



# Charnwood

*Leading in Leicestershire*

**CHARNWOOD BOROUGH COUNCIL**  
**Air Quality Progress Report**

**APRIL 2007**

CHARNWOOD BOROUGH COUNCIL

DIRECTORATE OF HOUSING AND HEALTH

Environmental Protection Section

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## EXECUTIVE SUMMARY

As part of the duties under the Environment Act 1995 local authorities are recommended to produce annual air quality progress reports in years when they are not undertaking review and assessments of air quality. This report provides both an up to date report on air quality in Charnwood and action being taken to address air quality problems.

Charnwood has three Air Quality Management Areas (AQMA's), which were declared because of predicted breaches of national air quality objectives at residential properties in the borough. The causes of these predicted breaches were emissions from local traffic and commercial sources.

In 2006, monitoring of nitrogen dioxide at thirty locations (including 4 at kerbside) in Charnwood demonstrated a breach of UK air quality objectives at nine of these. Seven of these sites fall within the existing Loughborough and Syston Air Quality Management Areas.

The additional 2 monitoring sites falling outside of existing AQMA's, namely at Birstall and Thurmaston, are seemingly remaining fairly steady, although the 2006 result at Humberstone Lane (Thurmaston) has overturned the previous 2 years decline in concentrations that had reached a level beneath the threshold. As a consequence this site will be the subject of a Detailed Air Quality Review and Assessment in 2008.

The result of the Loughborough Road (Birstall) site which had been beneath the threshold in 2004 and 2005, also reverses a previously complaint site

The overall statistical trend in nitrogen dioxide levels for the past four years is that they are on the decrease.

Sulphur dioxide emissions from the Great Central Railway engine sheds are causing occasional breaches of short-term air quality objectives. Results indicate that the existing Air Quality Management Area around the sheds should be retained, although previous monitoring suggests that the extent of the problem is not as great as was originally feared.

Progress with the implementation of the Charnwood Air Quality Action Plan has been satisfactory. Many of the transport related actions have been absorbed into Leicestershire County Councils 2006 Local Transport Plan which means that they are much more likely to be achieved.

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**GLOSSARY**

AADT	Annual Average Daily Traffic (vehicles per day)
AQMA	Air Quality Management Area
CBC	Charnwood Borough Council
CO	Carbon monoxide
DA	Detailed Assessment
DEFRA	Department for Environment Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges
EPAQS	Expert Panel on Air Quality Standards
FAQ	Frequently Asked Questions
GCR	Great Central Railway
LAQM	Local Air Quality Management
LAQM.TG(03)	Local Air Quality Management Technical Guidance Document
LCC	Leicestershire County Council
LTP	Local Transport Plan 2006-2011 (Leicestershire County Council)
mg/m <sup>3</sup>	Milligrams of the pollutant per cubic meter of air
µg/m <sup>3</sup>	Micrograms of the pollutant per cubic meter of air
ppb	Parts per billion
ppm	Parts per million
NAEI	National Atmospheric Emission Inventory
NAQS	National Air Quality Strategy
NEMA	Nottingham East Midlands Airport
NO	Nitrogen monoxide
NO <sub>2</sub>	Nitrogen dioxide
NO <sub>x</sub>	Oxides of Nitrogen
PID	Project Initiation Document
PM <sub>10</sub>	Particles with diameter less than 10µm
QA/QC	Quality Assurance / Quality Control
R&A	Review and Assessment
SO <sub>2</sub>	Sulphur dioxide
TEOM	Tapered Element Oscillating Microbalance
TG	Technical Guidance [LAQM TG(03)] Document
UKAS	United Kingdom Accreditation Service
USA	Updating and Screening Assessment
UWE	University of the West of England
vpd	Vehicles per day
WHO	World Health Organisation

## **I. INTRODUCTION**

### **I.1 BACKGROUND**

The impact of air quality on humans has long been established. Government experts have estimated that up to 24,000 people die prematurely every year because of the effects of air pollution.

Due to the successful implementation of the Clean Air Act many source of visible pollution, such as the heavy urban smog's of the 1950's, have been successfully reduced.

Today's concerns lie more predominantly with the pollutants that we are unable to see, and as such Air Quality Review and Assessments are designed to look in detail towards the seven most recognised indicators of air quality on human health to enable a more effective approach for tackling the risks, as well as the associated significant economic costs, that can be attributed to poor health.

There is still much that we do not know about the exact relationships between our health and the concentrations of the individual pollutants in the air that we breathe. The ongoing framework of the Review and Assessment process takes account however, of improvements that have been made in the methods of predicting air quality changes to establish if there have been any significant changes in the sources of pollution in the local area.

The conclusions of this report will allow for plans to be drawn up, to allow us to further implement the necessary improvements required to improve on the generally good air quality that exists in the Borough, to which we are committed.

### **I.2 STATUTORY REQUIREMENTS**

Section 82 of the Environment Act imposes a duty on all local authorities within the UK to periodically review air quality within their districts to assess compliance with the air quality objectives contained in the National Air Quality Strategy. The air quality objectives that must not be exceeded are outlined in section 1.3

If it is considered likely that there will be a breach of one or more of the objectives the local authority must submit a legal order designating an Air Quality Management Area (AQMA), and develop through consultation an action plan to ensure that the relevant objective(s) will be met. The Act and its associated regulations recommend time scales for completion of these duties. A summary of the history of air quality management in Charnwood is included in section 2.

The knowledge and understanding of the causes, effects and impacts of air pollution is constantly evolving. Air quality management is not therefore a one off process, but requires a continual review of the trends in, and responses to, changes in air pollution. Section 1.4 summarises the statutory and reporting framework against which local authorities must deliver their air quality management duties.

### 1.3 NATIONAL AIR QUALITY OBJECTIVES

Objectives for air pollution are concentrations over a given time period that are considered to be acceptable in the light of what is known about the effects of the pollutant on health and on the environment. They can also be used as a benchmark to see if air pollution is getting better or worse.

The objectives adopted in the UK are part of the Air Quality Strategy published by the Government in January 2000. A summary of these objectives is given in the table below.

#### Summary of the UK Air Quality Strategy objectives

Pollutant	Objective	Measured as	To be achieved (& maintained) by
<b>Benzene</b> All Authorities	16.25 µg/m <sup>3</sup> (5ppb)	Running Annual Mean	31 December 2003
<b>Benzene</b> Authorities in England and Wales only	5 µg/m <sup>3</sup> (1.5ppb)	Annual Mean	31 December 2010
<b>Benzene</b> Authorities in Scotland and Northern Ireland only	3.25 µg/m <sup>3</sup>	Running Annual Mean	31 December 2010
<b>1,3-Butadiene</b>	2.25 µg/m <sup>3</sup> (1ppb)	Running Annual Mean	31 December 2003
<b>Carbon Monoxide</b>	10 mg/m <sup>3</sup> (8.6ppm)	Maximum Running 8 hr Mean	31 December 2003
<b>Lead</b>	0.5 µg/m <sup>3</sup>	Running Annual Mean	31 December 2004
<b>Lead</b>	0.25 µg/m <sup>3</sup>	Running Annual Mean	31 December 2008
<b>Nitrogen Dioxide</b>	200 µg/m <sup>3</sup> (105ppb) Not to be exceeded more than 18 times a year	1 hour mean	31 December 2005

<b>Nitrogen Dioxide</b>	40 µg/m <sup>3</sup> (21ppb)	Annual Mean	31 December 2005
<b>Respirable Particulates (PM<sub>10</sub>)</b>	50 µg/m <sup>3</sup> Not to be exceeded more than 35 times a year	24 hour mean	31 December 2004
<b>Respirable Particulates (PM<sub>10</sub>)</b>	40 µg/m <sup>3</sup>	Annual Mean	31 December 2004
<b>Sulphur Dioxide</b>	266 µg/m <sup>3</sup> (100ppb) Not to be exceeded more than 35 times a year	15 minute mean	31 December 2005
<b>Sulphur Dioxide</b>	350 µg/m <sup>3</sup> (132ppb) Not to be exceeded more than 24 times a year	1 hour mean	31 December 2004
<b>Sulphur Dioxide</b>	125 µg/m <sup>3</sup> (47ppb) Not to be exceeded more than 3 times a year	24 hour mean	31 December 2004

Conversions of ppm/ppb at 20°C and 1013mb

#### I.4 REVIEW AND ASSESSMENT TIMETABLE

LAQM Activity	Completion Date	Which Authorities?
1 <sup>st</sup> Updating and Screening Assessment	End of May 2003	All authorities
Detailed Assessment	End of April 2004	Those authorities which have identified the need for a Detailed Assessment in their May 2003 Updating and Screening Assessment
Progress Report	End of April 2004	Those authorities which have identified the need for a Detailed Assessment in their May 2003 Updating and Screening Assessment
Progress Report	End of April 2005	All authorities
2 <sup>nd</sup> Updating and Screening Assessment	End of April 2006	All authorities
Detailed Assessment	End of April 2007	Those authorities which have identified the need for a Detailed Assessment in their May 2006 Updating and Screening Assessment
<b>Progress Report</b>	<b>End of April 2007</b>	<b>Those authorities which have identified no need for a Detailed Assessment in their May 2006 Updating and Screening Assessment</b>
Progress Report	End of April 2008	All authorities
Updating and Screening Assessment	End of April 2009	All authorities
Detailed Assessment	End of April 2010	Those authorities which have identified the need for a Detailed Assessment in their May 2009 Updating and Screening Assessment
Progress Report	End of April 2010	Those authorities which have identified no need for a Detailed Assessment in their May 2009 Updating and Screening Assessment

## 2. AIR QUALITY IN CHARNWOOD

In December 2000 Charnwood Borough Council completed a first Review and Assessment of air quality in the Borough. The object of the project was to determine whether concentrations of seven pollutants identified by UK Government as being of most concern to public health were likely to be above air quality objectives set in the National Air Quality Strategy. The objectives of the Strategy are based on levels at which there are considered to be no effect on human health.

Three Air Quality Management Areas were declared in 2001 on the basis of this report.

In May 2003 an Updating and Screening Assessment was issued to review the findings of the original project by taking into consideration any changes that had occurred outside of the three Air Quality Management Areas that had been declared on the basis of the first assessment, as well as any improvements that had been made in the methods of predicting air quality changes.

2004 saw two further detailed assessments published. One provided a detailed review and assessment of traffic related air quality – the Round 1, Stage 4 Review and Assessment. The other provided a detailed review and assessment of air quality around two industrial locations – the Round 2 Detailed Review and Assessment. These reports were undertaken to examine and refine in more detail the predictions of how air quality is likely to change in each of those areas in relation to the possibility of potential breaches against the set objectives, in order to produce an Action Plan implementing changes that would endeavour to see that the objectives are met.

Following a Progress Report submitted in 2005, a full review and assessment of air quality in Charnwood was undertaken in the Round 3 Updating and Screening Assessment, completed in 2006. All sources of air pollution were considered in this report, with collated monitoring data from previous years being fully analysed based on the methodology outlined in Technical Guidance LAQM.TG(03) Update – January 2006 published by the Department for the Environment Food and Rural Affairs.

We approached this next reporting phase of the policy guidance with three declared Air Quality Management Areas within the Borough.

1. **Loughborough Air Quality Management Area**  
Designated in relation to a likely breach of the nitrogen dioxide (annual mean) objective as specified in the Air Quality Regulations (England)(Wales) 2000
2. **GCR Air Quality Management Area**  
Designated in relation to a likely breach of the sulphur dioxide (fifteen minute mean) objective as specified in the Air Quality Regulations (England)(Wales) 2000.

**3. Syston Air Quality Management Area**

Designated in relation to a likely breach of the nitrogen dioxide (annual mean) objective as specified in the Air Quality Regulations (England)(Wales) 2000

All the above reports are available on the Charnwood Borough Council website at the following address:

[www.charnwood.gov.uk/environment/airpollution.html](http://www.charnwood.gov.uk/environment/airpollution.html)

### **3. AIMS AND OBJECTIVES OF THE AIR QUALITY PROGRESS REPORT**

Progress Reports have been introduced into the Local Air Quality Management (LAQM) system following a detailed evaluation of the first round of local authority review and assessments.

A need was identified to develop a longer-term vision for both LAQM and the review and assessment process. The process was seen to be too 'stop-start', with some local authorities completing their first round of review and assessment and then doing little for several years until the next round. This did not encourage the integration of LAQM into the routine work of local authorities.

The overall aims of the Progress Report should be to:

- Report progress on implementing local air quality management.
- Report progress in achieving, or in many cases maintaining, concentrations below the air quality objectives.

It is considered these aims can be best achieved by addressing two matters as a minimum requirement namely:

- New monitoring results
- New local developments that might affect local air quality

However, it is also a timely point to provide any further information related to additional elements including:

- Progress on implementation of action plans.
- An assessment of the monitoring data in relation to likely breaches of the objectives.
- Progress on local air quality strategies.
- A list of planning applications that have the potential to affect local air quality.
- Progress on implementing those elements of the local transport plan that might affect air quality.
- Any relevant updates on planning policies that relate specifically to air quality.
- Other area of local interest that the authority also wishes to incorporate in to its Progress Report.

#### **4. MONITORING RESULTS**

Since the late 1990s Charnwood Borough Council have been steadily expanding and improving the air quality monitoring network around the borough, focusing on areas where our investigations have led us to believe that poor air quality may be a threat to health.

Through this network we are seeing a picture of how air quality is changing and evolving. More importantly we are building up evidence and knowledge to allow us to positively influence the way in which changes in the area happen in order to protect and improve the air we all breathe.

Results of recent and historical data are published bi-monthly on the Councils website at:

[Charnwood Borough Council - Pollution Monitoring in Charnwood](#)

## 4.1 REAL TIME MONITORING

A chemiluminescent nitrogen oxide monitor, a TEOM PM10 monitor and a UV fluorescence sulphur dioxide monitor have been operating for a number of years within a Council owned residential area on Durham Road in Loughborough. The site is approximately 20 metres from the kerbside of the A6 and was chosen as a suitable monitoring location for possible human receptors of traffic pollution in the area. The monitor is actually located just outside of what was eventually designated as the Loughborough air quality management area. It has however proved a valuable tool in allowing validation of modelling data in scenarios beyond 10 metres from road kerbsides and as a source of bias correction factors for our network of diffusion tubes.

### Summary of background air quality results (2003–2006)

#### 4.1.1 Nitrogen Dioxide

(A conversion factor of 1.91 has been applied to the raw data originally measured as ppb, as per Appendix B (pg A1-44) LAQM.TG assuming 20°C and 101.3 kPa)

Monitoring Year	Duration & data capture rate	Annual mean ( $\mu\text{g}/\text{m}^3$ )	Number of exceedences of the 1hr mean
2003	Whole Year – 96.8%	32.5	0
2004	Whole Year – 94.7%	27.7	0
2005	Whole Year ~ 65%*	30.8	0
2006	Whole Year – 91.7%	26.7	0

\*[As the ~65% data capture recorded for 2005 was <90%; LAQM.TG(03) Update – January 2006 guidelines state that the 99.8<sup>th</sup> percentile should be used rather than a count of exceedences].

From the 22,651 data points captured throughout 2005, the 99.8<sup>th</sup> percentile is calculated as being  $91.9\mu\text{g}/\text{m}^3$

#### 4.1.2 Sulphur Dioxide

(A conversion factor of 2.66 has been applied to the raw data originally measured as ppb, as per Appendix B (pg A1-44) LAQM.TG assuming 20°C and 101.3 kPa)

2003	
Maximum 15 minute mean concentration	$193.4\mu\text{g}/\text{m}^3$
Exceedences of 15 minute concentration @ $266\mu\text{g}/\text{m}^3$	0
Maximum 1 hour mean concentration	$158.8\mu\text{g}/\text{m}^3$
Exceedences of 1 hour concentration @ $350\mu\text{g}/\text{m}^3$	0
Maximum 24-hour mean concentration	$48.2\mu\text{g}/\text{m}^3$
Exceedences of 24-hour concentration @ $125\mu\text{g}/\text{m}^3$	0
Data capture	97.7%

2004	
Maximum 15 minute mean concentration	135.9 $\mu\text{g}\text{m}^{-3}$
Exceedences of 15 minute concentration @ 266 $\mu\text{g}\text{m}^{-3}$	0
Maximum 1 hour mean concentration	71.3 $\mu\text{g}\text{m}^{-3}$
Exceedences of 1 hour concentration @ 350 $\mu\text{g}\text{m}^{-3}$	0
Maximum 24-hour mean concentration	16.5 $\mu\text{g}\text{m}^{-3}$
Exceedences of 24-hour concentration @ 125 $\mu\text{g}\text{m}^{-3}$	0
Data capture	96.6%

2005	
Maximum 15 minute mean concentration	191.3 $\mu\text{g}\text{m}^{-2}$
Exceedences of 15 minute concentration @ 266 $\mu\text{g}\text{m}^{-3}$	0
Maximum 1 hour mean concentration	73.2 $\mu\text{g}\text{m}^{-3}$
Exceedences of 1 hour concentration @ 350 $\mu\text{g}\text{m}^{-3}$	0
Maximum 24-hour mean concentration	19.2 $\mu\text{g}\text{m}^{-3}$
Exceedences of 24-hour concentration @ 125 $\mu\text{g}\text{m}^{-3}$	0
Data capture	~60%

As the ~60% data capture recorded for 2005 was <90%; LAQM.TG(03) Update – January 2006 guidelines state that a percentile calculation should be used rather than a count of exceedences:

#### **15 Minute Mean Concentration (2005)**

From the 21,140 data points captured throughout 2005, the 99.9<sup>th</sup> percentile is calculated as being 56.7 $\mu\text{g}\text{m}^{-3}$

#### **1 Hour Mean Concentration (2005)**

From the 5,943 data points captured throughout 2005, the 99.7<sup>th</sup> percentile is calculated as being 28.7 $\mu\text{g}\text{m}^{-3}$

#### **24 Hour Mean Concentration (2005)**

From the 248 data points captured throughout 2005, the 99<sup>th</sup> percentile is calculated as being 12.8 $\mu\text{g}\text{m}^{-3}$

2006	
Maximum 15 minute mean concentration	143.6 $\mu\text{g}\text{m}^{-3}$
Exceedences of 15 minute concentration @ 266 $\mu\text{g}\text{m}^{-3}$	0
Maximum 1 hour mean concentration	127.7 $\mu\text{g}\text{m}^{-3}$
Exceedences of 1 hour concentration @ 350 $\mu\text{g}\text{m}^{-3}$	0
Maximum 24-hour mean concentration	47.9 $\mu\text{g}\text{m}^{-3}$
Exceedences of 24-hour concentration @ 125 $\mu\text{g}\text{m}^{-3}$	0
Data capture	88%

As the 88% data capture recorded for 2006 was <90%; LAQM.TG(03) Update – January 2006 guidelines state that a percentile calculation should be used rather than a count of exceedences:

#### **15 Minute Mean Concentration (2006)**

From the 30,827 data points captured throughout 2006, the 99.9<sup>th</sup> percentile is calculated as being 66.5 $\mu\text{g}\text{m}^{-3}$

#### **1 Hour Mean Concentration (2006)**

From the 7,980 data points captured throughout 2006, the 99.7<sup>th</sup> percentile is calculated as being 42.6 $\mu\text{g}\text{m}^{-3}$

#### **24 Hour Mean Concentration (2006)**

From the 311 data points captured throughout 2006, the 99<sup>th</sup> percentile is calculated as being 18.6 $\mu\text{g}\text{m}^{-3}$

**4.1.3 Particulate Matter (PM10)**

Monitoring Year	Duration & data capture rate	Annual mean <sup>(1)</sup> (ug/m <sup>3</sup> )	Number of exceedences of the 24hr mean
2001	Whole Year – 95%	22.6	7
2002	Whole Year – 97%	22.5	5
2003	Whole Year – 98%	24.4	20
2004	Whole Year – 98%	20.4	2
2005	Whole Year – 63%	21.8	4
2006	Whole Year – 92%	20.8	5

<sup>1</sup> Based on the guidance within LAQM.TG(03) Box 8.4 approach 2 & 3 to factor for gravimetric concentrations

## 4.2 NON REAL TIME MONITORING

Since the completion of the first review and assessment of air quality we have sought to continuously update and improve our monitoring network.

As of March 2007 we have:

- 32 nitrogen dioxide diffusion tubes deployed (3 of which are co-located at the Durham Road Site with the real-time monitor)
- 3 sulphur dioxide monitoring locations
- 4 benzene diffusion tube monitoring locations

Of the 30 nitrogen dioxide monitoring locations 14 are located within our (NO<sub>2</sub>) AQMAs, located as close as practicable to receptor locations – usually on the facades of residential properties.

### 4.2.1 Nitrogen Dioxide results in Charnwood (2003-2006)

[A map of the Loughborough monitoring locations is included as Appendix 1]

[Trend graphs can be seen under Appendix 2]

Location	OS Reference (Position)	Monitored Annual Means $\mu\text{g m}^{-1}$				Compliant 2006	4 Year Trend
		2003	2004	2005	2006		
Ratcliffe Road, Loughborough*	454087 320392	44.8	41.3	36.4	43.7	<b>x</b>	↓
Shelthorpe Road, Loughborough	454250 318665	39.7	30.0	28.8	29.9	✓	↓
Forest Road, Loughborough	452833 318776	40.7	33.6	32.9	34.9	✓	↓
Nottingham Road, Loughborough	454209 320193	40.1	36.0	35.7	35.9	✓	↓

Haydon Road, Loughborough*	452312 319620	42.0	38.0	34.5	35.2	✓	↓
Alan Moss Road/Epinal Way, Loughborough *	452176 319923	41.3	36.0	30.7	31.7	✓	↓
Ling Road/Epinal Way Loughborough	453677 318190	39.3	36.5	33.0	34.9	✓	↓
Leicester Road, Loughborough *	454002 319253	41.8	40.1	40.3	43.8	✗	↑
Derby Road, Loughborough *	453297 319945	45.5	43.7	47.0	43.7	✗	↓
Derby Road/Briscoe Avenue Loughborough * (2005 onwards)	452702 320499	-	-	26.3	31.4	✓	-
Durham Road, Loughborough <b>Background</b>	452358 320712	30.6	28.3	26.6	27.2	✓	↓
Durham Road 2, Loughborough (2005 onwards) <b>Background</b>	452358 320712	-	-	26.3	25.2	✓	-
Durham Road 3, Loughborough (2005 onwards) <b>Background</b>	452358 320712	-	-	26.7	27.9	✓	-
Durham Road, Loughborough <b>Background - Real Time</b>	452358 320712	32.5	27.7	30.8	26.7	✓	↓
Alan Moss Road/A6 Derby Road Loughborough *	452909 320209	48.0	45.7	37.0	40.1	✗	↓
High Street, Loughborough *	453731 319589	69.7	67.7	63.2	70.4	✗	↓

Market Place, Loughborough* <b>Background</b>	453605 319532	32.8	29.4	29.4	27.4	✓	↓
Ashby Road, Loughborough *	453190 319710	50.1	42.8	42.0	45.8	✗	↓
Beacon Road, Loughborough <b>Background</b>	453458 318813	24.2	25.1	22.9	23.4	✓	↓
Rosebery Street, Loughborough <b>Background</b>	452692 319921	26.6	24.4	24.0	26.3	✓	↓
Melton Road Town Centre, Syston *	462772 311689	37.9	30.7	34.2	40.3	✗	↑
Melton Road/St Peters Road, Syston *	462367 311251	42.4	37.0	33.1	35.8	✓	↓
Melton Road, Syston * (2005 onwards)	462350 311211	-	-	36.6	38.5	✓	-
Loughborough Road, Birstall	459233 309560	41.0	33.0	36.6	40.5	✗	↔
A6, Birstall	459179 309862	44.8	38.5	39.9	41.3	<b>Kerbside</b>	↓
Humberstone Lane, Thurmaston	460813 308756	45.4	42.1	39.9	46.2	✗	↔
Ashby Road Central, Shepshed	448086 318256	43.3	40.6	39.1	40.2	<b>Kerbside</b>	↓
Loughborough Road, Hathern	450253 321928	43.9	37.7	37.1	40.3	<b>Kerbside</b>	↓
Baxter Gate, Loughborough (2006 onwards) *	453681 319673	-	-	-	53.2	<b>Kerbside</b>	-
Barrow Street, Loughborough (2006 onwards)	453902 319489	-	-	-	32.2	✓	-
School Street, Loughborough (2006 onwards)	453949 319624	-	-	-	30.4	✓	-

Fennel Street, Loughborough (2006 onwards)	453693 319896	-	-	-	33.3	✓	-
High Street, Syston (Aug 2006 onwards)	462370 311809	-	-	-	27.1 calculated for partial year (as per TG Box 6.5)	✓	-

**\* - Monitoring sites within a current AQMA**

**Notes :**

The figures in the above table are shown including correction factors used to amend the (raw) monitored diffusion tube data.

These factors are as follows:

2003<sup>(1)</sup> – multiplied by 0.96 for Gradko 20% TEA in water for 2003

2004 – multiplied by 1.1315 as the local diffusion tubes under-read by 13.1%

2005<sup>(1)</sup> – multiplied by 0.99 for Gradko 20% TEA in water for 2005

2006 – multiplied by 1.1400 as the local diffusion tubes under-read by 14.0%

<sup>(1)</sup>For 2003 & 2005 the factor was determined by application of the Bias Correction Spreadsheet (ver 03/06) from [www.uwe.ac.uk/aqm/review](http://www.uwe.ac.uk/aqm/review) due to insufficient data capture rates from the Durham Road real-time monitor.

#### **4.2.2. Quarry PM10 Data**

Unfortunately we have no PM10 data, in respect of the quarry, available to present.

It was anticipated that the results of on-going monitoring being carried out by Lafarge in conjunction with Vibrock Limited would be able to provide an update on the current position.

Due to technical issues with data retrieval and software problems no information was available at time this report was being prepared.

In late April we learned from Lafarge that whilst they were attempting to recall data from their PM monitor it became apparent that there had been power failures to the monitors and that as a consequence no data for the year was retrievable.

#### **4.2.3 Sulphur Dioxide results in Charnwood**

##### **a) The GCR AQMA**

The GCR AQMA came into effect on 30<sup>th</sup> November 2005 in respect of likely breaches of the sulphur dioxide (fifteen minute mean). This decision was based upon a monitoring study conducted between December 2004 and April 2005 during which time a UV fluorescence sulphur dioxide monitor was located 50 metres away from the location at which steam locomotives are brought “into steam” at the Great Central Railway engine sheds.

No further periods of monitoring have been conducted since the declaration of this recently declared AQMA. It is however felt that the results (which are discussed fully in our previously submitted “Progress Report and Round 2 Further Assessment”) in conjunction with the current operational procedures at GCR, are broadly representative of the current air quality of the area.

##### **b) Non-AQMA Monitoring**

In addition to the UV fluorescence real-time analyser results shown above (4.1.2); we continue to monitor SO<sub>2</sub> at 3 other sites within the borough, by using diffusion tubes:

- Durham Rd, Loughborough (co-located with the real time monitor)
- Market Pace, Loughborough
- Wolsey Way, Loughborough (located near to the GCR engine sheds)

LAQM.TG(03) guidance however specifically states that SO<sub>2</sub> diffusion tube data should not be included in the reporting process.

## 4.2.4 Benzene results in Charnwood

Location	OS Grid	Historical calculated annual means from measured data (ug/m3)								Compliant 2006	8 Year Trend
		1999	2000	2001	2002	2003	2004	2005	2006		
High St (Loughborough)	453731 319589	4.5	5.4	5.2	4.2	3.28	3.18	2.61	2.08	✓	↓
Shelthorpe Rd (Loughborough)	454250 318665	3.9	4.5	4.6	3.2	2.25	1.77	1.52	1.29	✓	↓
Market Place (Loughborough)	453605 319532	2.3	1.7	2.0	1.5	1.63	1.37	1.12	0.89	✓	↓
Ratcliffe Rd (Loughborough)	454087 320392	3.6	3.3	3.4	2.8	2.41	2.23	1.84	1.59	✓	↓

### 4.3 COMMENTARY ON RESULTS

#### **Benzene**

The 2006 monitoring results presented above show that the air quality objective for benzene is not currently being breached. Furthermore, all benzene monitoring sites within the Borough are continuing to show a downward trend in terms of measured concentration (annual mean). Full compliance with the 2010 objective of  $5\mu\text{g}/\text{m}^3$  is therefore expected.

#### **Sulphur Dioxide**

We believe that the air quality of the area is currently broadly in line with the results from the four month monitoring exercise conducted between December 2004 and April 2005, suggesting that there may well be more than 35 instances where the 15 minute  $\text{SO}_2$  objective is exceeded at nearby receptor locations. This suggests that the declaration of the AQMA around the sheds was appropriate.

#### **Nitrogen Dioxide**

The latest monitoring results show that the  $40\mu\text{g}/\text{m}^3$  annual mean objective was exceeded at 9 locations (+4 kerbside sites) during 2006:

7 of the 9 sites are already situated **within** existing AQMAs for  $\text{NO}_2$ :

- 1) Ratcliffe Rd, Loughborough
- 2) Leicester Rd, Loughborough
- 3) Derby Rd, Loughborough
- 4) Alan Moss Rd/A6 Derby Rd, Loughborough
- 5) High St, Loughborough
- 6) Ashby Rd, Loughborough
- 7) Melton Rd (Town Centre), Syston

With the exception of the Leicester Rd and Melton Rd sites, it should be noted that the 4 year trend indicates a decreasing level of nitrogen dioxide at the above (and all other sites that were compliant during 2006) locations within the declared AQMAs.

The data suggests that high levels (between  $50.8 - 60.6\mu\text{g}/\text{m}^3$ ) recorded at Leicester Road between January and March, may have significantly influenced the overall annual mean. Similarly, elevated levels at Melton Road during November and December may have detrimentally contributed to the final mean figure.

The remaining 2 sites are **outside** of an existing AQMA for  $\text{NO}_2$

- 1) Loughborough Rd, Birstall
- 2) Humberstone Ln, Thurmaston

The 4 year trends for both these locations are seemingly remaining fairly steady although the 2006 result at Humberstone Lane has overturned the previous 2 years decline in concentrations that had reached a level beneath the threshold.

The result of the Loughborough Road site which had been beneath the threshold in 2004 and 2005, also reverses a previously complaint site.

In the light of the apparent national decline in air quality during 2006 (see 'General comments below) we intend to continue to monitor trends at these two sites during 2007 and to consider progressing to a Detailed Assessment after the completion of the 2008 Progress report.

### **Particulate Matter (PM10)**

As discussed in our 2006 USA, a monitoring study was carried out between November 2004 and December 2005 in respect of fugitive particulate emissions from the Lafarge granite quarry at Mountsorrel.

The study was originally initiated as an evaluation 'overview' in respect of investigating a handful of complaints received by this department over the last few years which had cited the quarry as being a source of dust.

The methodology outlined within LAQM.TG03 in respect of monitoring fugitive emissions from quarries was broadly implemented, utilising an Osiris 'light-scatter type' portable PM10 monitor, deployed at one of the nearest receptor locations to the quarry site.

It should be noted however that LAQM.TG03 makes it clear that portable light scattering devices such as the Osiris should **only** be used in connection with screening assessments of this type and are not recommended for detailed assessments, as the Air Quality Objectives are based on measurements made using gravimetric samplers operated to a specified QA procedure.

The results of this study returned an annual mean of  $35.57\mu\text{g}/\text{m}^3$ , based on a data collection rate of 86% (LAQM.TG03 would suggest that no adjustments need to be made to this result as the study was > 9months).

During this period 75 instances of the 24 hour mean ( $50\mu\text{g}/\text{m}^3$ ) were recorded. The USA indicated that there had been more than the permissible 35 breaches of the 24 hr mean, and proposed undertaking a Detailed Assessment .

In the meantime the quarry has acted on these results, and on the recommendations of their own air quality monitoring data, and have undertaken dust suppression improvements around the main aggregates storage area. Most of these improvements were completed by April 2007. This Progress report had intended to compare PM10 data monitored near the aggregates storage area pre and post installation of further suppression. Using this comparative data we had then proposed to take a view on whether further type tested off-site monitoring was appropriate to review the need to declare an AQMA.

In the absence of any PM10 data for 2006 and given that most of the dust suppression work was not completed until 2007 we are unable to reach a view at this point in time. We therefore propose to review the need for further type tested monitoring and a Detailed Assessment in the 2008 Progress Report.

## **General**

The “Air Quality Indicator for Sustainable Development 2006 (provisional) - Statistical Release” from DEFRA 23<sup>rd</sup> January 2007, would indicate that the United Kingdom as a whole experienced a fall in air quality standards throughout 2006 when compared to 2005:

*“In urban areas in 2006, air pollution was recorded as moderate or higher on 41 days on average per site, compared with 22 days in 2005, and 59 days in 1993, reflecting a high degree of variability”.*

*“In rural areas, air pollution in 2006 was moderate or higher for 57 days on average per site, compared with 40 in 2005. This figure has varied significantly over time, although there appears to be a gradually increasing long term trend.”*

As episodes of air pollution during summer periods may raise levels of ozone, nitrogen dioxide and particles, it may be possible to attribute some of the recorded 2006 results (and subsequent reversals to some trends) to elevated summer temperatures experienced during the year.

Continued monitoring activities will allow for the provision of further data in order to aid with the establishment of longer term trends.

## **4.4 FUTURE MONITORING**

May 2007 will see the commissioning of 2 further NO<sub>2</sub> real-time monitors into our monitoring network:

- Baxter Gate, Loughborough [OS Ref 453681 319673]
- Melton Road, Syston [OS Ref 462533 311432]

Both sites have been chosen as locations to monitor concentrations within existing NO<sub>2</sub> AQMA's.

It is anticipated that both monitors will be co-located with diffusion tubes; although security issues at Syston need to first be considered (the site at Baxter Gate already has a diffusion tube in-situ).

## **5. NEW DEVELOPMENTS**

This section considers any recent developments (since the 2006 Updating & Screening Assessment) which may impact on air quality, especially those that will significantly change traffic flows, within the Borough.

Guidance states that only those developments which have been granted planning permission need to be considered, and in the event of new landfill sites, quarries etc. only those which have nearby relevant exposure.

### **New Part A Processes**

There have been no new Part A processes, nor changes/planning permissions granted to those already in existence at the time of the 2006 USA.

### **New Part B Processes**

There have been no new Part B processes, nor changes/planning permissions granted to those already in existence at the time of the 2006 USA.

### **New Retail Developments**

There have been no new retail developments that will significantly change traffic flows since the 2006 USA

### **New Road Schemes**

There have been no new road schemes that will significantly change traffic flows, where planning permission has been granted, since the 2006 USA

### **New Mineral Developments**

There have been no new mineral developments since the 2006 USA

### **New Landfill Developments**

There have been no new landfill developments since the 2006 USA

### **Mixed-Use Development (residential/commercial)**

There have been no new mixed-use developments that will significantly change traffic flows since the 2006 USA

## **6. AIR QUALITY ACTION PLANNING**

Air quality action plans provide a means by which a local authority through joint working with the County Council, national agencies and other relevant bodies, deliver viable measures that will work towards achieving the air quality objectives within an AQMA. The Aim is to also to encourage active participation in the achievement of action plan measures by consulting the local community and raising awareness of air pollution issues.

### **6.1 Work to Date**

The Charnwood Borough Council Air Quality Action Plan which was required as part of the local authority's statutory duties as defined within Part IV of the Environment Act 1995 was first approved as a draft in August 2004. A second draft was then produced following revisions in the technical findings of air quality reports produced in the autumn of 2004. The second consultation draft was subject to a public and stakeholder consultation during February to May 2005 and then further revised following the publication of the Leicestershire Local Transport Plan 2006-2011 in May 2006.

September 2006 saw the publication of the Final Action Plan, the core of which consists of an extensive 'menu' of over 40 potential actions that have been considered as possible ways of improving air quality. The Plan summaries the outcomes of the LTP by Leicestershire County Council and evaluates the remaining potential actions to establish if they will make a meaningful difference in a cost effective manner and in a way that does not create social, economic or social problems that outweigh the benefit.

The Plan then summarises the outcomes of these evaluations and proposes a process by which the delivery of the actions selected from the 'menu' can be monitored. Many of the existing policies and commitments have been influencing policy and decision making for sometime and have been developed with the benefit of good air quality information being available locally.

Existing commitments were able to be brought together under one umbrella in the Plan which enables air quality problems within Charnwood to be addressed by influencing existing policies and without the need for adopting any of the more dramatic new interventions that were considered during the drafting of the Action Plan. ,

The full text of the Action Plan can be viewed at:

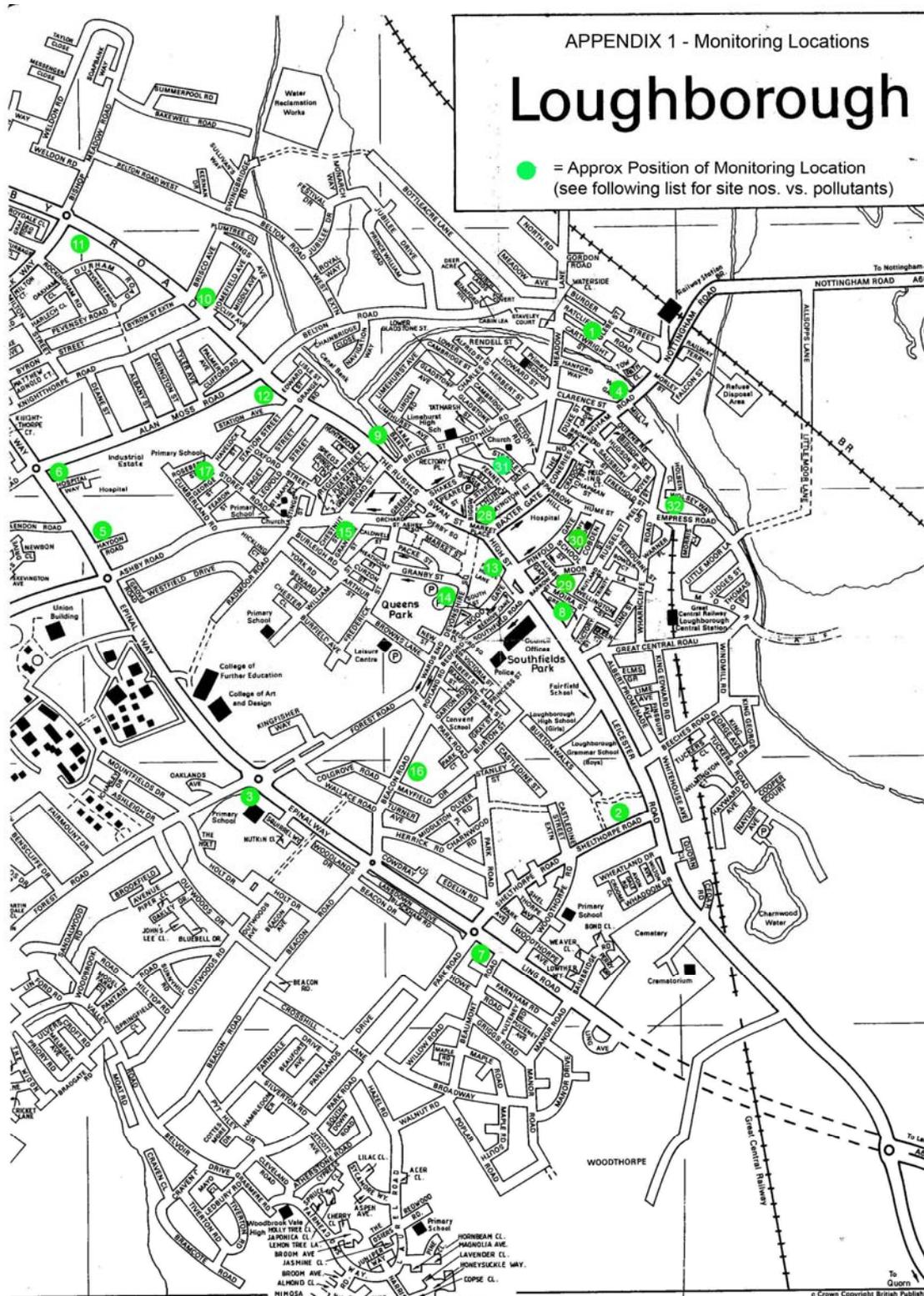
<http://www.charnwood.gov.uk/uploads/draftairqualityactionplan.pdf>

### **6.2 Outcomes of the progress report and work to follow**

Following the submission of a draft copy of this report to DEFRA the following outcomes were agreed:

1. In the light of the results at Humberstone Lane, Thurmaston, Charnwood District Council has agreed to proceed to a Detailed Assessment for nitrogen dioxide (the annual mean objective) at Thurmaston. This Assessment will need to have been completed by April 2008.
2. A further Screening Assessment of PM10 in Mountsorrel will need to be completed by April 2008, followed by (if necessary) a Detailed Assessment of PM10 by April 2009

**APPENDIX I: Monitoring Site Locations within Loughborough**



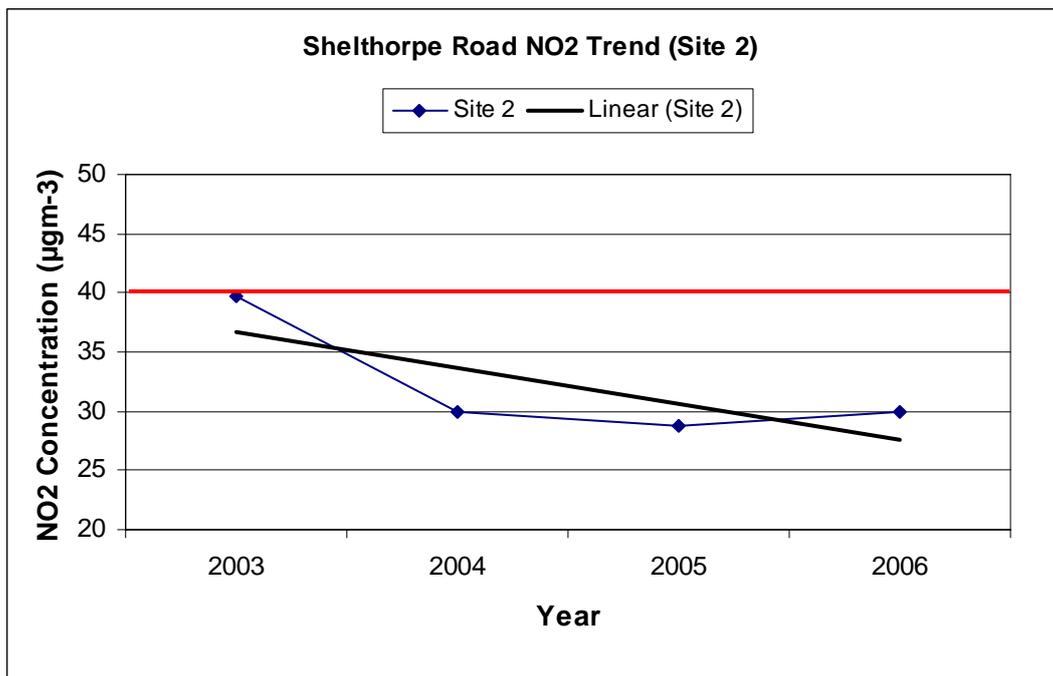
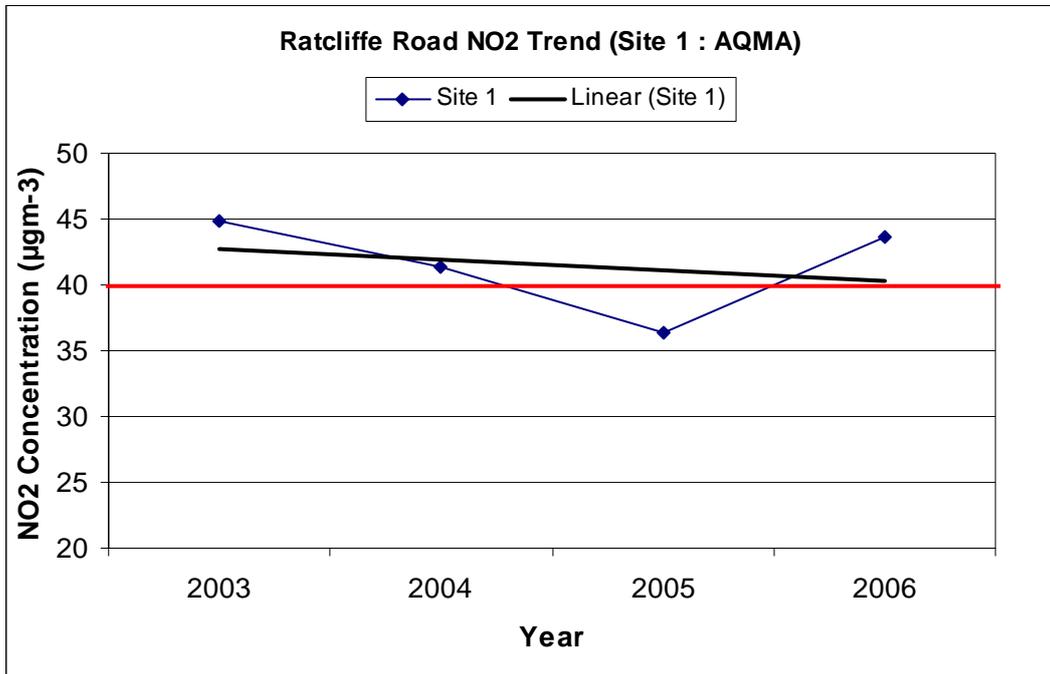
(See following page for site identification list)

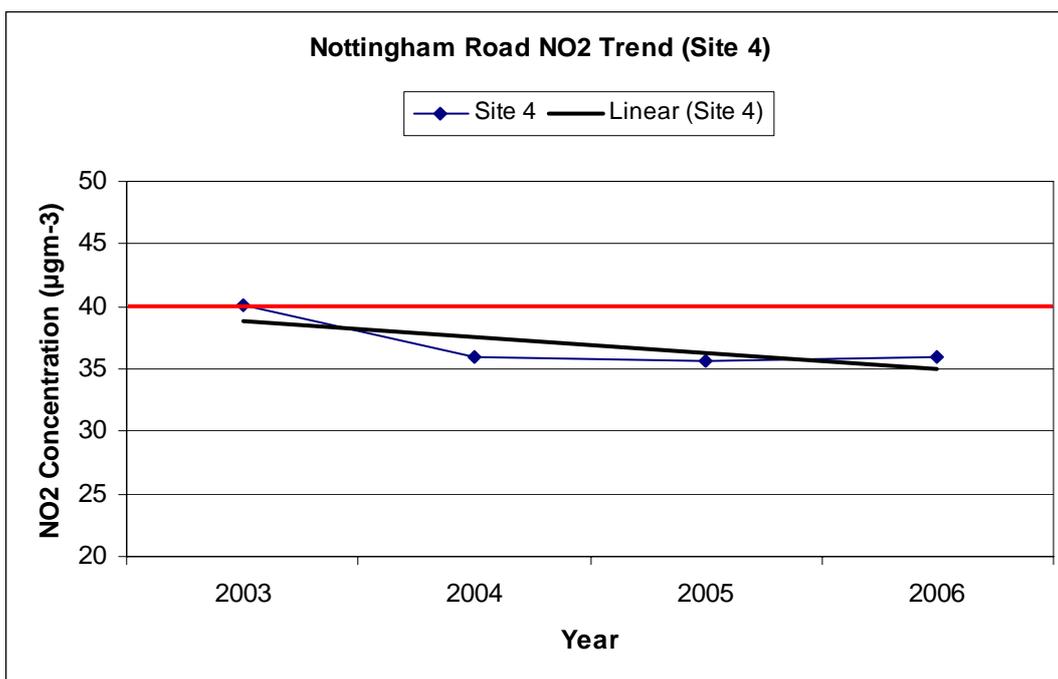
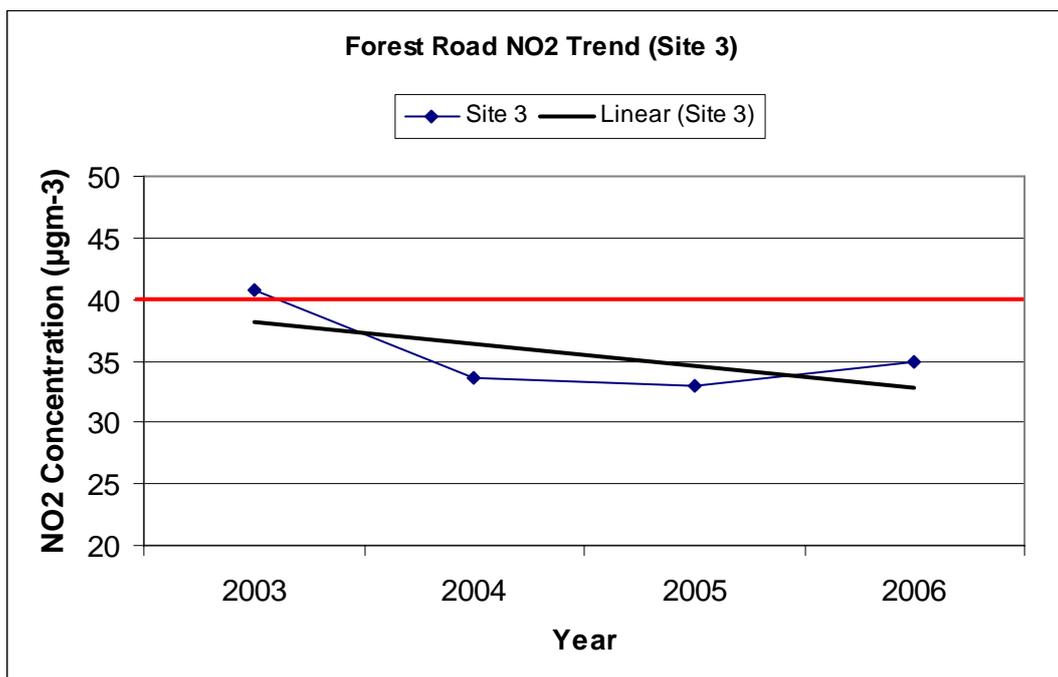
### Tube Site Locations (for use with Appendix 1)

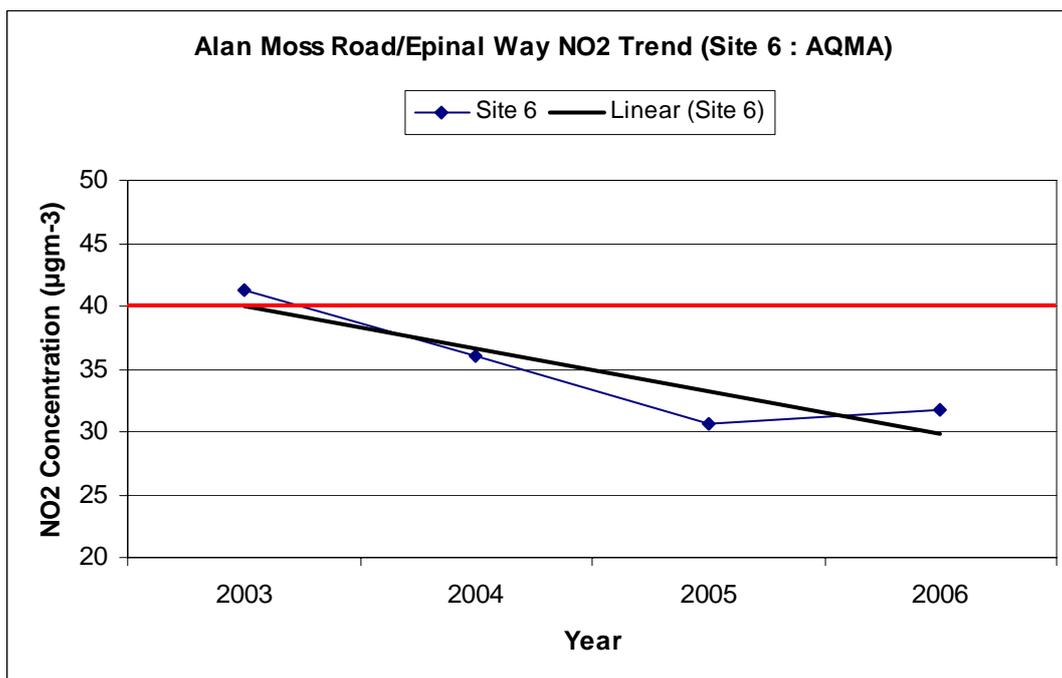
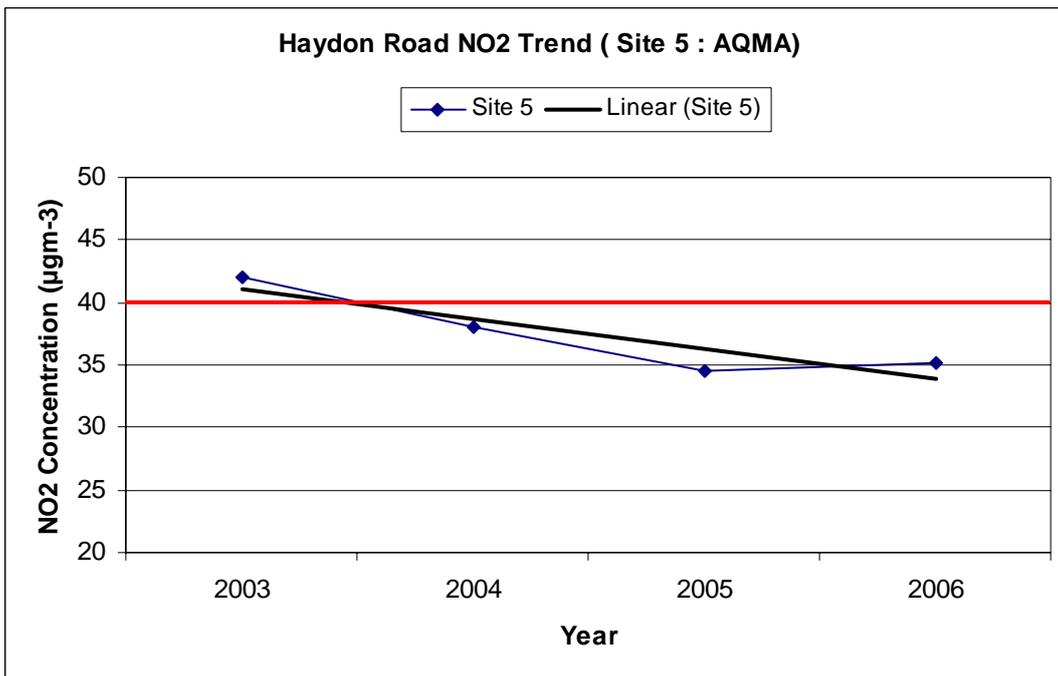
	Location	OS Grid Reference	Pollutant(s)
1.	<a href="#">Ratcliffe Road, Loughborough</a>	454087 320392	NO <sub>2</sub> CH <sub>4</sub>
2.	<a href="#">Shelthorpe Road, Loughborough</a>	454250 318665	NO <sub>2</sub> CH <sub>4</sub>
3.	<a href="#">Forest Road, Loughborough</a>	452833 318776	NO <sub>2</sub>
4.	<a href="#">Nottingham Road, Loughborough</a>	454209 320193	NO <sub>2</sub>
5.	<a href="#">Haydon Road, Loughborough</a>	452312 319620	NO <sub>2</sub>
6.	<a href="#">Alan Moss Road/Epinal Way, Loughborough</a>	452176 319923	NO <sub>2</sub>
7.	<a href="#">Ling Road/Epinal Way Loughborough</a>	453677 318190	NO <sub>2</sub>
8.	<a href="#">Leicester Road, Loughborough</a>	454002 319253	NO <sub>2</sub>
9.	<a href="#">Derby Road, Loughborough</a>	453297 319945	NO <sub>2</sub>
10.	<a href="#">Derby Road/Briscoe Avenue Loughborough</a>	452702 320499	NO <sub>2</sub>
11.	<a href="#">Durham Road, Loughborough</a>	452358 320712	NO <sub>2</sub> SO <sub>2</sub>
12.	<a href="#">Alan Moss Road/A6 Derby Road Loughborough</a>	452909 320209	NO <sub>2</sub>
13.	<a href="#">High Street, Loughborough</a>	453731 319589	NO <sub>2</sub> CH <sub>4</sub>
14.	<a href="#">Market Place, Loughborough</a>	453605 319532	NO <sub>2</sub> CH <sub>4</sub> SO <sub>2</sub> O <sub>3</sub>
15.	<a href="#">Ashby Road, Loughborough</a>	453190 319710	NO <sub>2</sub>
16.	<a href="#">Beacon Road, Loughborough</a>	453458 318813	NO <sub>2</sub>
17.	<a href="#">Rosebery Street, Loughborough</a>	452692 319921	NO <sub>2</sub>
28.	<a href="#">Baxtergate, Loughborough</a>	453687 319673	NO <sub>2</sub>
29.	<a href="#">Barrow Street, Loughborough</a>	453902 319489	NO <sub>2</sub>
30.	<a href="#">School Street, Loughborough</a>	453949 319624	NO <sub>2</sub>
31.	<a href="#">Fennel Street, Loughborough</a>	453693 319896	NO <sub>2</sub>
32.	<a href="#">Wolsey Way, Loughborough</a>	454367 319673	SO <sub>2</sub>

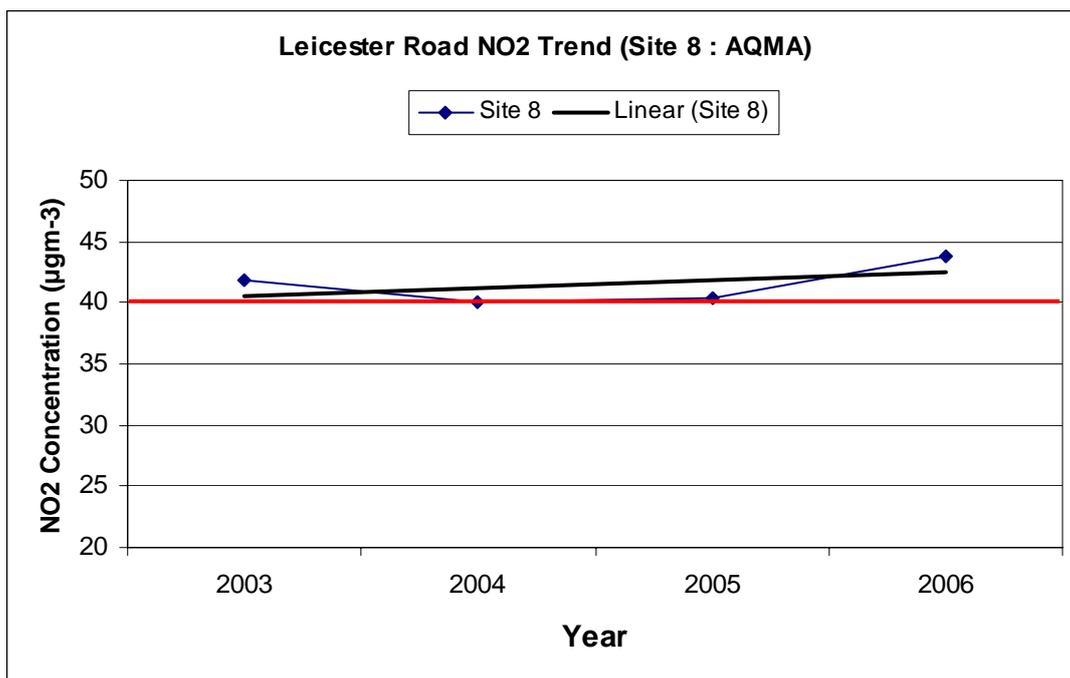
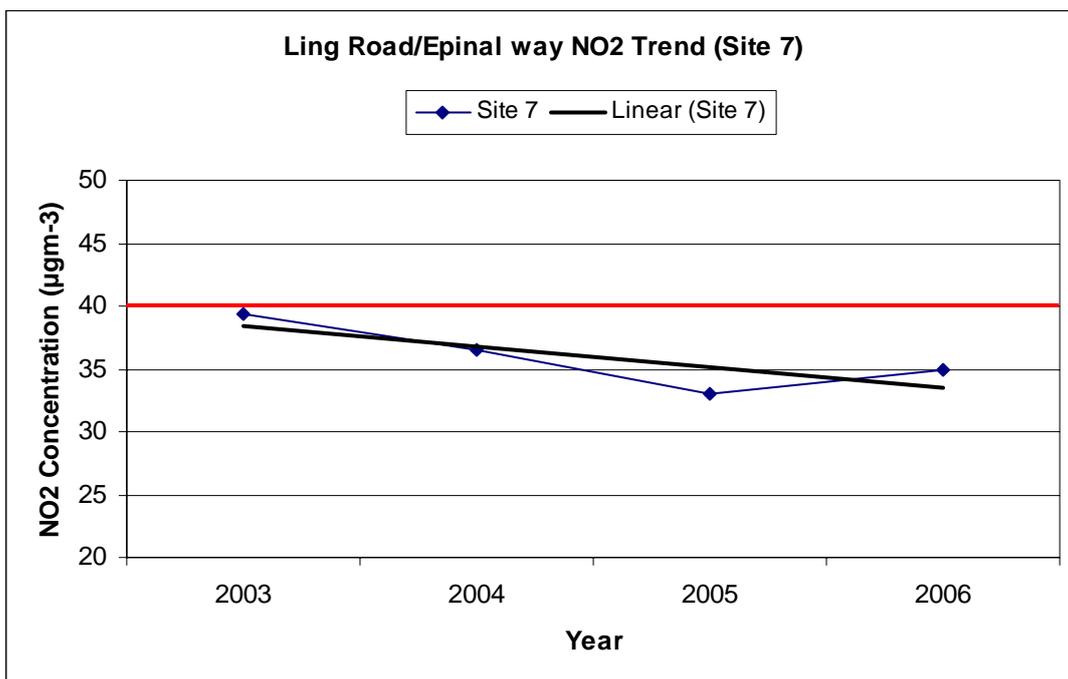
NB. Site 11 is the location of our real-time analyser and 3 \* NO<sub>2</sub> diffusion tubes.

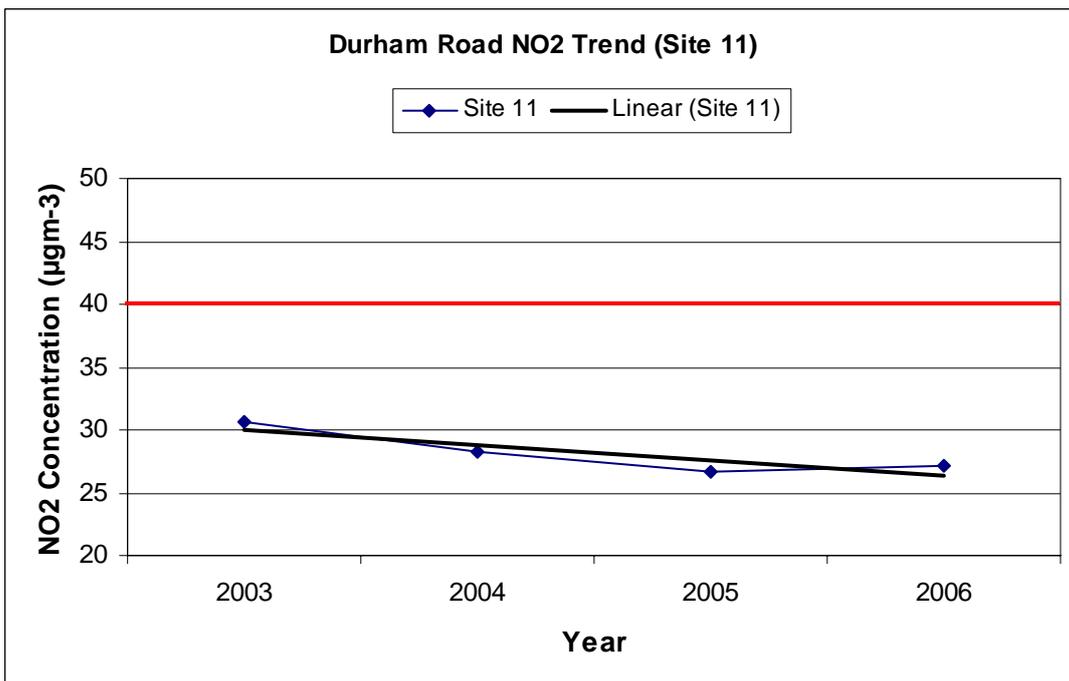
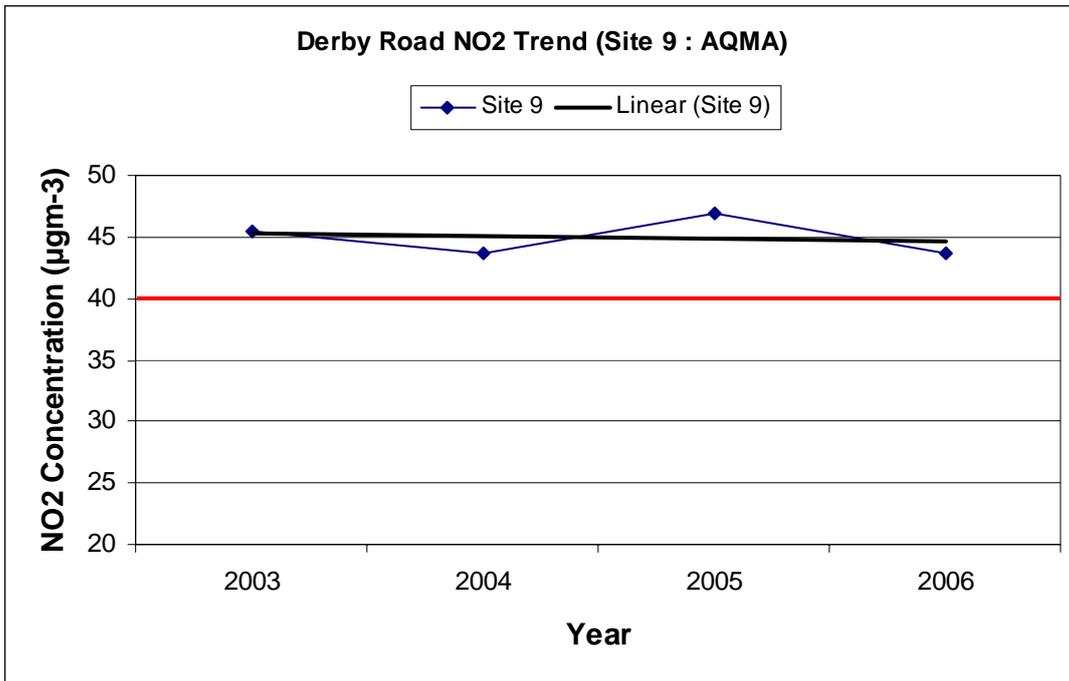
**APPENDIX 2: NO<sub>2</sub> Trend Graphs**

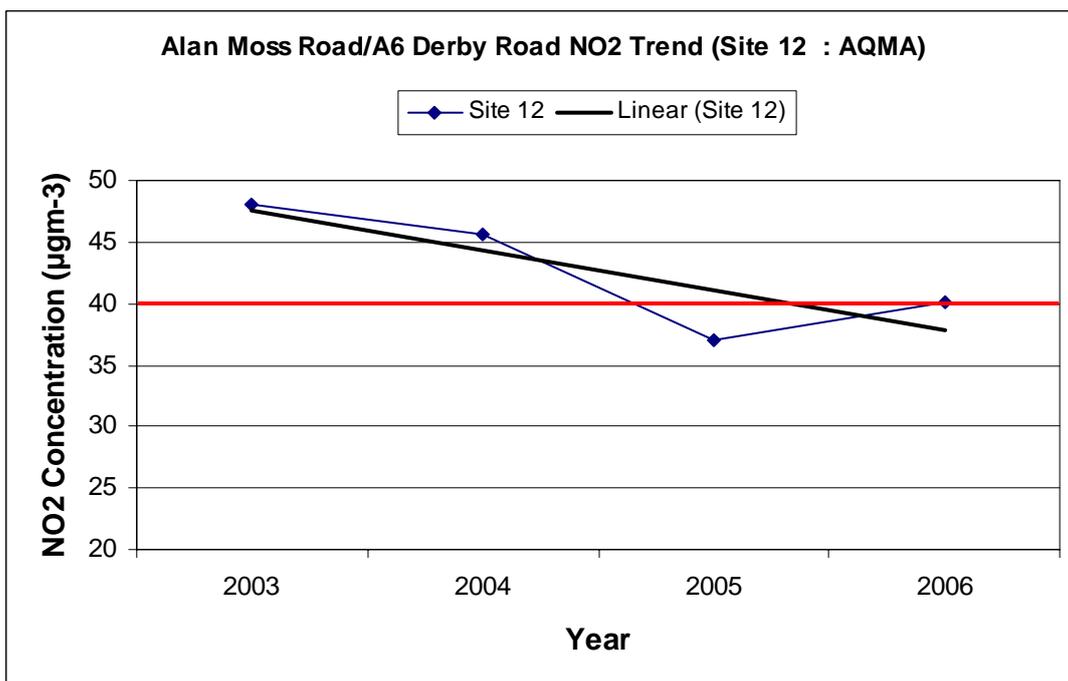
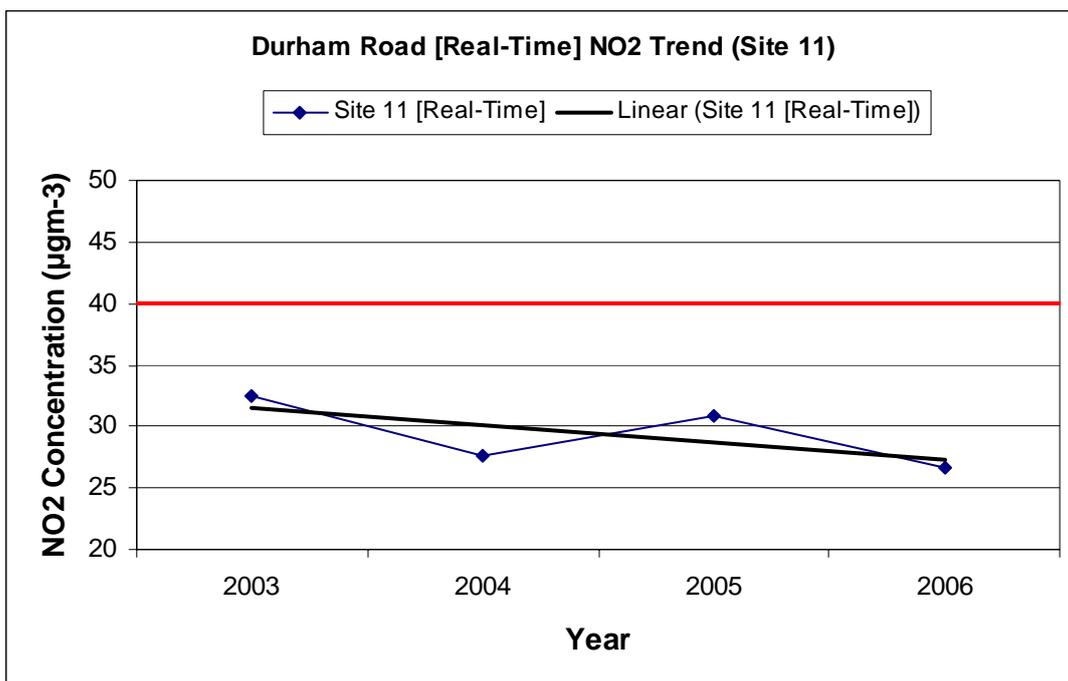


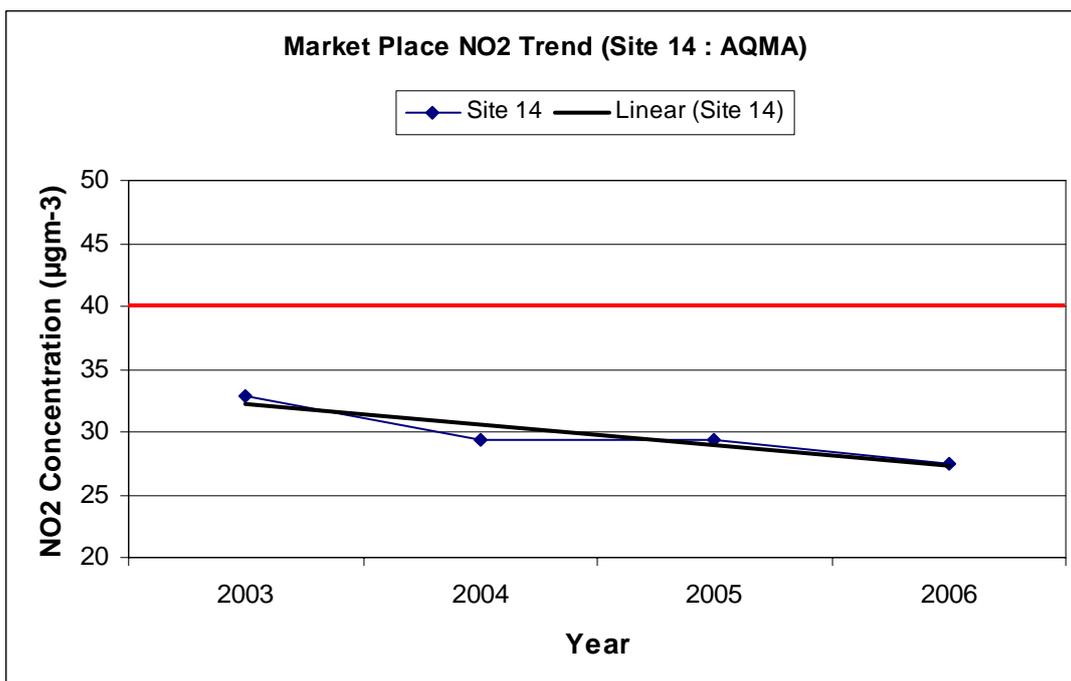
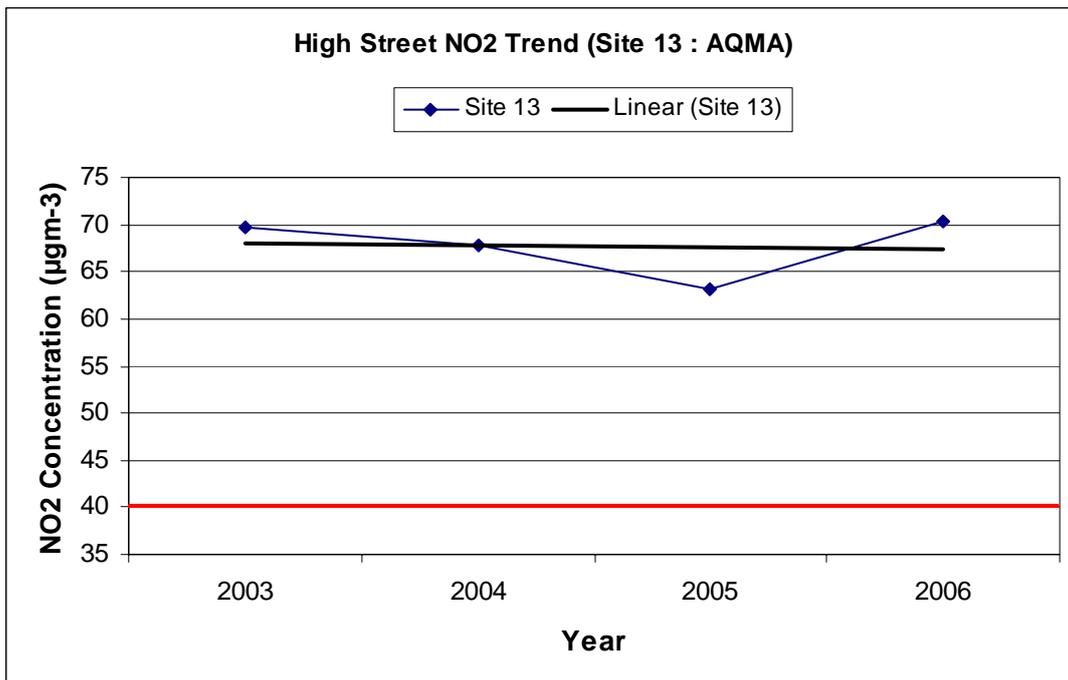


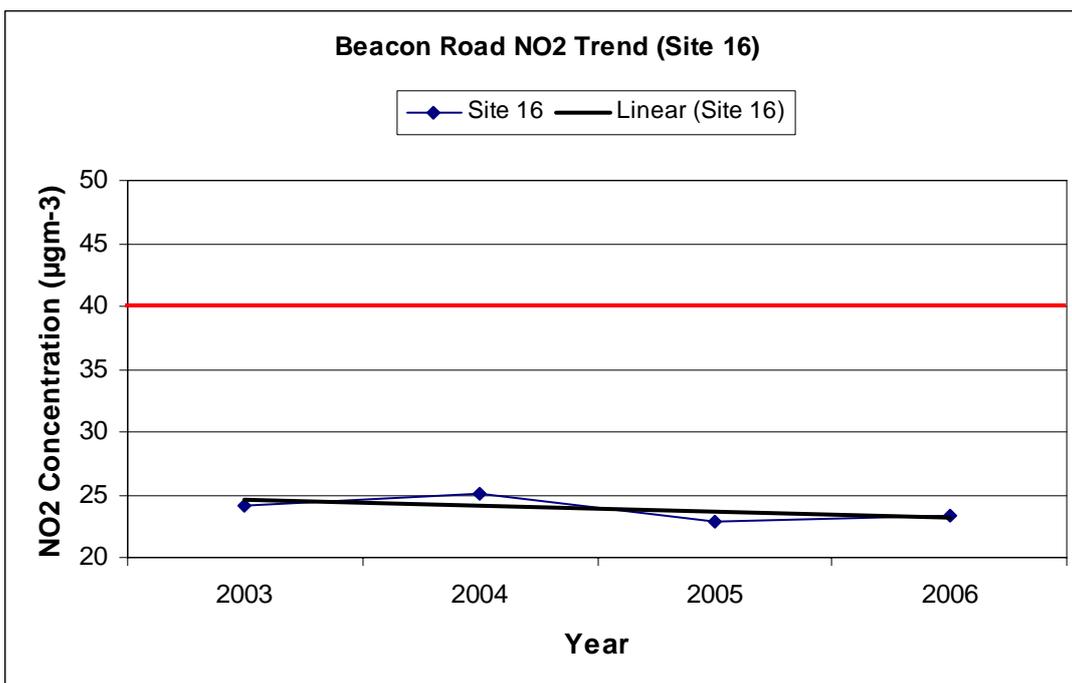
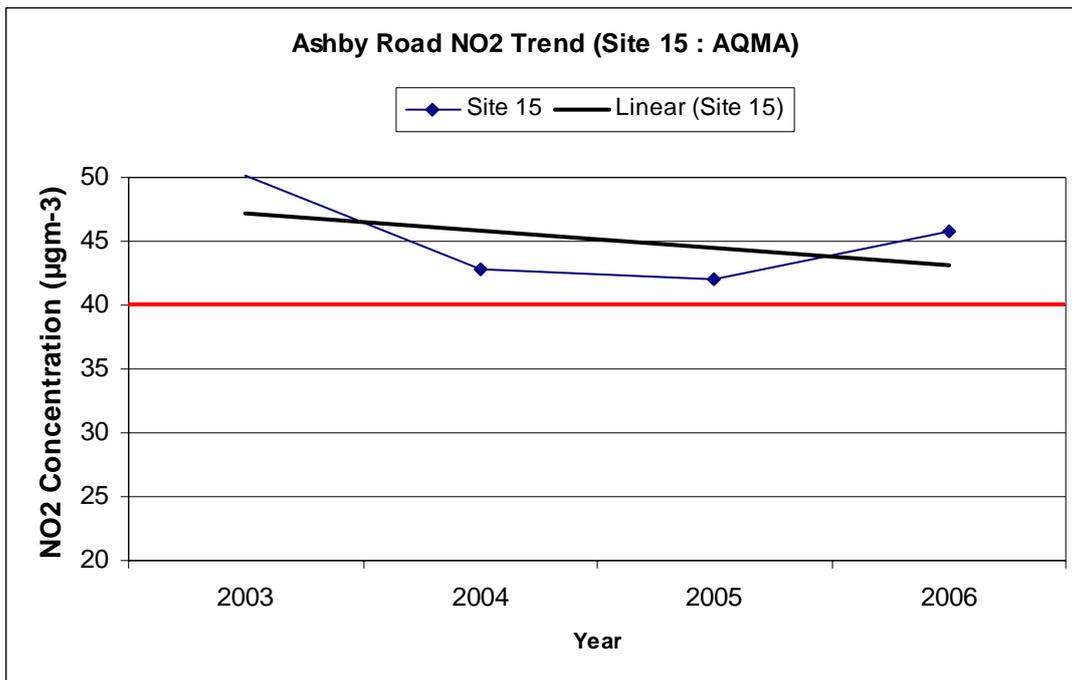


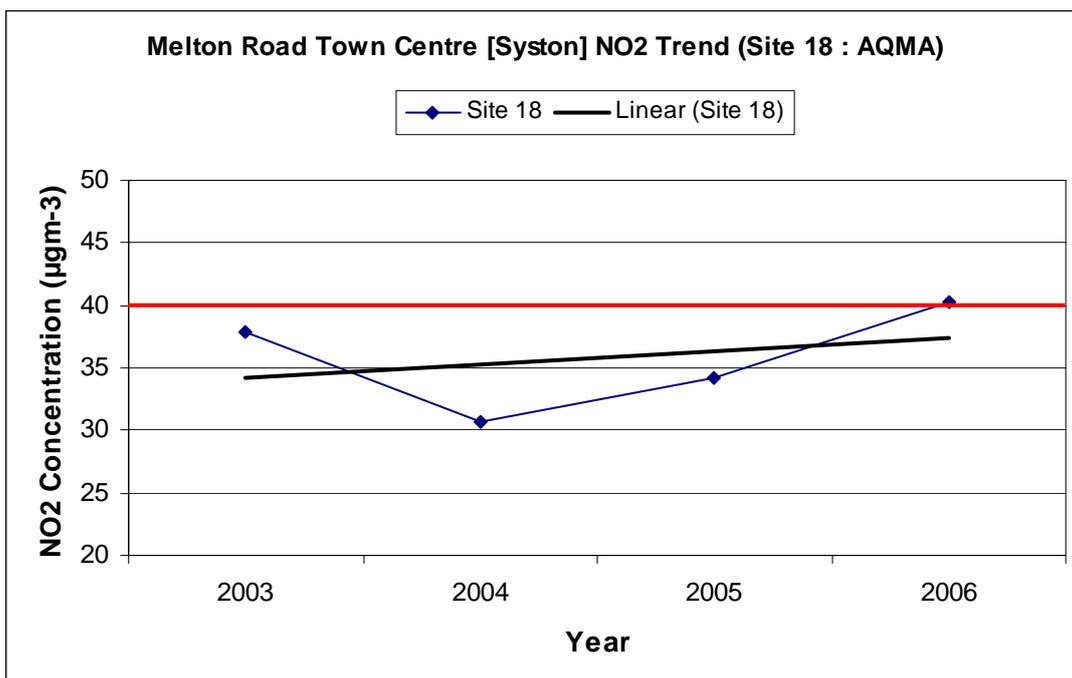
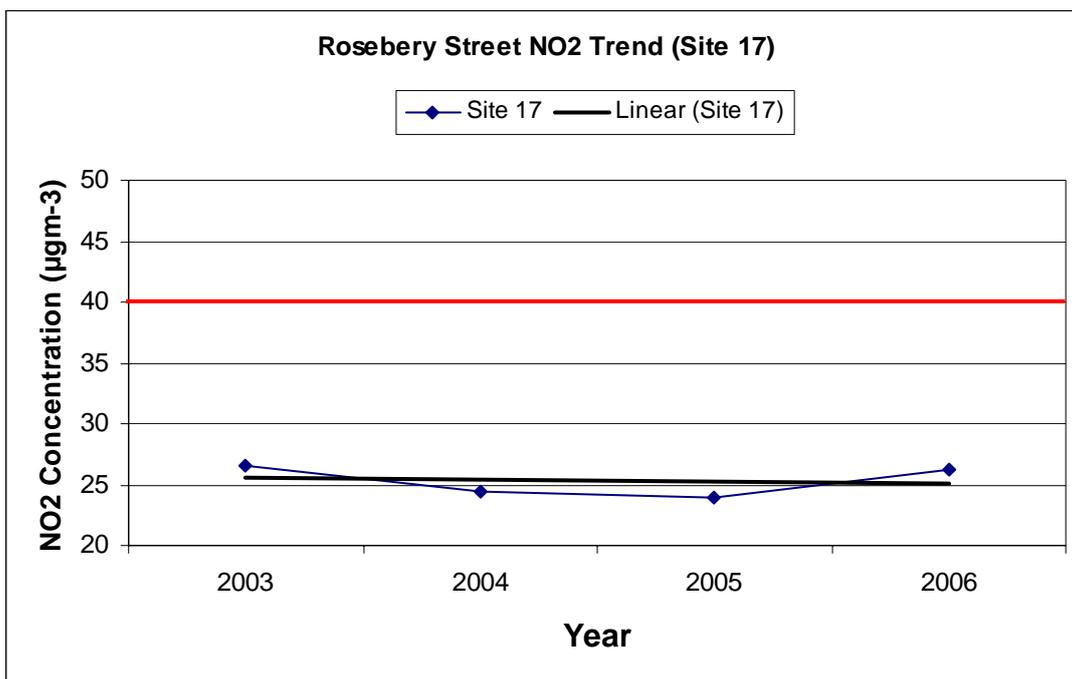


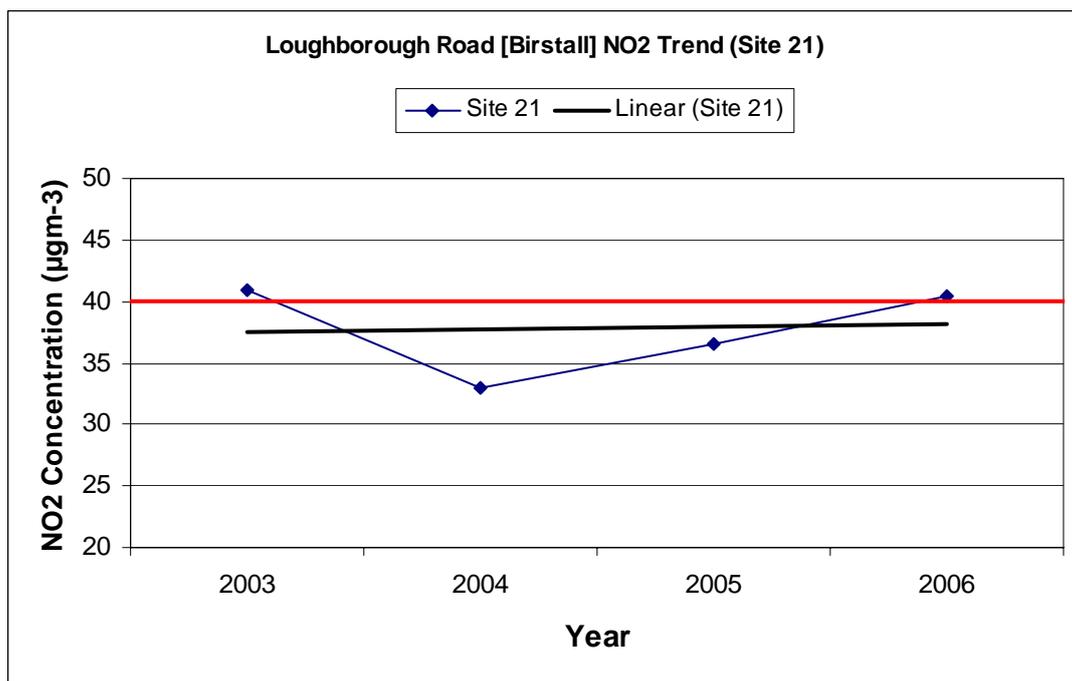
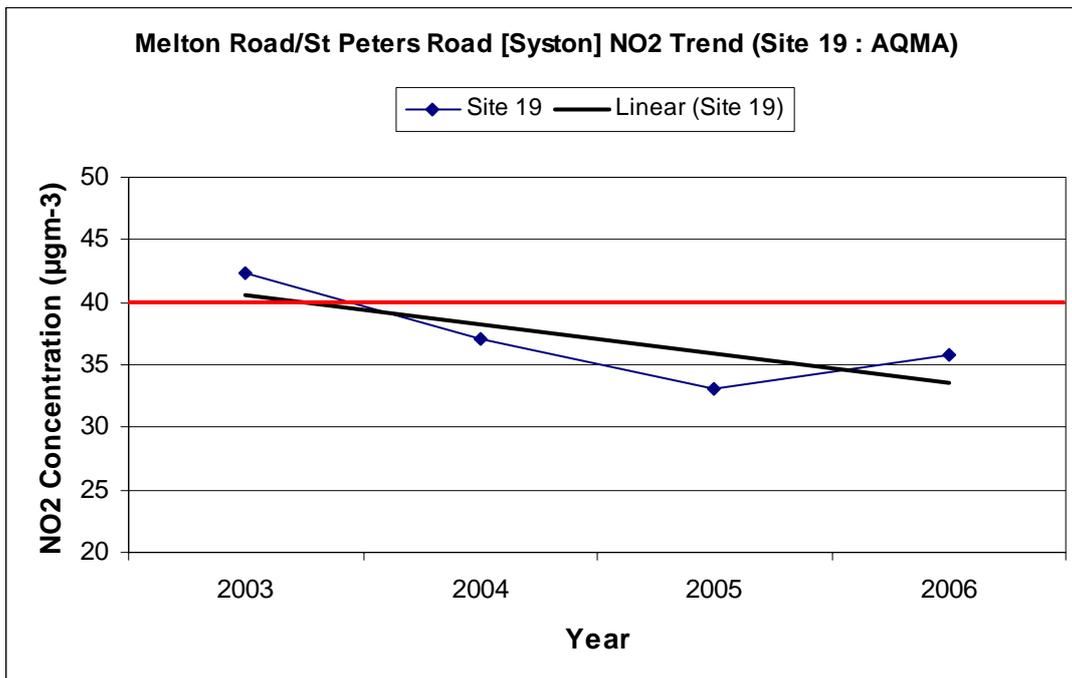


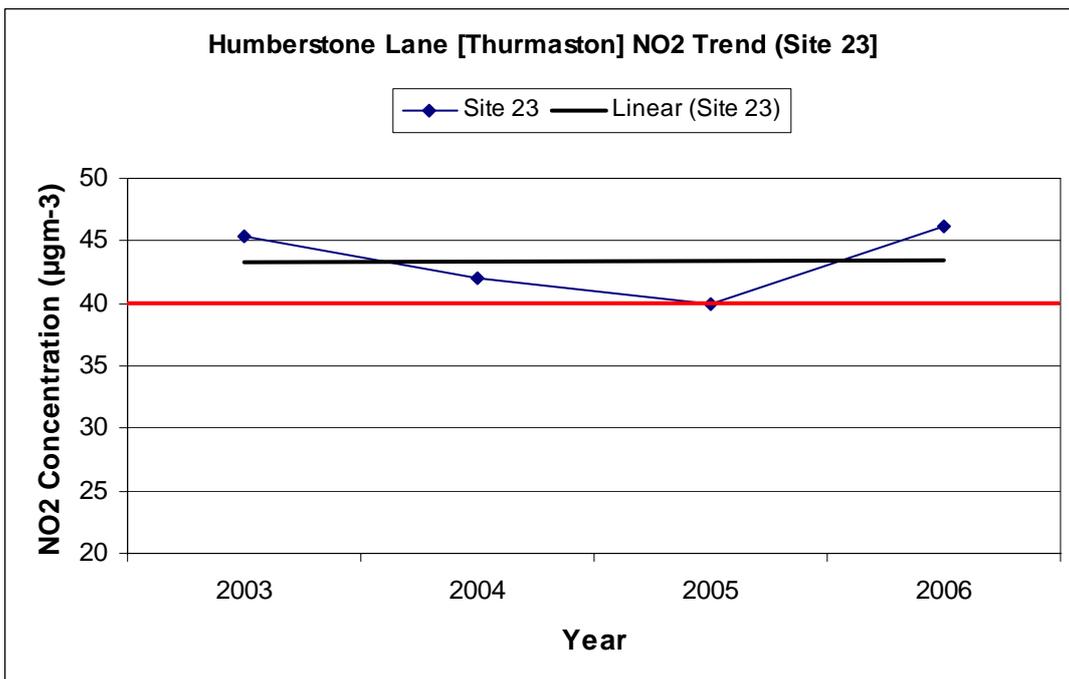
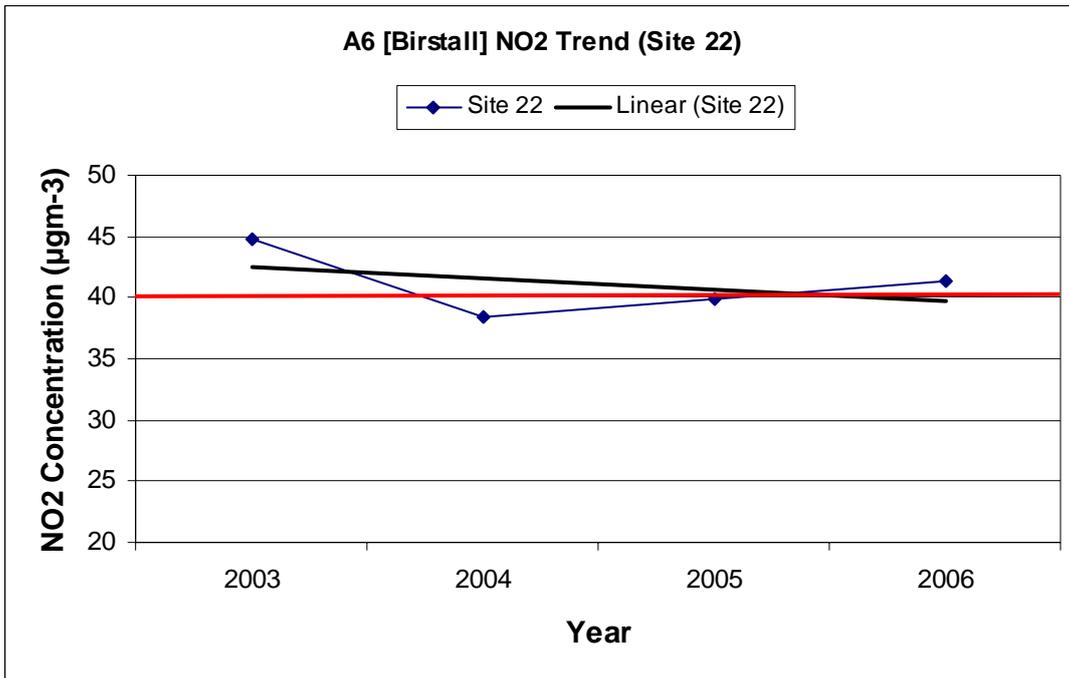


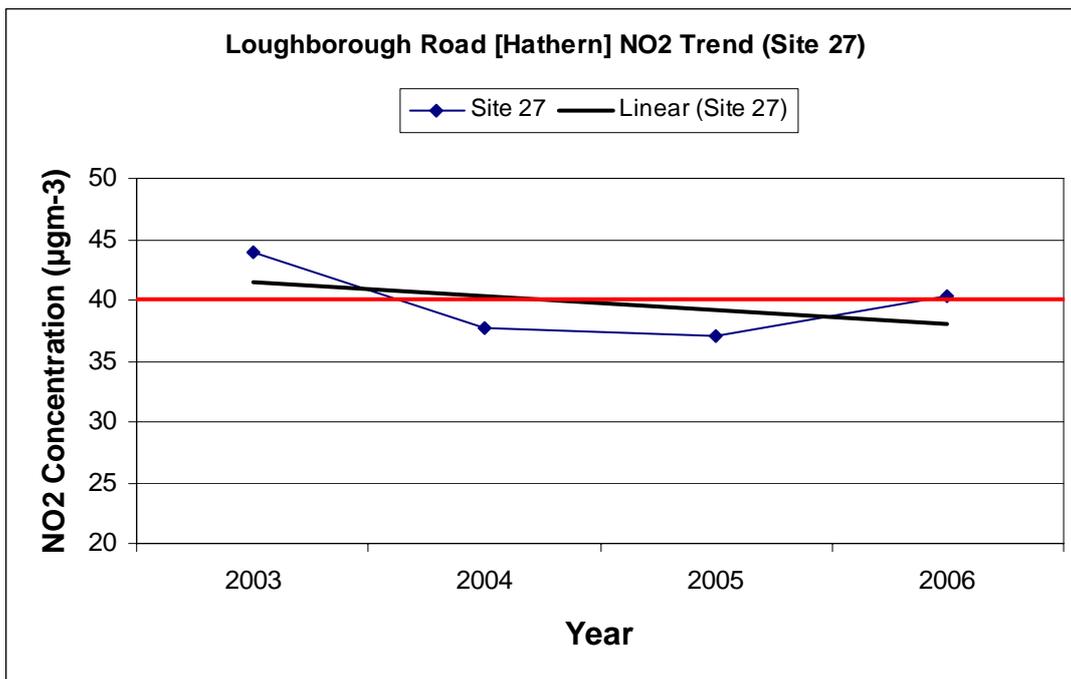
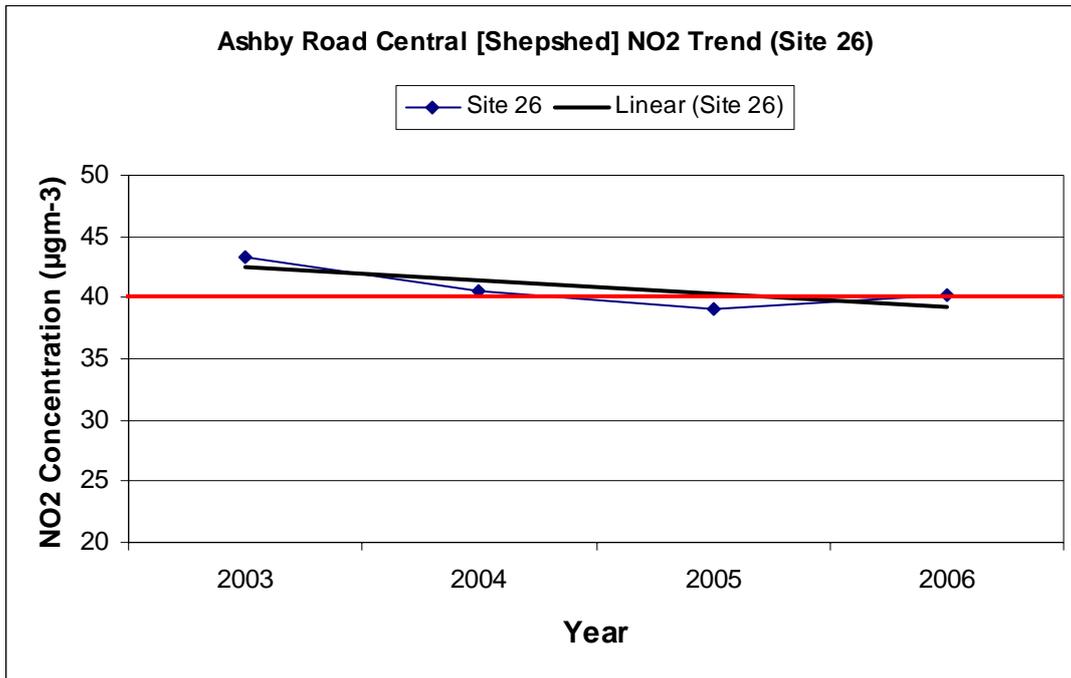












## **APPENDIX 3: LTP air quality action plan delivery report 2007**

### **LEICESTERSHIRE COUNTY COUNCIL LOCAL TRANSPORT PLAN AUTHORITY AIR QUALITY REPORT JULY 2007**

**Purpose:** This report provides an update on the implementation of local transport measures identified in the Leicestershire Local Transport Plan (LTP) 2006-2011 relating to improving air quality within the Air Quality Management Areas (AQMAs). It also provides further more general information about other relevant developments and issues.

**Overall summary:** There is an encouraging overall downward trend over 2006/07 in pollutant levels measured through ongoing diffusion tube monitoring in all of the districts. All specific local measures and county-wide congestion reduction measures detailed in the integrated AQAPs in the LTP are designed to ensure that this downtrend in pollutant levels continues. We are now at the end of the first year of the five year LTP period and this report provides the current position for a number of measures relevant to that time period. Where there are outcomes or progress to report these are given, as well as anticipated outcomes where there is no clear outcome at this early stage in the LTP period.

Our traffic growth indicators also show very encouraging results with the 2006 growth indices 4.7 and 1.5 points below trajectory figures. As stated in the LTP, pollutant levels are too variable to be meaningfully reported annually; this is why we use the traffic growth indicators as an annual proxy measurement for improving air quality.

#### **AQMAs - position at July 2007 in Leicestershire**

##### **Context**

As explained in Chapter 12 of the LTP, of the nine original AQMAs declared on the basis of local rather than motorway traffic, the NO<sub>2</sub> levels in all but three (in Loughborough, Lutterworth and Kegworth) had improved to the extent that residential façade values no longer exceeded the 40µg/m<sup>3</sup> national air quality objective, and continued monitoring was the only action. For Loughborough, Lutterworth and Kegworth Air Quality Action Plans were drawn up and integrated into the LTP.

##### **Summary of current position**

The 3 AQMAs in Loughborough, Lutterworth and Kegworth, for which LTP action plans have been integrated into the LTP, are currently in the process of being implemented. As explained in the LTP, the pollutant levels in the Loughborough and Lutterworth AQMAs are expected to remain in excess of

the threshold until the respective Relief Roads are implemented; levels in Kegworth remain borderline, fractionally over the threshold.

There are 2 AQMAs near to the M1 motorway for which the Highways Agency is currently completing assessment work prior to consultation on its M1 widening proposals.

There is 1 AQMA on Narborough Road South (Blaby District). Continued monitoring is proposed but there is currently no evidence to support incorporating an action plan into the LTP.

2 more recently declared local AQMAs in Blaby District are subject to ongoing monitoring but there is no evidence at present to support incorporating the AQMAs into the LTP.

There is 1 local AQMA on Melton Road, Syston (Charnwood Borough). Further monitoring is proposed but there is currently no continuing evidence to support incorporating an action plan into the LTP.

There are 4 local AQMAs in Oadby and Wigston Borough. Ongoing monitoring has revealed results consistently below the threshold and on the basis of this processes are underway to revoke these 4 AQMAs.

**Working with our district council partners:** we have worked extensively with our district council partners both individually and through our Air Quality Forum to ensure that our air quality work is focussed on those areas most in need of improvement and that proposed actions are challenging but at the same time realistic as to what can be achieved by the range of measures proposed. We have also worked closely with and consulted our districts on the implementation of local measures within their Districts during the preparation of this Authority Report.

**Structure of this report:** this report comprises 7 tables. Tables 1 – 3 relate to the AQMAs in Loughborough, Lutterworth and Kegworth for which LTP action plans have been developed. Tables 4 - 6 refer to other AQMAs in Blaby, Charnwood and Oadby and Wigston. The report is concluded with Table 7 which shows initiatives being taken county-wide that provide a contribution to improving air quality.



**Table 1: Loughborough AQMA**

Measure	Original Timescale	Current Position / Progress	Outcome to date / Planned outcome			Comments
			2004	2005	2006	
Traffic growth monitoring in Loughborough	Ongoing	Induction loops in the road continuously measure traffic flows in both directions on the approaches to Loughborough	<i>Trajectory</i> 100 Actual 100	101.9 101.2	103.8 99.1	It can be seen that traffic growth, our proxy for the measurement of air quality levels, is well within the trajectories set in the LTP.
Loughborough Inner Relief Road to divert traffic away from A6 in town centre	LTP: 2 – 5 years	Inner Relief Road and town centre improvements on target for completion by end of LTP period.	Outcome to date: n/a  Planned outcome: significant improvement in air quality in the town centre and at the most critical site within the Loughborough AQMA on High Street.			Signing and other town centre restrictions to divert traffic and pedestrianise the A6 and other streets will complement the main road scheme.
Signing or town centre restrictions to divert traffic from A6 onto Epinal Way		Start of road construction programmed to begin late 2009 – early 2010.  Town centre improvements programmed to begin 2010.				
Town centre vehicle restrictions to pedestrianise A6 and other streets		Planning permission for the Relief Road granted May 2007.  Statutory Orders to be submitted autumn 2007.				
Fewer parking spaces or higher charges to restrain car access to work or shops	LTP: 2 – 5 years	The Loughborough Parking Strategy includes a common charging policy to discourage ‘cruising’ for cheaper spaces, and parking concessions for lower-emission vehicles for borough-council issued tickets and permits	Outcome to date: n/a  Planned outcomes: reduction in emissions due to discouragement of “cruising” for cheaper spaces and encouragement of low-emission vehicles.			Car parking charges are already the highest in the County (£5.50 per day). They are felt to be as high as practicable relative to other local urban centres to restrain car access to work and shops whilst avoiding a detrimental effect on the vitality of the town centre.

				The Loughborough Parking Strategy provides the findings of a review of existing parking provision in Loughborough town centre and sets out the framework for parking policies in the town centre for the period to 2021 against the background of the overall vision for the town centre as outlined in the Town Centre Masterplan (TCMP).
	LTP: 2 – 5 years	Residents parking schemes planned for Burder Street in late 2008 and Queens Road / School Street by end 2010/11.	Outcome to date: n/a Planned outcome: reduction of availability of free on-street parking in vicinity of railway station and Great Central Railway. Will increase incentive for access by means other than the private car.	
Investment in cycle route network to reach all parts of Loughborough	LTP: 2 – 5 years	During the LTP period we plan to extend the cycle network to reach all areas of Loughborough.  Loughborough is the principal focus of our funding for cycling infrastructure outside Central Leicestershire.	Outcome to date: n/a Planned outcome: benefits to air quality arising from: easier promotion of cycling, modal shift for shorter journeys more attractive, helping reduction of number of cars in town centre.	
Improved interchange at railway station as part of station yard	LTP: 2 – 5 years	Identification of funding underway.	Outcome to date: n/a Planned outcome: greatly improved air quality in the Ratcliffe Road / Burder Street	Funding is necessary to fund link road through railway station yard to divert traffic from Ratcliffe Road in conjunction with access / interchange facilities at the station, mixed housing

redevelopment			AQMA area. Encouragement of more people onto public transport by making train travel more attractive.	development and small office development
Continuing requirement for workplace travel plans with new developments	LTP: 0 – 2 years	See table 7 for details		
Development of a park and ride scheme for Loughborough	Not proposed in the current LTP period	Although not feasible within the 2006-11 LTP period, provision of park and ride is being considered to support a possible urban extension in the draft Regional Plan.	Outcome to date: n/a Planned outcome: the scheme would have the potential to significantly reduce travel into the town centre by private car, and increase the viability of public transport	
Reduce vehicle access to town centre by congestion charging (hypothetical) –	Not specified in LTP	Although not being pursued for Loughborough in isolation, the town is included in the area covered by the ‘6 Cs’ (Derby, Leicester and Nottingham, and the Counties of Derbyshire, Leicestershire and Nottinghamshire) Transport Innovation Fund project being undertaken by the City and County authorities to develop a business case for road user charging in the 6Cs area.  Early work undertaken on establishing baseline data, scenario	Outcome to date: n/a Planned outcome: any measures which reduced congestion would clearly have significant and beneficial air quality impacts.	

		development and business engagement.		
Work through Quality Bus Partnerships to reduce bus emissions	LTP: 0 – 2 years	See table 7 for details.		
7.5 tonne weight limit to divert lorries away from A6 through town centre	LTP 0 – 2 years	Voluntary emissions testing carried out in Loughborough in association with the Vehicle and Operator Services Agency (VOSA)	Outcome to date: 115 cars tested over the two days. Favourable comments on balance regarding the principle of compulsory emissions testing and Fixed Penalty Notices for infractions, and the feeling that such measures would help improve air quality.	The LTP raises the possibility of having VOSA include roadside testing of HGVs as part of its DfT funded programme. Although this is no longer part of VOSA's remit, the possibility of directly engaging their services, or those of another company, in order to monitor emissions in AQMAs, will be investigated via the Leicestershire Air Quality Forum.
Land use planning for no unnecessary additional traffic through town centre	LTP: 2 – 5 years	See table 7 for further details.		
Network management for roadworks, incidents and planned events	LTP: 0 – 5 years	High Street is closed for annual four-day duration of Loughborough Fair with clearly-signed diversion routes.  Similarly, Melton Road is closed for annual half-day duration of Syston Christmas event with	Outcome to date: Prevention of serious congestion on the main road through the town, and minimisation of consequent air quality problems	High Street is the most critical air quality location in the Loughborough AQMA.  Although an Air Quality Action Plan for Syston is not integrated into the LTP, the Syston AQMA runs along Melton Road.

		clearly-signed diversion routes. See also table 7.		
Increasing travel by train with bus connections to town centre and key destinations	LTP: 0 – 5 years	Through-ticketing on the service running between the rail station and the town	Outcome to date: Encouragement of people to use the bus to get to the rail station. Reduction of burden of cars on the area of the AQMA local to the rail station.	
School travel planning with investment in walking and cycling routes	LTP: 0 – 5 years	See table 7 for details.		
Smarter choices and promotion building on workplace travel plans	LTP: 0 - 5 years	See table 7 for details.		
Better vehicle use of roadspace for less disruption to free flowing traffic	LTP: 0 - 5 years	See table 7 for details.		

**Table 5 – Charnwood**

NO <sub>2</sub> monitoring at existing and new local AQMAs not integrated into the LTP	Ongoing	Ongoing NO <sub>2</sub> monitoring at existing local AQMA on Melton Road, Syston	Outcome to date: although 2006 diffusion tube NO <sub>2</sub> results are fractionally over the 40 µg/m <sup>3</sup> threshold, there is insufficient evidence yet to support incorporating the AQMA into the LTP.	The LTP states that if full analyser monitoring for 2006 shows an exceedence of the NO <sub>2</sub> threshold value, an AQAP will be integrated into the first biennial LTP report in 2008.
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**Table 7 - Countywide initiatives providing a contribution to improving air quality.**

Measure	Original Timescale	Current Position / Progress	Outcome to date / Planned outcome	Comments
NO <sub>2</sub> monitoring within AQMAs	Ongoing	Passive diffusion tubes monitor NO <sub>2</sub> levels at or near critical locations within the AQMAs	Outcome to date: NO <sub>2</sub> levels are showing an encouraging downward trend over the past two years at almost all the AQMA and other monitoring sites	Due to fluctuations in observed NO <sub>2</sub> concentrations, even where emissions are decreasing, no trajectory has been specified in the LTP towards the AQMA targets. Instead, progress towards meeting air quality targets has been measured indirectly using traffic growth indicators in the three AQMAs

Workplace travel plans with new developments, promotion building on workplace travel plans, and other smarter choices	Ongoing	<p>The County Council’s highways, transportation and development guide for developers requires a travel plan for new developments over a certain area or number of dwellings.</p> <p>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.</p> <p>In 2006/07 four major employers committed to the implementation of a travel plan, bringing the total to 32.</p>	<p>Outcome to date: potential positive effects on congestion and air quality from reduced reliance on the individual private car for travel to and from work.</p>	<p>Workplace travel planning is one of the LTP Smarter Choices aimed at reducing traffic congestion. The LTP sets a target of 50% of employers with 250 or more employees to have a workplace travel plan by the end of the LTP period.</p>
		<p>The bus information strategy commits to providing, updating and making available comprehensive high quality public transport information across a range of electronic and printed media</p>	<p>Outcome to date: reduced reliance on the private car by removal of one of the barriers to attracting people on to public transport, through the availability of high quality, widely available travel information.</p>	<p>The Bus Information Strategy is part of Leicestershire’s Bus Strategy, and is contained in the Local Transport Plan.</p>

		Besides requiring travel plans at certain new developments, promoting school travel plans, and implementing our Bus Information Strategy, we actively promote a range of other 'Smarter Choices' through LTP and other funding sources	Outcome to date: potential positive effects on congestion and air quality from reduced reliance on the individual private car	Smarter Choices, is a term that describes schemes and initiatives that reduce the need to travel, or encourage travel behavioural change, for commuting, leisure and shopping journeys.
School travel plans	Ongoing	In 2006/07 a total of 44 schools committed to travel plans, bringing the total in Leicestershire to 161	Outcome to date: Traffic-related air quality will improve both on the route to school and around the school itself, with additional congestion and child safety benefits, due to modal shift away from individual private car use for the school run	The LTP sets a target for 90% of Leicestershire schools to have a travel plan by 2010/11
Walking / Cycling schemes	Ongoing	In 2006/07 nine schemes to encourage walking or cycling were completed in Leicestershire	Outcome to date: Improved walking / cycling facilities encourage less use of the private car, with consequent air quality benefits	

<p>Bus operator initiatives to reduce emissions</p>	<p>Ongoing</p>	<p>The two largest bus operators in the county either have or are developing strategies that include initiatives to reduce the time engines are left idling.</p> <p>More locally, bus companies pass on good practice regarding idling at bus stops as part of driver training, and the Quality Bus Partnerships offer the opportunity to keep operators aware of concerns in this area.</p>	<p>Outcome to date: potential significant improvement in air quality, particularly at bus timing points and termini, by reducing idling time.</p>	<p>The County Council works closely with commercial bus companies through Quality Bus Partnerships and a range of other complementary fora and meetings</p>
<p>Land use planning to reduce impact of new development on AQMAs and eliminate unnecessary additional traffic through town centres.</p>	<p>Ongoing</p>	<p>The sequential approach to development in the adopted Leicestershire, Leicester and Rutland Structure Plan prioritises new development in and adjoining existing settlements.</p> <p>The New Growth Point initiative being pursued by the 3 Cities and 3 Counties incorporates the same principles.</p>	<p>Outcome to date: beneficial effects on emission levels and air quality as a result of maximising the possibilities for provision of public transport and demand management measures.</p>	
	<p>LTP: 1 - 2 yrs</p>	<p>Within Local Development Frameworks it will be necessary for any major development, residential or commercial, to carryout a Sustainability Appraisal as part of the planning application process.</p>	<p>Outcome to date: n/a</p> <p>Expected outcome: this will further reduce the impact any new major development will have on the air quality within Air Quality Management Areas.</p>	

Network management for roadworks, incidents and planned events	Ongoing	As part of the Network Management Duty we co-ordinate streetworks and manage planned events, and have procedures for dealing with incidents	Outcome to date: efficient management of the network minimises the time traffic spends congested, and hence unnecessary emissions.	
Introduction of Civil Parking Enforcement (CPE)	LTP: 2 yrs	From July 2007 Leicestershire County Council will take over parking enforcement rather than the police. The County Council will manage the Scheme and District and Borough Councils will enforce the restrictions through a team of parking attendants	Outcome to date: n/a Expected outcome: potential reduction in congestion, and hence emissions, as a result of reducing the number of incorrectly parked cars, as it is more likely that offenders will receive a parking ticket.	
Better vehicle use of roadspace for less disruption to free-flowing traffic	Ongoing	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.	Outcome to date: 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.	