38	25112	Barkby Road, S of Avenue Rd, Queniborough	464236	312171	CHARN	5091
39	25113	Melton Road, S of Manor Rd, Thurmaston	460626	308614	CHARN	29394
40	25115	Barkbythorpe Rd, S of King St, Barkby Thorpe (pro)	463180	308822	CHARN	6570
41	25118	Shepshed Road, W of Derby Rd, Hathern	449666	322041	CHARN	7135
42	25119	Barrow Road, E of A6, Quorn	456654	317390	CHARN	12107
43	25120	Woodhouse Road, S of Chaveney Rd, Quorn	454757	316044	CHARN	8047
44	25122	Humberstone Lane, N of Colby Rd, Thurmaston (pro)	461647	308503	CHARN	12715
45	25123	Nanpantan Rd, W of Snells Nook Lane, Loughborough	450326	317175	CHARN	7938
46	25137	Cossington Lane, W of Syston Rd, Rothley	459475	312959	CHARN	9394
47	25153	Loughborough Road, W of A6 link, Rothley	458926	313899	CHARN	9606
48	25164	Warwick Way, E of Epinal Way, Loughborough	451825	320451	CHARN	15626
49	25168	Cropston Road, S of Anstey Lane, Anstey	455648	309606	CHARN	6462
50	25169	Greengate Lane, W of Woodgate Drive, Birstall	458537	309501	CHARN	6329
51	25188	Fosse Way, N of High Street, Syston	462061	312289	CHARN	6095

52	20601	Hinckley Road, Long Spinneys, Peckleton	447428	299046	H&B	6720
53	20602	Leicester Road, Brick Kiln Hill, E of Hinckley	443881	295068	H&B	13810
54	20603	Carrs Hill, S of Elmesthorpe Ln, Barwell, Hinckley	445428	296934	H&B	10720
55	20605	Coventry Road, E of A5, Hinckley (pro)	440114	293106	H&B	12477
56	20606	Dodwells Road, N of A5, Hinckley (pro)	439930	293302	H&B	18857
57	20608	Normandy Way, E of Ashby Rd, Hinckley (pro)	443425	295848	H&B	13615
58	20612	Stoke Road, S of Normandy Way, Hinckley	441876	295292	H&B	8253
59	20613	Ashby Road, S of A47, Hinckley (pro)	443126	295618	H&B	13941
60	20615	Earl Shilton Bypass-north (pro)	447897	298538	H&B	8644
61	20617	Earl Shilton Bypass-Central (pro)	446053	296741	H&B	11757
62	20619	Earl Shilton Bypass-south (pro)	445707	296519	H&B	13757
63	20787	Leicester Road, E of M1, Markfield	448200	311113	H&B	30352
64	21502	Atherstone Road, S of George Fox Ln, Fenny Drayton	435183	296539	H&B	7131
65	21503	Atherstone Road, S of Pinwall Ln, Pinwall (Pro)	430801	299834	H&B	5800
66	21504	From Sheepy Road to County Boundary, Pinwall (Pro)	430834	300299	H&B	5645
67	21609	Ashby Road, N of A47, Hinckley (pro)	443060	296445	H&B	13918
68	22020	Shaw Lane, W of Stanton Lane, Markfield	446686	311725	H&B	34754
69	23332	Hunts Lane, E of Kirby Lane, Desford (pro)	446098	303717	H&B	8907
70	23910	Rugby Road, N of M69, Burbage, Hinckley (pro)	443391	291387	H&B	15850
71	24070	Sapcote Road, W of M69, Burbage (pro)	445328	293635	H&B	13360
72	25127	Whitwick Road, N of Cottage Lane, Markfield	448447	311582	H&B	5968
73	20233	Harborough Road, S of Gallowfield Rd, Lubenham	472247	289089	HARB	10500
74	20235	Harborough Bypass, S of Melton Rd, Great Bowden	473243	290325	HARB	12990
75	20236	Leicester Road, S of Poplars Ct, Market Harborough	472982	287743	HARB	8811
76	20249	Great Glen Bypass, S of Station Rd, Great Glen	466620	296245	HARB	17669
77	20299	Northampton Road (nr Cem) Market Harborough (Pro)	473930	286086	HARB	10250
78	20576	Thurnby Hill, W of Grange Ln, Thurnby	464342	304155	HARB	12667
79	20577	Uppingham Road, W of Bushby, Thurnby	466125	304022	HARB	11518
80	20581	Uppingham Road, W of Melton Rd, Skeffington	473749	302894	HARB	10989
81	20582	Uppingham Rd, W of Allextion, East Norton	480089	300402	HARB	9422
82	21227	Lutterworth Road, N of Dunton Bassett	455412	292489	HARB	9294
83	21228	Leicester Road, N of Bill Crane, Lutterworth (pro)	454550	286098	HARB	12387
84	21229	Rugby Road, S of Riverside Rd, Lutterworth (pro)	454522	284063	HARB	17297
85	21230	Rugby Road, N of Shawell Lane, Cotesbach (pro)	454705	283234	HARB	13148
86	21378	Coventry Road, W of Logan St, Market Harborough	472856	287072	HARB	11865
87	21402	Lutterworth Road, E of M1, Misterton	455602	283678	HARB	11083
88	21403	Lubenham Hill, E of Lubenham, Market Harborough	471192	287275	HARB	9136
89	21404	Rockingham Rd, W of A6, Market Harborough (Pro)	474940	287960	HARB	11404
90	21407	Coventry Road, N of A4303, Lutterworth (pro)	453001	284333	HARB	7219
91	21752	Northampton Road, S of Sports Club Mkt Harb (pro)	473827	285818	HARB	7138
92	23258	Coventry Road, E of B4114, Broughton Astley	451555	293694	HARB	13265
93	23924	Coventry Road, Sutton Hill, Stoney Stanton (Pro)	451116	294070	HARB	16620
94	24391	Welland Park Rd, E of Farndon Rd, Market Harborough	472815	286797	HARB	7338
95	24393	Kettering Road, W of A6, Market Harborough	475304	286634	HARB	4941
96	24394	St Mary's Road Market Harborough	473633	287224	HARB	8013
97	24395	Market Harborough By Pass, N of Kettering Rd (Pro)	475256	286849	HARB	8856
98	24400	Rockingham Road Great Easton opp Castle Inn (Pro)	486610	293197	HARB	7708
99	22106	Burton Road, Burton Lazars, Melton Mowbray	476320	317393	MELTON	10488
100	22108	Nottingham Road, N of St Barts Way, Melton	474199	321093	MELTON	8779
101	22205	Grantham Rd Croxton Kerrial S Blackwell Ldg (Pro)	484830	329813	MELTON	5548
102	22206	Leicester Road, S of Leicester St, Melton Mowbray	474945	319030	MELTON	9999
103	22208	Leicester Road, E of Kirby Bellars, Melton (pro)	472316	317326	MELTON	14672

104	22209	Waltham Rd, N of Thorpe Arnold, Waltham	477280	320361	MELTON	6737
105	22751	Main Rd, E of Asfordby Bypass, Asfordby	471696	319205	MELTON	9903
106	22753	Main Road Nether Broughton N of Anchor Inn (Pro)	469346	325787	MELTON	5907
107	22757	Paddys' Lane Old Dalby E of A46 Six Hills (Pro)	464837	322544	MELTON	5624
108	20225	Station Road Kegworth E of Anchor Inn (Pro)	449276	327242	NW	7411
109	20227	Derby Rd, N of Side Ley, Kegworth (Pro)	448081	327206	NW	18590
110	20248	London Road, S of New Brickyard Ln, Kegworth (pro)	449015	326010	NW	15153
111	20783	Nottingham Rd, W of Woodcock Way, Ashby	436447	317023	NW	14092
112	20815	Thornborough Road, N of Bypass, Coalville (Pro)	442376	315349	NW	11212
113	20816	Hermitage Road, N of A511, Coalville (Pro)	443119	315281	NW	6617
114	20817	Broom Leys Road, E of A511, Coalville (Pro)	444023	314087	NW	12486
115	20818	Leicester Road, E of St Marys Ln, Coalville (Pro)	441137	313522	NW	4967
116	20819	Ashby Road, E of Ravenstone Rd, Coalville (Pro)	441598	314659	NW	7846
117	20820	Station Road, N of The Green, Hugglescote	442434	312425	NW	7915
118	20822	Ibstock Road, S of St Marys Ln, Ravenstone (Pro)	440570	312499	NW	8166
119	20823	Ashby Road, E of The Moolands, Sinope (Pro)	440132	315268	NW	21089
120	20825	Stephenson Way, E of Ashby Rd, Coalville (pro)	442736	315062	NW	22858
121	20827	Ashby Road, S of Corkscrew Lane, Coleorton	437942	316272	NW	19427
122	20830	Ashby Bypass, E of Smisby Road (pro)	435549	318505	NW	16620
123	20831	Ashby Bypass, W of Smisby Road (pro)	434395	318585	NW	13613
124	20832	Smisby Road, S of Bypass, Ashby de la Zouch	435353	318328	NW	6986
125	20833	Moira Road, E of Dorset Dr, Norris Hill, Ashby	433135	316640	NW	5617
126	20835	Bardon Road, SE of Bardon Cl, Coalville (pro)	444408	312969	NW	21875
127	21080	Ashby Road, E of EMA, Diseworth (pro)	446160	325410	NW	15691
128	21501	Atherstone Road, N of Bowleys Ln, Appleby Magna	430772	309920	NW	7535
129	21505	From M42J11 to County Boundary, No Mans Heath -Pro	430409	310050	NW	7010
130	21507	From Rectory Lane to Measham Road, Acresford (Pro)	430119	312628	NW	11712
131	21508	Reservoir Hill, Ashby Woulds (Pro)	430888	317294	NW	9456
132	21513	Shortheath Road, Moira (Pro)	431342	315455	NW	5397
133	21615	Swannington Road, S of Ashby Rd, Ravenstone (pro)	440897	314850	NW	9127
134	22003	Ashby Road, W of Ringing Hill, Belton (pro)	444615	318349	NW	8296
135	24131	Measham Road, N of A42, Ashby-de-la-Zouch	434742	314815	NW	6370
136	25184	Beveridge Lane, W of Regs Way, Coalville	443843	311458	NW	8003
137	25190	Station Road, S of A50, Castle Donington	445181	329174	NW	18517
138	25193	Tamworth Rd Lockington NE of Netherfields Ln (Pro)	446587	330401	NW	16416
139	20211	Leicester Road S of Grenfell Road Oadby (Pro)	461423	301413	O&W	34534
140	20212	Stoughton Road N of Manor Road Oadby. (Pro)	462953	301700	O&W	12439
141	20213	Little Glen Road, E of Windsor Av, Glen Parva (Pro)	458317	298341	O&W	12790
142	20214	Saffron Road N of Namur Rd South Wigston (Pro)	458299	299321	O&W	13115
143	20215	Aylestone Lane, NE of Shackerdale Rd Wigston (Pro)	459336	299799	O&W	18616
144	20216	Welford Road N of Baldwin Road Wigston (Pro)	460100	300421	O&W	21418
145	20217	Palmerstone Way E of Link Road Oadby (Pro)	461236	301133	O&W	24605
146	20218	Newton Lane S of Glebe Farm Wigston Harcourt (Pro)	462850	297495	O&W	5525
147	20219	Countesthorpe Road N of Hospital Lane Blaby (Pro)	458789	296874	O&W	7952

Appendix B. Data from AURN Site Eyebrook Reservoir

Appendix C. NO₂ Diffusion Tube Data and Handling

National AQ archive Site details	location	Site Type	Grid Reference	Our Tube No.	Pollutants Monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road(N/A if not applicable)	Worst-case Location?	Measurement Period (µgm ³)												BIAS =		Confidence level	annualisation (in line with box 3.2 pg 3-4 of LAQM.TG(09))(only where year data capture is Greater than 75%)						Façade Correction (See Box 2.3 pg 2-6 LAQM.TG(09))						
										Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	arithmetic mean (µgm ³)	Bias adjusted arithmetic Mean (µgm ³)		Standard Deviation	no of results	period length	confidence interval	% year data coverage	% period coverage	period means	annual/period mean ratio	annualised bias adjusted mean	find relevant background concentration	background NO ₂ (µgm ³)	Façade Corrected Bias Adjusted Mean (µgm ³)	Façade Corrected Annualised Bias Adjusted Mean (µgm ³)
82705-Harborough 01n	Lut. Service Shop	Roadside	284560 454475	2	NO ₂	Y	0	4.2	Y	62	31	53	55	38	46	52	37	56	47	47	36	46.67	49.47	9.48	12	12	3.51	100	100	48.67	46.00	0.96	1.01	284500 453500	12.00		
82708-Harborough 03n	Brooklands (Home)	Urban background	286956 473418	3	NO ₂	N	N/A	N/A	Y	28	14	24	15	12	12	13	13	21	16	23	17.36	18.41	5.63	12	11	2.17	92	92	22.00	15.63	0.79	1.11	286500 472500	9.86			
84431-Harborough 07n	Theddingworth	Roadside	285571 466586	6	NO ₂	N	0	2	N	39	23	29									30.33	32.15	8.08	3	3	5.98	100	25			27.09	285500 465500	8.07				
84433-Harborough 09n	Maxwell Way	Roadside	285981 454376	8	NO ₂	N	11.1	1.2	Y	33	19	38	27	13	16	23	19	23	26	38	14	24.08	25.53	8.65	12	12	3.20	100	100	30.00	22.11	0.80	1.09	285500 453500	11.15	18.53	
84435-Harborough 11n	Day Nursery	Roadside	284932 454539	10	NO ₂	N	9	1.3	N	34	19	33	22	16	51	21	14	24	22	25	15	24.67	26.15	10.41	12	12	3.85	100	100	28.67	23.33	0.86	1.06	284500 453500	12.00	19.92	
84440-Harborough 12n	A6 Kibworth	Roadside	294314 468425	11	NO ₂	N	10.7	1.3	Y	46	37	53	45	22	35	30	28	50	37	45	31	38.25	40.55	9.58	12	12	3.55	100	100	45.33	35.89	0.84	1.07	293500 467500	10.02	26.11	
84441-Harborough 13n	Rockingham Road	Roadside	287585 474731	12	NO ₂	N	9	2.8	Y	55	23	45	32	29	29	32	24	39	32	45	35	35.00	37.10	9.44	12	12	3.49	100	100	41.00	33.00	0.85	1.06	287500 473500	13.54	28.48	

National AQ archive Site details	location	Site Type	Grid Reference Y X	Our Tube No.	Pollutants Monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road(N/A if not applicable)	Worst-case Location?	Measurement Period (µgm ³)												BIAS =		Confidence level			annualisation (in line with box 3.2 pg 3-4 of LAQM.TG(09))(only where year data capture is Greater than 75%)						Façade Correction (See Box 2.3 pg 2-6 LAQM.TG(09))				
																						1.06	80%	period means		annual/period mean ratio		annualised bias adjusted mean		find relevant background concentration		Façade Corrected Bias Adjusted Mean (µgm ³)	Façade Corrected Annualised Bias Adjusted Mean (µgm ³)				
										Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	arithmetic mean (µgm ³)	Bias adjusted arithmetic Mean (µgm ³)	Standard Deviation	no of results	period length	% year data coverage	% period coverage	confidence interval	Jan - Mar	Apr - Dec			Jan - Mar	Apr - Dec	Jan - Mar	Apr - Dec
84444-Harborough 16n	Walcote	Roadside	283652 456810	15	NO ₂	N	12.5	3	Y	45	23	33	26	21	23	21	19	28	29	29	37	23	27.33	28.97	7.68	12	12	100	100	2.84	33.67	25.22	0.81	1.08	283500 455500	15.60	23.29
84446-Harborough 17n	The Square	Roadside	287231 473373	16	NO ₂	N	2.5	3	Y	41	25	38	28	21		19	16	27	24	24			26.56	28.15	8.29	12	9	75	75	3.54	34.67	22.50	0.77	1.18	286500 472500	9.86	25.28
84448-Harborough 18n	Jazz Hair	Roadside	284348 454443	17	NO ₂	N	0	3	Y	60	40	55	51	31	33	43	28	44	41	41	43	28	42.60	45.16	10.43	12	10	83	83	4.23	51.67	38.71	0.82	1.10	283500 453500	11.19	
86155-Harborough 19n	Wistow Rd Kibworth	Roadside	294611 467739	14	NO ₂	N	4.4	2.6	Y	29	16	31	21	16	18	23	20	26		30	19		22.64	23.99	5.55	12	11	92	92	2.15	25.33	21.63	0.89	1.05	294500 466500	9.88	20.50
86383-Harborough 22n	77 leicester road Lutterworth	Roadside	284872 454533	9	NO ₂	N	0	13.5	Y	34	19	33	22	16	51	21	14	24	22	22	25	15	24.67	26.15	10.41	12	12	100	100	3.85	28.67	23.33	0.86	1.06	284500 453500	12.00	
86930 - Harborough 23n	6 The Terrace Rugby Road	Roadside	284274 454428	1	NO ₂	Y	0	2.5	Y	49	30	41	35	20	26	31		57	29	38	33	35.36	37.49	10.54	12	11	92	92	4.07	40.00	33.63	0.88	1.05	283500 453500	11.19		
86931 - Harborough 24n	4-9 regent court	Roadside	284326 454410	4	NO ₂	Y	0	16.25	Y	35	18	31	28	15	18	24	16				41	25.11	26.62	9.23	12	9	75	75	3.94	28.00	23.67	0.90	1.06	283500 453500	11.19		
86932 - Harborough 25n	26 Market Street Lutterworth	Roadside	284618 454497	5	NO ₂	Y	1.6	4.8	Y	52	27	51	44	18	30	36	25			27	28		33.80	35.83	11.56	12	10	83	83	4.69	43.33	29.71	0.78	1.14	284500 453500	12.00	33.81

National AQ archive Site details	location	Site Type	Grid Reference Y X	Our Tube No.	Pollutants Monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road(N/A if not applicable)	Worst-case Location?	Measurement Period (µgm ⁻³)												BIAS =		Confidence level	annualisation (in line with box 3.2 pg 3-4 of LAQM.TG(09))(only where year data capture is Greater than 75%)						Façade Correction (See Box 2.3 pg 2-6 LAQM.TG(09))										
										Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	arithmetic mean (µgm ⁻³)	Bias adjusted arithmetic Mean (µgm ⁻³)		Standard Deviation	no of results	period length	confidence interval	% year data coverage	% period coverage	period means	annual/period mean ratio	annualised bias adjusted mean	find relevant background concentration	Façade Corrected Bias Adjusted Mean (µgm ⁻³)	Façade Corrected Annualised Bias Adjusted Mean (µgm ⁻³)					
																																					Jan - Mar	Apr - Dec	Jan - Mar	Apr - Dec	Jan - Mar
86933 - Harborough 26n	24 Rugby Road Lutterworth	Roadside	454432	284229	NO ₂	N	0	2	Y	70	38	52	41	33	46	41	52	48	54	39	46.73	49.53	10.21	12	11	3.94	92	92	53.33	44.25	0.88	1.06	283500	453500	11.19						
86934 - Harborough 27n	17 Rugby road Lutterworth	Roadside	454476	284178	NO ₂	N	3.7	5.2	Y	39	50	39	26	36	28	29	39	33	36	28	34.70	36.78	7.39	12	10	3.00	83	83	44.50	32.25	0.78	1.08	283500	453500	11.19	32.63					
????? - Harborough 28n	Spencerdene main street theddingworth	Roadside	466535	285545	NO ₂	N	1.2	0.2	N				20	15	17	17	16	22	20	30	19.22	20.38	4.66	9	9	1.99	75	100					285500	465500	8.07	16.73	17.85				
????? - Harborough 29n	Homeside main street Theddingworth	Roadside	466551	285607	NO ₂	N	0.2	1.4	Y				30	17	23	23	33	30	35	21	26.50	28.09	6.37	9	8	2.89	67	89					285500	465500	8.07	27.51	29.64				
																																						Average ratio		0.84	1.08