



Ashfield District Council

Local Air Quality Management Progress Report 2007

Environmental Protection Section



ASHFIELD DISTRICT COUNCIL

**Review & Assessment
Local Air Quality Management**

**Progress Report
APRIL 2007**

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Acknowledgements

The Council would like to thank those who have provided help, co-operation, information and resources to enable Ashfield District Council to undertake this Updating and Screening Assessment.

Section One Ashfield District Council Progress Report 2007

Executive Summary

Part IV of the Environment Act 1995 requires local authorities to review and assess the current and future air quality in their areas against objectives set out for eight key air pollutants, under the provisions of the National Air Quality Regulations 2000 and the Air Quality (Amendment) Regulations 2002 (Table 1.0).

A review and assessment of air quality is the first step in the Local Air Quality Management (LAQM) process. Part IV of the Act requires each local authority to review air quality 'from time to time'. The National Air Quality Regulations 2000 and the Air Quality (Amendment) Regulations 2002 prescribe air quality objectives and the dates for meeting them. For each objective, local authorities have to consider present and future air quality and assess whether the objectives are likely to be achieved by the prescribed date.

Review and assessment is now undertaken using a phased approach, initially conducting an 'Updating and Screening Assessment'; this is based on a checklist approach to identify those matters that have changed since the first round of review and assessment was completed and which now require further assessment. Then a 'Detailed Assessment' where the updating and screening assessment indicates that an Air Quality Objective may be compromised. Guidance for progress reports has been given in Technical Guidance LAQM. TG(03).

1.1 Progress Reports

Progress reports were introduced into the Local Air Quality Management (LAQM) system following a detailed evaluation of the first round of review and assessment. The evaluation report recommended that:

"Careful consideration should be given to requiring an annual LAQM report instead of less frequent review and assessment reports. It would help ensure continuity in resourcing air quality within local authorities so as to maintain the capacity and skills required to manage LAQM. Such a report should provide both a review and update on air quality issues, including information on developments that might affect air quality and the results of monitoring. It would ensure that circumstances requiring a detailed assessment were identified early and acted upon without delay".

Progress reports are designed to ensure continuity in the LAQM process. They thus fill the gaps between the three yearly requirements to carry out a review and assessment of air quality. Guidance for progress reports has been given in LAQM.PRG(03).

Progress reports are only required in years when the authority is not carrying out an Updating and Screening Assessment or a Detailed Assessment. Thus, this report forms the second Progress Report produced by Ashfield District Council following the most recent Updating and Screening Assessment submitted to Defra in 2006.

1.2 Summary

A review of air quality measurement during 2006/07 has demonstrated that all the air quality objectives continue to be achieved across Ashfield. There is no requirement to proceed to a Detailed Assessment for any of the Air Quality Strategy pollutants as a result of air quality data reported within this Progress Report.

1.3 Introduction

The aim of this report is to detail the progress on implementing local air quality management across Ashfield by presenting new monitoring data and a review of local developments which might affect local air quality. This Progress Report represents the seventh report on air quality produced by Ashfield District Council. It is recommended that the report is read in conjunction with the preceding reports, Air Quality Review and Assessment Third Stage August 2001, Updating and Screening Assessment May 2003, Detailed Assessment April 2004 and Detailed Assessment December 2004. Progress Report April 2005 and Updating and Screening Assessment April 2006

The objectives of this report are to:

- Provide an update on monitoring that has taken place since the Updating and Screening Assessment submitted to Defra in April 2006.
- Review any new developments or changes that might have an affect on local air quality
- Provide the means for communicating air quality information to members and the public.

The report adopts the same format as the Updating and Screening Assessment by utilising the profile suggested within the Technical Guidance LAQM. TG(03) and the Progress Report Guidance LAQM.PRG(03). Air quality has been assessed against a list of guidance criteria and where necessary new monitoring data has been reviewed and updated.

1.4 Public Exposure

The Regulations make clear that likely exceedances of the objectives should be assessed in relation to 'the quality of the air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present¹.' Review and assessments should thus be focussed on those locations where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective. Authorities are advised not to consider exceedances of the objectives at any location where public exposure would not be realistic².

1.5 Consultation

DEFRA advise that local authorities will not need to consult widely on progress reports however they have advised that results from this process should be made available to the public.

¹ Part IV of the Environment Act 1995, Local Air Quality Management, Technical Guidance, LAQM.TG(03), DEFRA. 2003

² Part IV of the Environment Act 1995, Local Air Quality Management, Technical Guidance, LAQM.TG(03), DEFRA. 2003.

This report and associated appendices will be made available to the public via libraries in the district, at the Council Offices in Kirkby-in-Ashfield and on the Council's Web Site. The Nottinghamshire Air Quality Steering Group, established during the first round of review and assessment to co-ordinate consultation across Nottinghamshire authorities, will continue to be involved in Local Air Quality Management. A copy of this report will be put before this group for consultation.

Table 1.0 Objectives included in the Air Quality Regulations (England) (Wales) 2000 and in Air Quality (England) (Wales) (Amendment) Regulations 2002 for the purpose of Local Air Quality Management.

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured As	
Benzene ¹	16.25 µg/m ³	Running annual mean	31.12.2003
	5 µg/m ³	Annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m ³	Running annual mean	31.12.2003
Carbon monoxide ¹	10.0 mg/m ³	Maximum daily running 8-hour mean	31.12.2003
Lead	0.5µg/m ³	Annual mean	31.12.2004
	0.25µg/m ³	Annual mean	31.12.2008
Nitrogen dioxide ²	200 µg/m ³ not to be exceeded more than 18 times a year.	1-hour mean	31.12.2005
	40 µg/m ³	annual mean	31.12.2005
Particles (PM₁₀) (gravimetric) ³	50 µg/m ³ not to be exceeded more than 35 times a year.	24-hour mean	31.12.2004
	40 µg/m ³	annual mean	31.12.2004
Sulphur dioxide	350µg/m ³ not to be exceeded more than 24 times a year.	1-hour mean	31.12.2004
	125µg/m ³ not to be exceeded more than 3 times a year.	24-hour mean	31.12.2004
	266µg/m ³ not to be exceeded more than 35 times a year.	15-minute mean	31.12.2005

¹ The Air Quality Objective of 5 µg/m³ for benzene and the objective of 10µg/m³ for carbon monoxide came into force in separate Air Quality (Amendment) Regulations for England and Wales on 11 December 2002 and 31 December 2002 respectively.

² The objectives for nitrogen dioxide are provisional.

³ Measured using the European gravimetric transfer sampler or equivalent

Section Two

Carbon Monoxide

The Government and Devolved Administrations have set a new objective of 10mg/m³ as a daily running mean concentration, which was to be achieved by the end of 2003, bringing it into line with the Second Air Quality Daughter Directive limit value.

National Objective:

10mg/m³ Max daily running eight-hour mean (31st December 2003).

2.1 (A) Monitoring Data

No local monitoring has been undertaken for carbon monoxide in Ashfield since the Updating and Screening Assessment reported in 2003, which concluded that the annual objective concentration of 10mg/m³ in 2003 will be met across the district. There has been no significant increase in carbon monoxide sources identified within Ashfield.

Air Quality Emission Inventory

A carbon monoxide emission inventory for Ashfield has been revised since the second round of review and assessment, undertaken by consultants acting on behalf of Nottinghamshire authorities and based upon 2004 data³. Considerable data relating to emissions of carbon monoxide has been compiled and entered into the new inventory. The inventory clearly demonstrates a reduction in carbon monoxide levels across Ashfield and Nottinghamshire since the second round.

Table 2.0 tabulates the reduction in carbon monoxide emissions from road transport along with a number of other pollutants evaluated within this Updating and Screening Assessment predominantly showing a downward trend.

Table 2.0 Emission reductions from Road Transport within Nottinghamshire 1997 –2004 (tonnes/year)

Pollutant	Emissions from Road Transport			
	1997 (tonnes /year)	2001 (tonnes /year)	2004 (tonnes /year)	% Reduction*
Carbon Monoxide (CO)	45283	29863	15291	49
Nitrogen Oxides (NOx)	16812	12993	10223	23
Non Methane Volatile Organic Compounds (NMVOCs)	9095	3280	1334	64
Particulates PM ₁₀	769	462	389	40
Benzene	312	45	49	-
1,3 Butadiene	75	51	25	32

³ Nottingham Emissions Inventory, (AQA Ltd) April 2004

There has been no significant increase in carbon monoxide sources identified within Ashfield. Low resolution modelling conducted during the first round of review and assessment indicated that carbon monoxide levels were predicted to be between 0.3 mg/m³ – 0.6 mg/m³ (1997), considerably below the new objective.

Automatic Urban Network Stations

A summary of maximum 8-hour mean concentrations measured at nearby Automatic Urban Network Stations (Table 2.1) indicate there has been no exceedances of the objective and results are well below the standard. *Note that data for 2006 includes some provisional and un-ratified data.

Table 2.1 Summary of Maximum Carbon Monoxide 8-Hour mean concentrations measured at a number of National Network Monitoring Sites (2001 – 2005)

Site	Site Classification	Maximum daily 8-hour mean concentration (Objective 10mg/m ³)				
		2002 mg/m ³	2003 mg/m ³	2004 mg/m ³	2005 mg/m ³	2006 mg/m ³
Nottingham Centre	Urban Centre	0.39	0.43	0.47	0.4	*0.25
Birmingham East (Centre)	Urban Background	0.26	0.27	0.23	0.35	*0.35
Sheffield Centre	Urban Centre	0.41	0.40	0.37	0.36	*0.31
Leicester Centre	Urban Centre	0.49	0.49	0.34	0.24	*0.23

Background concentrations

Background concentration maps for carbon monoxide were not updated by Defra for the third round of review and assessment, as this pollutant is not considered a high priority. The maximum estimated background concentration within Ashfield in 2001 was 0.458mg/m³. When corrected to the objective year of 2003 the maximum estimated background concentration in Ashfield was calculated as 0.378mg/m³, well below the air quality objective.

2.2 (B) Very Busy Roads or junctions in built-up areas

Local authorities are only required to undertake a review and assessment for road traffic sources of carbon monoxide in respect of the 2003 objective, where the background concentration is expected to be above 1 mg/m³ in areas where there are 'very busy' roads with daily average traffic (AADT) flows that exceed the following criteria:

- i. single carriageway roads with daily average traffic flows which exceed 80,000 vehicles per day.
- ii. dual carriageway (2 or 3 lanes) roads with daily average traffic flows which exceed 120,000 vehicles per day.
- iii. Motorways with daily average traffic flows which exceed 140,000 vehicles per day.

Updated traffic flow data for 2004 has been reviewed and it has been determined that there are no roads in Ashfield that have been identified as 'very busy' and therefore no further assessment has been undertaken for this section.

2.3 CONCLUSION

The assessment of carbon monoxide has been reviewed against the 2006 revised checklist criteria contained in the LAQM Technical Guidance (03) and updated for 2006. It is expected that the annual objective concentration of $10\text{mg}/\text{m}^3$ in 2003 will continue be met across Ashfield.

There is no requirement to undertake a detailed assessment for carbon monoxide in any location within Ashfield.

Section Three

Benzene

The Government and Devolved Administrations have adopted a running annual mean of $16.25\mu\text{g}/\text{m}^3$ as the air quality standard for benzene, with an objective for the standard to be achieved by the end of 2003. However, in light of the health advice from the Expert Panel on Air Quality Standards (EPAQS) and the Department of Health's Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment (COC), additional tighter objectives have been set. The Second Air Quality Daughter Directive for benzene, which has been transposed into UK legislation, sets a limit value, annual mean of $5\mu\text{g}/\text{m}^3$ to be achieved by 1st January 2010⁴.

National Objectives:

16.25 $\mu\text{g}/\text{m}^3$ running annual mean 31st. December 2003

5 $\mu\text{g}/\text{m}^3$ annual mean 31st. December 2010

3.1 (A) Monitoring Data

No local monitoring has been undertaken for benzene in Ashfield since the Updating and Screening Assessment reported in 2003, which concluded that the annual objective concentrations of $16.25\mu\text{g}/\text{m}^3$ (2003) and $5\mu\text{g}/\text{m}^3$ (2010) would be met across Ashfield.

Air Quality Emission Inventory

A benzene emission inventory for Ashfield has been revised since the second round of review and assessment, undertaken by consultants acting on behalf of Nottinghamshire authorities and based upon 2004 data⁵. Considerable data relating to emissions of benzene has been compiled and entered into the new inventory. The inventory identifies that benzene levels have increased very slightly which may be associated with the inventory reflecting a more accurate determination of concentrations than in previous years (see table 2.0 Chapter 2).

Automatic Monitoring Network Data

A summary of maximum annual running mean concentrations measured at nearby Automatic Urban Network Stations (Table 3.0) indicate there has been no exceedances of the objective and results are well below the standard.

Table 3.0 Summary of Maximum Running Annual Mean Concentrations measured at National Monitoring Sites (2001-2005)

AUN Site		Maximum Running Annual Mean Concentration					
		2001	2002	2003	2004	2005	2006
		$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$
Urban Centre	London Marylebone Rd	4.55	3.93	3.31	2.76	2.28	*1.84

⁴ Part IV of the Environment Act 1995, Local Air Quality Management, Policy Guidance, LAQM.PG(03), DEFRA. 2003.

⁵ Nottingham Emissions Inventory, (AQA LTD) April 2004

Rural	Harwell	0.62	0.62	0.58	0.42	0.42	*0.53
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Figures in the above table are well below the air quality objective before correction factors have been applied (which will reduce the figures further). *Note that data for 2006 is provisional and un-ratified data.

3.2 (B) Monitoring data within an AQMA

The assessment for this section is only applicable to authorities that have declared Air Quality Management Areas. Ashfield have not declared any Air Quality Management Areas within the district.

3.3 (C) Very busy roads or junctions in built-up areas

Local authorities are only required to undertake a review and assessment for road traffic sources of benzene in respect of the 2003 objective, where there are 'very busy' roads with daily average traffic (AADT) flows that exceed the following criteria:

- i. single carriageway roads with daily average traffic flows which exceed 80,000 vehicles per day.
- ii. dual carriageway (2 or 3 lanes) roads with daily average traffic flows which exceed 120,000 vehicles per day.
- iii. Motorways with daily average traffic flows which exceed 140,000 vehicles per day.

There are no roads in Ashfield that have been identified as 'very busy' and therefore no further review and assessment has been undertaken for this section.

3.4 (D) Industrial sources

There have been no new industrial sources of benzene identified within Ashfield and there are no sources within neighbouring authorities close to the district boundary as determined against the checklist in Annex 2 of the LAQM Technical Guidance (03) and therefore no further assessment has been undertaken for this section.

3.5 (E) Industrial sources with substantially increased emissions, or new relevant exposure.

There have been no new industrial sources with substantially increased emissions identified within Ashfield. No assessment has been undertaken for this section.

3.6 (F) Petrol stations

None of the Petrol stations in Ashfield meet the required criteria for assessment stipulated in the LAQM Technical Guidance (03) and therefore no further assessment has been undertaken.

3.7 (G) Major fuel storage depots (Petrol only)

There are no major fuel storage depots located within Ashfield or within adjacent authorities close to the district boundary and therefore no further assessment has been undertaken for this section.

3.8 CONCLUSION

Monitoring data has been updated for this section which continues to show that it is expected that the annual objective concentrations of $16.25 \mu\text{g}/\text{m}^3$ (2003) and $5\mu\text{g}/\text{m}^3$ (2010) for Benzene will be met across Ashfield.

There is no requirement to undertake a detailed assessment for benzene within Ashfield.

Section Four

1,3 Butadiene

The Government and Devolved Administrations have adopted a maximum running annual mean concentration of $2.25 \mu\text{g}/\text{m}^3$ as an air quality standard for 1,3 butadiene. The objective is for the standard to be achieved by the end of 2003.

National Objectives:

$2.25 \mu\text{g}/\text{m}^3$ running annual mean 31st. December 2003

4.1 (A) Monitoring Data

No monitoring for 1,3-butadiene has been undertaken in Ashfield since the Updating and Screening Assessment in 2003, which concluded that the annual objective concentration of $2.25 \mu\text{g}/\text{m}^3$ (2003) will be met across the district. There has been no significant increase in 1,3-butadiene sources identified within Ashfield.

Air Quality Emission Inventory

A 1,3-butadiene emission inventory for Ashfield has been revised since the second round of review and assessment, undertaken by consultants acting on behalf of Nottinghamshire authorities and based upon 2004 data⁶. Considerable data relating to emissions of 1,3-butadiene has been compiled and entered into the new inventory. The inventory clearly demonstrates a reduction in the levels of this pollutant across Ashfield and Nottinghamshire since the second round (see table 2.0, chapter 2).

Automatic Monitoring Network Data

A summary of annual mean concentrations measured at Automatic Urban Network Stations (Table 4.0) has been updated for 2006 and demonstrates there have been no exceedances of the objective and results are well below the standard.

Table 4.0 Summary of annual mean concentration of 1,3-butadiene (2002 – 2005)

Annual Mean Concentration					
AUN Site		2003	2004	2005	2006
		$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$
Rural Background	Harwell	0.03	0.02	0.01	*0.09
Urban Background	London Marylebone	0.64	0.57	0.52	*0.38

*Note that data for 2005 is provisional and un-ratified data.

4.2 (B) New Industrial Sources

There have been no new industrial sources identified since the previous Updating and Screening Assessment likely to give rise to exceedances of the running average mean objective for 1,3-butadiene.

⁶ Nottingham Emissions Inventory, (AQA LTD) April 2004

4.3 (C) Industrial sources with substantially increased emissions.

There has been no substantial increase of 1,3-butadiene emissions identified in Ashfield since the previous Updating and Screening Assessment likely to give rise to exceedances of the running average mean objective for 1,3-butadiene.

4.4 CONCLUSION

The assessment of 1,3-butadiene has been reviewed against the 2006 revised checklist criteria contained in the LAQM Technical Guidance (03). There have been no significant changes and it is expected that the annual objective concentration of $2.25\mu\text{g}/\text{m}^3$ (2003) will continue to be met across Ashfield.

There is no requirement to undertake a detailed assessment for 1,3-butadiene within Ashfield.

Section Five

Lead

The Government and Devolved Administrations have adopted an annual mean concentration of $0.5\mu\text{g}/\text{m}^3$ as the air quality standard for lead, with an objective for the standard to be achieved by the end of 2004. In addition, a lower air quality objective of $0.25\mu\text{g}/\text{m}^3$ to be achieved by the end of 2008 has also been set⁷.

National Objectives:

$0.5\mu\text{g}/\text{m}^3$ annual mean 31st. December 2004

$0.25\mu\text{g}/\text{m}^3$ annual mean 31st. December 2008

5.1 (A) Monitoring Data

No local monitoring has been undertaken within Ashfield to determine the concentrations of lead against the objective concentrations. The emission inventory compiled for Ashfield did not consider this pollutant as evidence suggested that there was no risk of the objective being exceeded. There has been no significant increase in sources of lead since the previous Updating and Screening Assessment.

5.2 (B) New industrial sources

There have been no new industrial sources of lead identified since the Updating and Screening Assessment as likely to give rise to exceedances of the annual mean objectives for lead in 2004 or 2008.

5.3 (C) Industrial source with substantially increased emissions

There has been no substantial increase in lead emissions from any source within Ashfield therefore no further assessment has been made.

5.4 CONCLUSION

The review for lead has been completed against the 2006 revised criteria contained in the LAQM Technical Guidance (03). It is expected that the annual objective concentration of $0.5\mu\text{g}/\text{m}^3$ (2004) and $0.25\mu\text{g}/\text{m}^3$ (2008) will be met across Ashfield.

There is no requirement to undertake a detailed assessment for lead within Ashfield.

⁷

Part IV of the Environment Act 1995, Local Air Quality Management, Policy Guidance, LAQM.PG(03), DEFRA. 2003.

Section Six

Nitrogen Dioxide (NO₂)

The Government and Devolved Administrations have adopted two Air Quality Objectives for nitrogen dioxide, as an annual mean concentration of 40µg/m³ and a 1-hour mean concentration of 200µg/m³, not to be exceeded more than 18 times per year. The objectives are to be achieved by the end of 2005⁸.

The first Air Quality Daughter Directive also sets limit values for nitrogen dioxide, which has been transposed into UK legislation. The directive includes a 1-hour limit value of 200µg/m³ not to be exceeded more than 18 times per year and an annual mean limit value of 40µg/m³ both to be achieved by 1st January 2010⁹.

UK National Objectives:

200 µg/m³ 1 hour mean (18 exceedances) 31st. December 2005

40 µg/m³ annual mean 31st. December 2005

6.1 (A) Monitoring Data

Air Quality Emission Inventory

A nitrogen dioxide emission inventory for Ashfield has been revised since the second round of review and assessment, undertaken by consultants acting on behalf of Nottinghamshire authorities and based upon 2004 data¹⁰. Considerable data relating to emissions of nitrogen dioxide has been compiled and entered into the new inventory. The inventory clearly demonstrates a reduction in nitrogen dioxide levels across Ashfield and Nottinghamshire since the second round (see Chapter Two, Table 2.0).

Monitoring of nitrogen dioxide at Stoneyford Court, Sutton-in-Ashfield

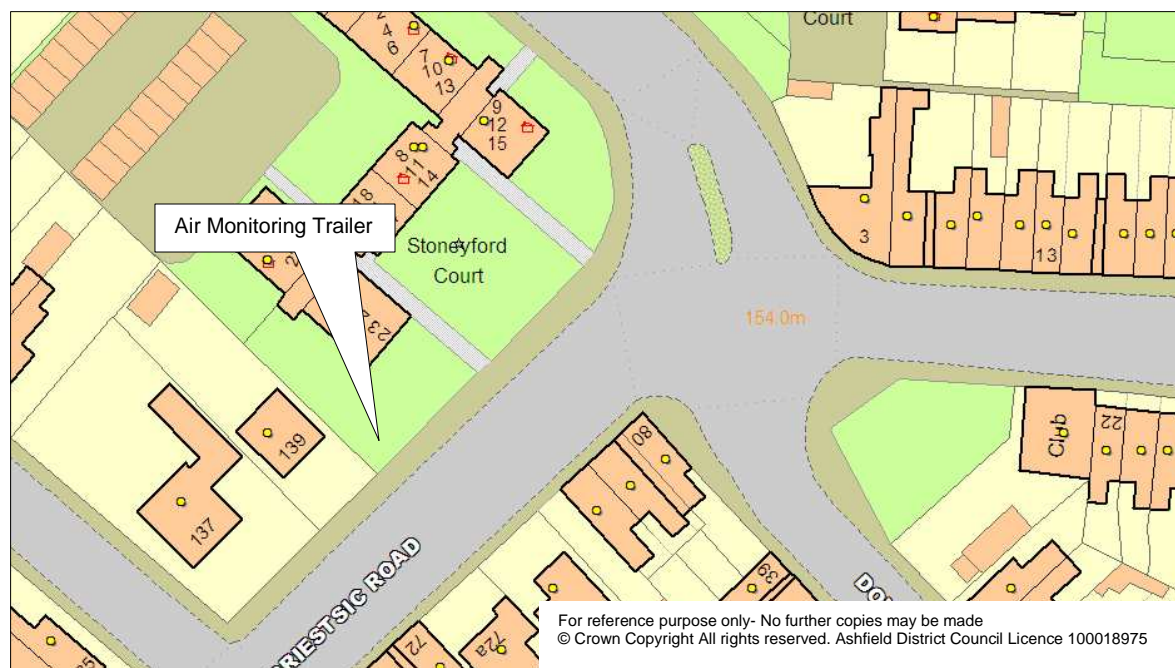
Monitoring since the submission of the Updating and Screening Assessment in April 2006 has been undertaken at Stoneyford Court at the intersection of Priestsic Road and Stoneyford Road, Sutton-in-Ashfield. The location represents one of the busiest roads in the district where receptors are situated very close to the road (see figure 6.1 location plan) and adjacent to a busy intersection. Monitoring commenced on 18th May 2006 and is ongoing. For the purpose of this Progress Report data has been assessed up to February 2007.

⁸ Part IV of the Environment Act 1995, Local Air Quality Management, Technical Guidance, LAQM.TG(03), DEFRA. 2003.

⁹ Part IV of the Environment Act 1995, Local Air Quality Management, Technical Guidance, LAQM.TG(03), DEFRA. 2003.

¹⁰ Nottingham Emissions Inventory, (AQA LTD) April 2004

Figure 6.1 Location of Air Monitoring trailer at Stoneyford Court close to the junction of Stoneyford Road and Priestsic Road, Sutton-in-Ashfield, Nottingham.



6.2 Results of monitoring results at Stoneyford Court and Priestsic Road Sutton-in-Ashfield

Table 6.1 Measured nitrogen dioxide annual mean concentration for 2006 Stoneyford Court – Priestsic Road Sutton-in-Ashfield.

Location	24 hour means (monitoring period)			EU 2010
	Measured Period Mean ($\mu\text{g}/\text{m}^3$)	Min 1 hour ($\mu\text{g}/\text{m}^3$)	Max 1 hour mean ($\mu\text{g}/\text{m}^3$)	No of 1-hour limit value exceedances >200 ($\mu\text{g}/\text{m}^3$)
Stoneyford Road	26.8	3.2	129.8	0

Only short-term data was available for the Progress Report at this location as recorded above (May 2006 to February 2007). The estimated annual mean was calculated in accordance with the LAQM Technical Guidance (03) to determine whether the 2005 and 2010 (Ref. Box 6.5 and 6.6 of guidance) objectives would be compromised. Table 6.2 tabulates the results for this location.

It should be noted that nitrogen dioxide concentrations were not measured during November and December 2006 due to the breakdown and subsequent repair of the chemiluminescence analyser.

Table 6.2 Estimated nitrogen dioxide annual mean concentration for 2005 and 2010 Stoneyford Court – Priestsic Road Sutton-in-Ashfield.

Location	Measured Period Mean ($\mu\text{g}/\text{m}^3$)	Estimated Annual mean in 2006/7 ($\mu\text{g}/\text{m}^3$)	Estimated Annual mean in EU 2010 ($\mu\text{g}/\text{m}^3$)	2005 & 2010 Annual mean Objective ($\mu\text{g}/\text{m}^3$)
Stoneyford Court	26.8	27.4	24.5	40

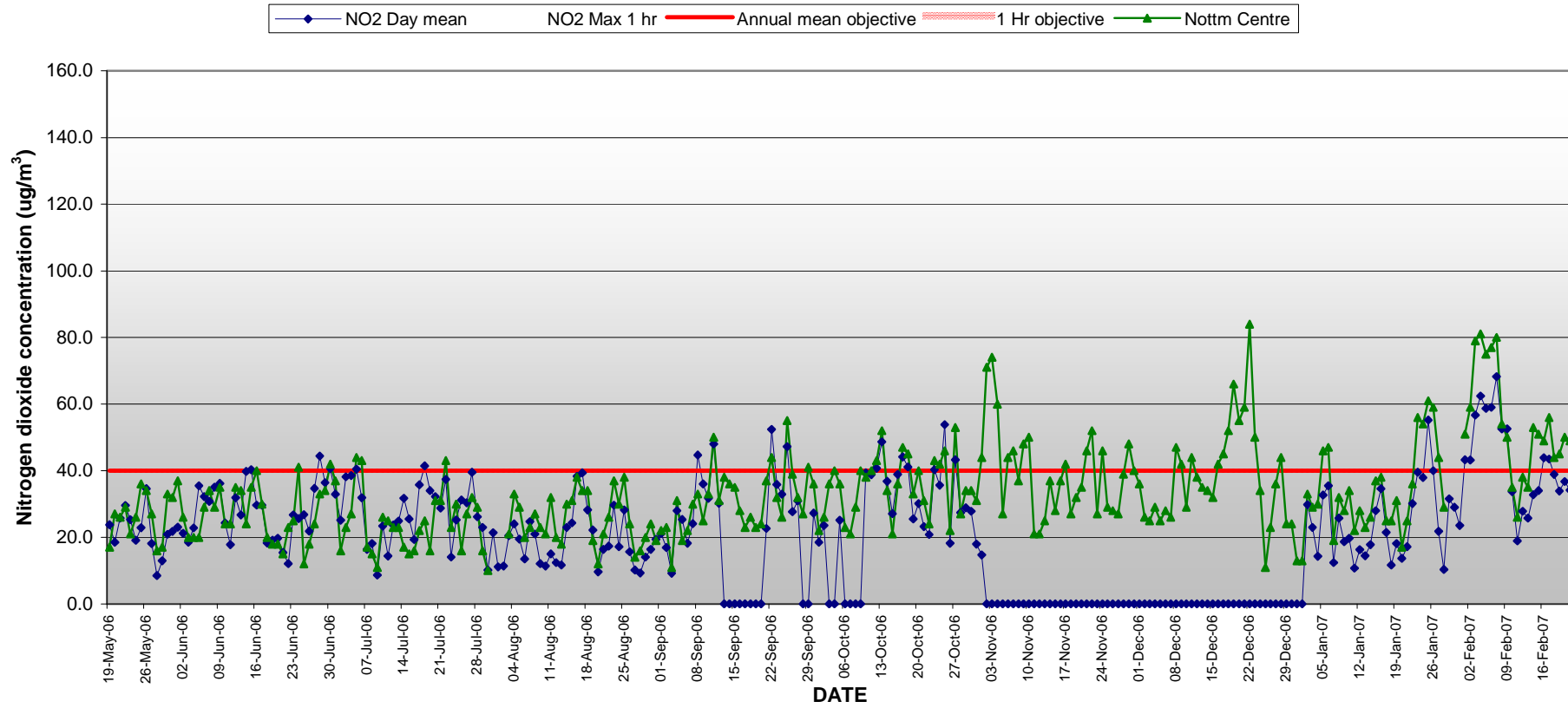
The estimated annual mean at Stoneyford Court for 2006/07 for a 12 month monitoring period was calculated as $27.4 \mu\text{g}/\text{m}^3$ below the air quality objective of $40\mu\text{g}/\text{m}^3$. The estimated annual mean at Stoneyford Court for 2010 was calculated as $24.5\mu\text{g}/\text{m}^3$ well below the 2010 objective of $40\mu\text{g}/\text{m}^3$.

Conclusion

Assessment has been made against the NO_2 air quality objectives for 2005 and 2010. No further review and assessment is required at this location for nitrogen dioxide concentrations.

Figure 6.2

Nitrogen Dioxide Monitoring results at Stoneyford Court Site Summary of results from the chemiluminescence analyser



6.3 Nitrogen Dioxide Diffusion Tubes Network - update

The supply and analysis of nitrogen dioxide diffusion tubes is currently undertaken by Harwell Scientifics who have held this contract since October 1999. A UKAS 1:1 acetone:triethanolamine method is utilised based upon a four week tube exposure period.

Ashfield have not completed a suitable recent co-location study to calculate a local bias factor representing the type of diffusion tube exposure. Harwell Scientifics provide a 'Bias Factor A' with each respective analysis report based upon comparison with a chemiluminescence continuous monitor (Nitrogen Dioxide network field comparison by Health and Safety Laboratory). The bias is calculated as set out within the LAQM Technical Guidance (03). Harwell Scientific are currently ranked as a **Category Good** laboratory by the WASP Intercomparison Scheme¹¹.

Current Bias Factor (A) = **0.73**

Bias Factor (A) = chemiluminescence mean (Cm)/Diffusion tube (Dm)

$$A = C_m / D_m = 0.73$$

This bias factor has been used to adjust the results for this Progress Report¹². It was considered that this would provide a reasonable adjustment factor until a suitable co-location study can be undertaken by Ashfield. Annual diffusion tube results for 2006 have therefore been adjusted for each monitored location (see table 6.3).

Table 6.3 Measured annual mean nitrogen dioxide concentrations compared with the 2005/2010 Air Quality Objectives.

Diffusion Tube Location	Measured Annual Mean For 2006 Based on 12 months data ($\mu\text{g}/\text{m}^3$)	Harwell Scientific 2006 Bias Factor (A) 0.73 (2005 AQ Objective $40 \mu\text{g}/\text{m}^3$) ($\mu\text{g}/\text{m}^3$)	Estimated Annual Mean (Road side) (2010 AQ Objective $40 \mu\text{g}/\text{m}^3$) * ($\mu\text{g}/\text{m}^3$)
Sutton. Outram Street	46.0	32.2	27.9
Sutton Baths	31.9	23.2	20.1
A 38 Fire Station	37.4	27.3	23.6
Selston Kwik Save	36.3	25.4	22.0
Hucknall High street	50.4	36.9	32.0
Hucknall Croft/Beardall St	33.2	24.3	21.0

¹¹ Nitrogen dioxide diffusion tube analysis report, Scientifics (2006).

¹² Base upon a 12 month collocation study

Kirkby Naggs head	59.4	41.6	36.0
M1 Salmon Lane	66.9	48.9	42.3
M1 Pinxton	43.5	31.8	27.5
Castle Hill	52.0	36.5	31.6
Oakfield Ave Sutton	41.8	30.6	26.5
Dalestorth Street Sutton	53.9	39.4	34.1

*Annual diffusion tube averages were adjusted to 2010 using the calculator v2.2a road side provided by Air Quality archive web site tools.

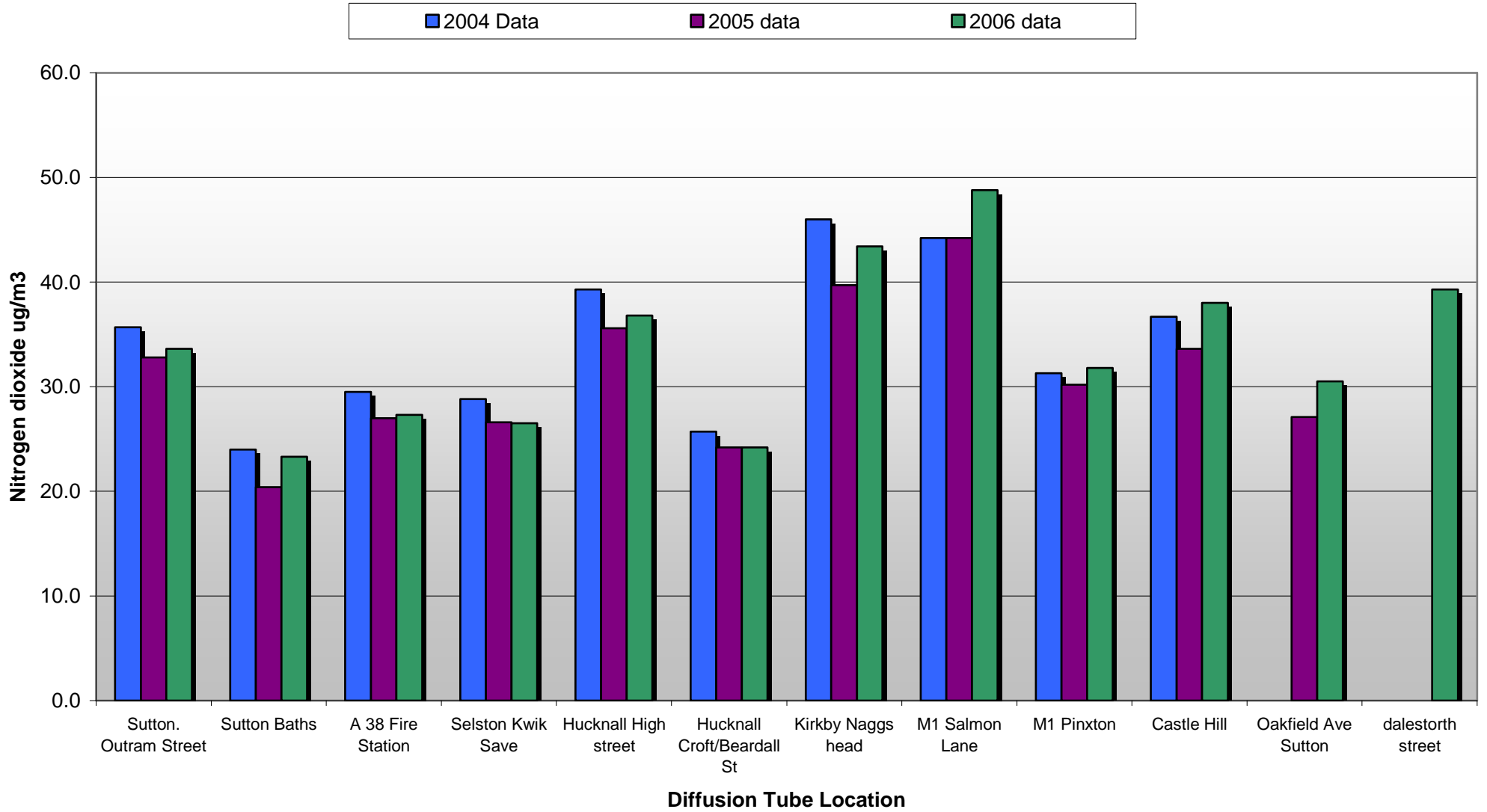
Monitoring Results

Spatial monitoring of Nitrogen dioxide utilising ADCs diffusion network has demonstrated that concentrations of nitrogen dioxide have reduced since 2004 in most locations. The most recent bias adjusted nitrogen dioxide diffusion tube monitoring results indicate that the highest annual mean concentrations are typically situated along roads within the urban centres of Hucknall, Kirkby and Sutton and within the vicinity of the M1. The annual mean concentrations estimated for 2006 at these locations were between 37 – 49 $\mu\text{g}/\text{m}^3$ with only two exceedances above the 2005 objective of 40 $\mu\text{g}/\text{m}^3$ (M1 Salmon Lane and Kirkby Nagg's Head). However, exposure in these two locations would only be short term and it would be unlikely that anyone would be exposed to these levels of nitrogen dioxide over a whole year. A few metres back from the road it would be expected that the nitrogen dioxide concentrations would be less than at the roadside. The diffusion tube located at Salmon Lane has historically been positioned above a bridge crossing the motorway and therefore resulting in a worse case concentration. Before being relocated it was in excess of 80m away from a suitable receptor.

The diffusion tubes located at Salmon Lane and Kirkby Nagg's Head have recently been repositioned to reflect more appropriate exposures in these locations. It is likely that concentrations monitored will fall respectively over the next few measurement periods and as such comparison with the air quality objectives for 2005 and 2010 will be more appropriate and likely be achieved.

It should be noted that a separate diffusion tube located at Pinxton approximately 2.5 kilometres north of Salmon Lane along the M1 corridor, but still adjacent to the Motorway (approximately 20m from the edge of the hard shoulder and positioned close to a suitable receptor) demonstrates that the nitrogen dioxide objective is being achieved (see Table 6.2 M1 Pinxton).

Bias Corrected Nitrogen Dioxide Diffusion Tube Data 2004-2006



Conclusions

The nitrogen dioxide diffusion tube results have indicated that two locations exceeded the 2005 objective. However, it should be noted that these sites are roadside positions which do not fully reflect public exposure. Exposure in these locations would be expected to be short term and minimal. It is therefore not considered suitable to represent relevant exposure to the annual mean objective (LAQM Technical Guidance (03) Box 1.4). The tubes have now been relocated to nearby receptors to reflect more appropriate exposure.

Recommendations

Nitrogen dioxide monitoring using the chemiluminescence monitor will be repeated at a location close to the motorway from June 2007 as part of Ashfield's ongoing LAQM duties. Ashfield will conduct a further co-location study utilising duplicate diffusion tubes adjacent to the chemiluminescence monitor over the next 12 month period.

Diffusion tubes relocated at Salmon Lane and Kirkby Nagg's Head to reflect more suitable exposure will be monitored over the next 12 month period.

The nitrogen dioxide diffusion tube results do not required Ashfield to proceed to a detailed assessment in these areas.

6.4 (B) Monitoring data within an AQMA.

The assessment for this section is only applicable to authorities that have declared Air Quality Management Areas. Ashfield have not declared any Air Quality Management Areas within the district. No further updating and screening assessment has been undertaken for this section.

6.5 (C) Narrow congested streets with residential properties close to the kerb.

Local authorities are only required to undertake assessments of roads where there are narrow congested streets with residential properties within 5m of the kerb and which have traffic flows greater than 10,000 per day. This criterion has been reassessed against roads which have seen an increase above 10,000 ADDT since the previous 2nd round USA.

No locations were identified to warrant the use of the DMRB screening model for narrow congested streets in any location within Ashfield and therefore no further assessment has been undertaken for this section.

6.6 (D) Junctions.

Local authorities are required to undertake assessment of busy junctions within their districts. The LAQM Technical Guidance (03) interprets a 'busy' junction as '*one with more than 10,000 vehicles per day*'. Additionally there should be a relevant exposure within 10 metres of the kerb. A comprehensive assessment of busy junctions was undertaken during the 2nd Round USA utilising GIS software and local knowledge.

Improved AADT traffic data for 2004 was compared with 2001 AADT data to identify roads which had experienced an increase in traffic flow above 25%. A number of

roads were considered during the 2006 Updating and Screen assessment. No further assessments have been necessary.

6.7 (E) Busy streets where people may spend 1-hour or more close to traffic.

Local authorities are only required to undertake review and assessment against this section where there are busy street locations identified where members of the public might regularly spend 1-hour or more, e.g. streets with many shops, streets with outdoor cafes/bars. The guidance interprets 'busy' as those streets with more than 10,000 vehicles per day. This criterion has been reassessed against roads which have seen an increase above 10,000 AADT since the previous 2nd Round USA.

There are no streets within Ashfield, which meet all the criteria of this section and therefore no further assessment has been undertaken.

6.8 (F) Roads with high flows of buses and/or HGVs

Authorities are only required to undertake an updating and screening assessment for this section where roads are identified as having an unusually high proportion of buses or HGVs. An 'unusual high proportion of Buses or HGVs' is taken to be greater than 20% of the AADT, LAQM Technical Guidance (03) Box 6.2.

This was evaluated during the 2nd round USA. There were no roads determined as having an unusually high proportion of buses or HGV's. There has been no change to this position.

6.9 (G) New roads constructed or proposed since first round of review and Assessment.

The Mansfield and Ashfield Regeneration Route (MARR) was completed in December 2004. DMRB modelling undertaken during the 2nd Round USA did not predict any exceedances of the nitrogen dioxide Air Quality Objectives. There has been no change to this position.

The reader is referred to notes on the widening of the M1 Motorway within the Additional Elements Section of this progress report Page 46)

6.10 (H) Roads with significantly changed traffic flows

Authorities are only required to undertake the assessment of roads with traffic flows greater than 10,000 vehicles per day that have experienced a large increase in traffic. The LAQM Technical Guidance (03) has interpreted 'large increase' as '*more than a 25% increase in traffic*'. The aim of the assessment is to establish whether there is a risk of exceedances along the existing roads with a significant change in flows.

6.11 (I) Bus Stations

There is only one bus station within Ashfield located at Sutton-in-Ashfield. The guidance only requires the updating and screening process to be undertaken if bus movements exceed 1000 movements a day, and if there is a relevant receptor within 10m, assessed against the 1-hour objective. An evaluation of the bus station has determined that there are well below 1000 bus movements per day. It is also very unlikely that any members of the public would remain in this location for over an hour. No further review and assessment has been undertaken for this section.

6.12 (J) New Industrial sources

A considerable amount of data relating to emissions of nitrogen dioxide has been compiled and entered into a revised emission inventory. There have been no new industrial sources of nitrogen dioxide identified within Ashfield. No further updating and screening assessment has been undertaken for this section.

6.13 (K) Industrial sources with substantially increased emissions

There have been no new industrial sources with substantially increased emissions identified within Ashfield. No further updating and screening assessment has been undertaken for this section.

6.14 (L) Aircraft

There are no relevant air quality issues relating to aircraft within Ashfield and therefore no further updating and screening has been undertaken for this section.

6.15 CONCLUSION

Further assessment for nitrogen dioxide has been completed against the 2006 revised checklist criteria listed in the LAQM Technical Guidance (03). It is expected that the Air Quality Objectives of $200\mu\text{g}/\text{m}^3$ 1-hour mean (18 exceedances) 2005 and $40\mu\text{g}/\text{m}^3$ annual mean 2005, will be met across Ashfield.

There is no requirement for Ashfield to proceed to a detailed assessment for nitrogen dioxide at any location within the district.

The Government and Devolved Administrations have adopted a 15-minute mean of 266µg/m³ as an air quality standard for sulphur dioxide, with an objective for the standard not to be exceeded more than 35 times per year by the end of 2005. Additional objectives have also been set which are equivalent to the EU limit values specified in the First Daughter directive. These are for a 1-hour mean objective of 350µg/m³ to be exceeded no more than 24 times per year and a 24-hour objective of 125 µg/m³ to be exceeded no more than 3 times per year, to be achieved by the end of 2004⁴.

UK National Objectives:

266 µg/m³ 15 minute mean (35 exceedances) 31st. December 2005

350 µg/m³ 1-hour mean (24 exceedances) 31st. December 2004

125 µg/m³ 24-hour mean (3 exceedances) 31st. December 2004

7.1 (A) Monitoring Data

Air Quality Emission Inventory

A sulphur dioxide emission inventory for Ashfield has been revised since the second round of review and assessment, undertaken by consultants acting on behalf of Nottinghamshire authorities and based upon 2004 data¹³. Considerable data relating to emissions of sulphur dioxide has been compiled and entered into the new inventory. The inventory clearly demonstrates a reduction in sulphur dioxide levels across Ashfield and Nottinghamshire since the second round assessment.

King's Mill Hospital

Kings Mill Hospital was the subject of a Stage Three review during the first round of review and assessment against the 15-minute objective. Monitoring undertaken for the assessment determined that the objective would not be compromised subject to the hospital burning low sulphur coal¹⁴. The hospital trust has now made a decision to convert the boiler house at the hospital to natural gas. The proposed changeover is scheduled to be completed in 2007. Until that time the hospital will continue to burn low sulphur coal. Monitoring carried out by Mansfield District Council close to King's Mill Hospital and reported in Ashfield's 2nd Round USA determined that none of the Air Quality objectives were being exceeded at this location.

7.2 (B) Monitoring data within an AQMA

The assessment for this section is only applicable to authorities that have declared Air Quality Management Areas. Ashfield have not declared any Air Quality Management Areas within the district. No further assessments have been undertaken for this section.

¹³ Nottingham Emissions Inventory, (AQA LTD) April 2004

¹⁴ Air Quality Review and Assessment Stage Three Report, Ashfield District Council, 2001.

7.3 (C) New Industrial Source

A considerable amount of data relating to emissions of sulphur dioxide has been compiled and entered into a revised emission inventory¹⁵. There have been no new industrial sources of sulphur dioxide identified within Ashfield. No further updating and screening assessment has been undertaken for this section.

There have been no new sources of sulphur dioxide identified within Ashfield. No further assessment has been undertaken for this section.

7.4 (D) Industrial Sources with substantially increased emissions

There have been no new industrial sources with substantially increased emissions identified within Ashfield. No further updating and screen has been undertaken for this section.

7.5 (E) Areas of domestic coal burning

Consideration of results from the first round of review and assessment has indicated that areas of densely populated houses burning solid fuel could constitute significant sources of sulphur dioxide, even if smokeless fuel is consumed. The LAQM Technical Guidance (03) has determined 'significant coal burning' as 'any area of 500x500m which contains more than 100 houses burning solid fuel as their primary source of heating'¹⁶.

No further assessments have taken place since the 2006 Updating and Screening Assessment. It is envisaged that solid fuel burning will continue to decrease throughout all areas in the district.

7.6 (F) Small boilers >5 MW_(thermal)

An emissions inventory for Ashfield has been revised and updated for the Updating and Screening Assessment, which included all boilers above 0.4MW. Details relating to boiler plants have been used to derive estimated emission maps for the district. There were no boilers within the district identified as being greater than 5MW_(thermal).

No further assessment has been undertaken for this section.

7.7 (G) Shipping

There are no relevant air quality issues relating to shipping within Ashfield. No further assessment has been undertaken for this section.

7.8 (H) Railway Locomotives.

Authorities are only required to undertake assessment at locations where there is relevant exposure to diesel or coal fired locomotives, which are regularly stationary for periods of 15-minutes or more. There are no locations identified within Ashfield, which meet these criteria, and therefore no further assessment has been undertaken.

7.9 CONCLUSION

The continual assessment for sulphur dioxide has been completed against the checklist criteria contained in the LAQM Technical Guidance (03). It is expected that

¹⁵ Nottingham Emissions Inventory, (AQA LTD) April 2004

¹⁶ Part IV of the Environment Act 1995, Local Air Quality Management, Technical Guidance, LAQM.TG(03), DEFRA. 2003.

the Air Quality Objectives of $266\mu\text{g}/\text{m}^3$ 15 minute mean (35 exceedances) 2005, $350\mu\text{g}/\text{m}^3$ 1-hour mean (24 exceedances) 2004, and $125\mu\text{g}/\text{m}^3$ 24-hour mean (3 exceedances) 2004, will be met across Ashfield. As there are no new sources of Sulphur Dioxide likely to compromise the Air Quality Objective, Ashfield District Council no longer undertake real-time monitoring for this pollutant.

There is no requirement for Ashfield to proceed to a detailed assessment for sulphur dioxide in any location within the district.

The Government has adopted two Air Quality Objectives for fine particles (PM₁₀), which are equivalent to the European Union Stage 1 limit values in the first Air Quality Daughter Directive. The objectives are 40µg/m³ as the annual mean and 50µg/m³ as the fixed 24-hour mean not to be exceeded more than 35 days per year. Both standards must be achieved by the end of 2004¹⁷.

UK National Objectives:

50 µg/m³ (35 exceedances) 24hr mean to be achieved by 31st. December 2004

40 µg/m³ annual mean to be achieved by 31st. December 2004

The Government has also announced new objectives for PM₁₀. These supplement and strengthen substantially the current objectives set in the Air Quality Strategy. These European Union Stage 2 limit values are 20µg/m³ as the annual mean and 50µg/m³ as the 24-hour mean to be exceeded on no more than 7 days per year. The new particulate objectives for England, Wales, Northern Ireland and Greater London are not currently included in Regulations for the purpose of Local Air Quality Management. Local Authorities have no statutory obligation to assess air quality against these limits, however informal guidance has been provided to enable them to do so. Review and Assessment within Ashfield has taken consideration of these potential new limits¹⁸.

8.1 (A) Monitoring Data

Ashfield District Council has undertaken two Detailed Assessments for particles since the submission of the first Updating and Screening Assessment in 2003. Both assessments have been submitted and approved by Defra. No Air Quality Management Areas were determined following these assessments. The reader is referred to the Detailed Assessments for more comprehensive information^{19 20}.

Air Quality Emission Inventory

A fine particles emission inventory for Ashfield has been revised since the second round of review and assessment, undertaken by consultants acting on behalf of Nottinghamshire authorities and based upon 2004 data²¹. Considerable data relating to emissions of fine particles has been compiled and entered into the new inventory. The inventory clearly demonstrates a reduction in fine particles levels across Ashfield and Nottinghamshire since the second round (see Table 2.0 Chapter two).

¹⁷ Part IV of the Environment Act 1995, Local Air Quality Management, Technical Guidance, LAQM.TG(03), DEFRA. 2003.

¹⁸ Part IV of the Environment Act 1995, Local Air Quality Management, Technical Guidance, LAQM.TG(03), DEFRA. 2003

¹⁹ Air Quality Review and Assessment, Detailed Assessment for PM10 at Oakfield Ave, Kirkby (December 2004)

²⁰ Air Quality Review and Assessment, Detailed Assessment for PM10 at Pinxton Green (April 2004)

²¹ Nottingham Emissions Inventory, (AQA LTD) April 2004

8.2 Particulate monitoring at Stoneyford Court, Sutton-in-Ashfield

Monitoring since the submission of the Updating and Screening Assessment in April 2006 has taken place at Stoneyford Court at the intersection of Priestsic Road and Stoneyford Road, Sutton-in-Ashfield. The location represents one of the busiest roads in the district where receptors are situated very close to the road (see figure 8.0 location plan) and adjacent to a busy intersection. Monitoring commenced on 19th May 2006 and is ongoing. For the purpose of this Progress Report data has been assessed up to 13th January 2006.

Fig 8.0 Location of Air Monitoring trailer at Stoneyford Court close to the junction of Stoneyford Road and Priestsic Road, Sutton-in-Ashfield, Nottingham.



Monitoring Results

The 24-hour objective refers to 35 allowable exceedances per year. This assessment considered a monitoring period of 223 days which roughly equated to 21 permitted exceedances for this period. There have only been 12 observed exceedances which were possibly associated with higher regional background concentrations throughout the monitored period (see figure 8.1). There were however a small number of exceedances which were likely to be associated with local sources of particulate matter. The mean PM₁₀ concentration during this monitoring period was 23.4µg/m³, well below the annual mean objective of 40µg/m³ (see table 8.1).

Table 8.1 Stoneyford Road, Sutton-in-Ashfield, 19th May 2006 – 13th January 2007

Location	24 hour means			No. of exceedances 24-hour mean objective (35 allowable)
	Measured Period Mean ($\mu\text{g}/\text{m}^3$)	Min ($\mu\text{g}/\text{m}^3$)	Max ($\mu\text{g}/\text{m}^3$)	
Stoneyford Road	23.4	5	84	12

Table 8.2 Stoneyford Court, Sutton-in-Ashfield, Estimated concentrations for Annual Mean and 2010 objectives.

Location	Estimated Annual Mean 2006 ($\mu\text{g}/\text{m}^3$)	Estimated Annual mean in 2010 ($\mu\text{g}/\text{m}^3$)	Estimated Exceedances in 2010 24-hour mean objective (7 allowable)
Estimated results Stoneyford Court	24.5	22.8	8

2010 Objectives

The estimated annual average for Stoneyford Court in 2010 was calculated as $22.8\mu\text{g}/\text{m}^3$ above the provisional objective of $20\mu\text{g}/\text{m}^3$. The number of 24-hour exceedances of $50\mu\text{g}/\text{m}^3$ was calculated using the method described in the LAQM Technical Guidance (03) as 8 exceedances, above the provisional objective of 7. The annual mean concentration is expected to be slightly above the provisional 2010 objective of $20\mu\text{g}/\text{m}^3$. This situation exists across many areas of the UK and as yet the objective is not set in regulation.

Conclusion

PM₁₀ concentrations currently being measured at Stoneyford Court suggest that it is likely that the 2004 air quality objectives will be met. Future review and assessment will be undertaken to monitor the concentrations at this location.

Based upon the results of the monitoring undertaken at this location, there is no requirement for Ashfield to proceed to a detailed assessment for particles in respect of the 2004 objectives.

8.3 (B) Monitoring Data within an Air Quality Management Area.

The assessment for this section is only applicable to those authorities that have declared Air Quality Management Areas. Ashfield have not declared any Air Quality Management Areas within the district. No further assessment has been undertaken for this section.

8.4 (C) Busy roads and junctions in Scotland

This section is not applicable to Ashfield.

8.5 (D) Junctions.

Local authorities are required to undertake assessment of busy junctions within their districts. The LAQM Technical Guidance (03) interprets a 'busy' junction as 'one with more than 10,000 vehicles per day'. Additionally there should be a relevant exposure within 10 metres of the kerb. A comprehensive assessment of busy junctions was undertaken during the 2nd Round USA utilising GIS software and local knowledge. Busy junctions have been considered in previous assessments. No further assessments have been made.

8.6 (E) Roads with high flow of buses and/or HGVs

Authorities are only required to undertake an assessment for this section where roads are identified as having an unusually high proportion of buses or HGVs. An 'unusual high proportion of Buses or HGVs' is taken to be 'greater than 20% of the AADT' LAQM Technical Guidance (03) Box 8.4. There have been no roads identified within Ashfield which demonstrate an 'unusually high proportion of buses and/or HGVs' and therefore no further assessment has been undertaken for this section.

8.7 (F) New roads constructed or proposed since the last round of review and assessment.

Mansfield and Ashfield Regeneration Route (MARR)

The Mansfield and Ashfield Regeneration Route (MARR) was completed in December 2004. DMRB modelling undertaken during the 2nd Round USA did not predict any exceedances of the PM₁₀ Air Quality Objectives. There is no change to this position.

The reader is referred to notes on the widening of the M1 Motorway within the Additional Elements Section of this progress report Page 46)

8.8 (G) Roads close to the objective during the first round of review and assessment.

As a recommendation from the 2nd Round USA a Detailed Assessment for PM₁₀ has been undertaken at a relevant location adjacent to the M1 Motorway²². Additionally a further detailed Assessment for PM₁₀ has been undertaken at Oakfield Avenue adjacent to a single dwelling within close proximity to the junction of the A38 and B6018²³. Both assessments concluded that the air quality objective would not be compromised at these locations.

8.9 (H) Roads with significantly changed traffic flows.

Authorities are only required to undertake the assessment of roads with traffic flows greater than 10,000 vehicles per day that have experienced a large increase in traffic. The LAQM Technical Guidance (03) has interpreted 'large increase' as 'more than a 25% increase in traffic'. The aim of the assessment is to establish whether there is a risk of exceedances along the existing roads with a significant change in flows.

Improved AADT traffic data for 2004 was compared with 2001 AADT data to identify roads which had experienced an increase in traffic flow above 25%. A number of

²² Air Quality Review and Assessment, Detailed Assessment for PM10 at Pinxton Green (April 2004)

²³ Air Quality Review and Assessment, Detailed Assessment for PM10 at Oakfield Ave, Kirkby (December 2004)

roads were considered during the 2006 Updating and Screen assessment. No further assessments have been necessary.

8.10 (I) New industrial sources

A considerable amount of data relating to emissions of PM₁₀ has been compiled and entered into a revised emission inventory. There have been no new industrial sources of PM₁₀ identified within Ashfield. No further updating and screening assessment has been undertaken for this section.

8.11 (J) Industrial sources with substantially increased emissions.

There have been no new industrial sources with substantially increased emissions of PM₁₀ identified within Ashfield. No further assessment has been undertaken for this section.

8.12 (K) Areas of domestic solid fuel burning.

Consideration of results from the first round of review and assessment has indicated that areas of densely populated houses burning solid fuel could constitute significant sources of particulate matter, even if smokeless fuel is consumed. The LAQM Technical Guidance (03) has determined 'significant coal burning' as 'any area of 500x500m which contains more than 100 houses burning solid fuel as their primary source of heating'²⁴.

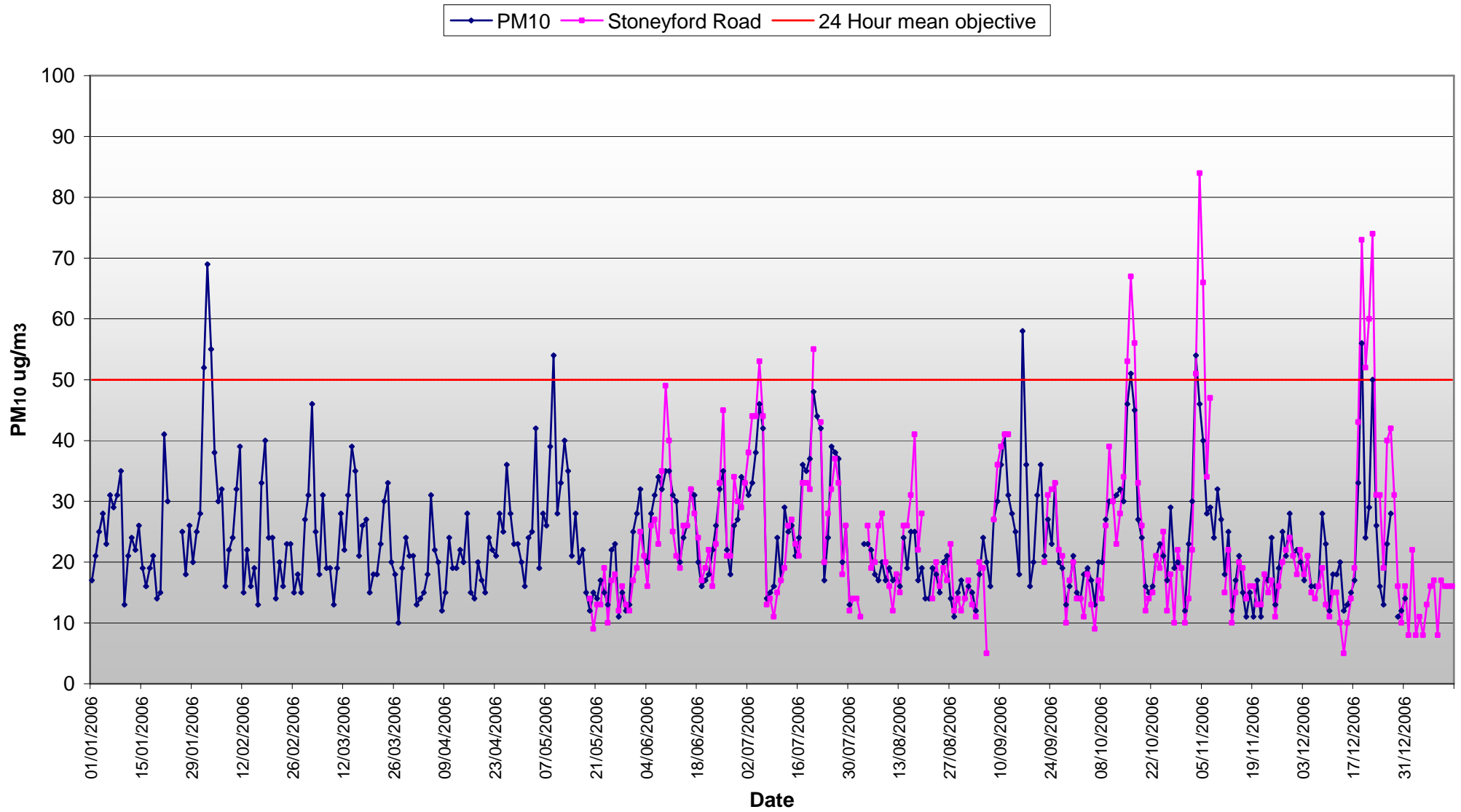
No further assessments have taken place since the 2006 Updating and Screening Assessment. It is envisaged that solid fuel burning will continue to decrease throughout all areas in the district.

²⁴

Part IV of the Environment Act 1995, Local Air Quality Management, Technical Guidance, LAQM.TG(03), DEFRA. 2003.

Fig 8.1

PM₁₀ Nottingham / Stoneyford Road Comparison



8.13 (L) Quarries/Landfill sites/opencast coal/handling of dusty cargoes at ports etc.

Authorities are only expected to undertake a detailed assessment for PM₁₀ in regard to this section where locations with relevant exposure and substantiated problems associated with dust have been determined.

There is only one location within Ashfield, which meets the criteria of this section. This is Sutton landfill site. It has been determined that the landfill site has areas of relevant exposure, as residential properties are located close to the site boundary. The site has recently withdrawn its IPPC application and is in the process of submitting a closure plan.

There have been no recent complaints concerning dust originating from site operations or any indication of significant dust problems. There is therefore no requirement for Ashfield to proceed to a detailed assessment for PM₁₀ in respect of this location.

Proposed Landfill Site at Bentinck Void Selston

Ashfield District Council has been consulted on a planning application for a new landfill site and additional restoration of a coal tip at Bentinck Void in Selston. The air quality section of the application is currently being appraised by the Council and representations will be made to Nottinghamshire County Council who is the relevant planning authority. Background monitoring for PM₁₀ was conducted during 2004/05 and the results were reported in the April 2006 Updating and Screening Assessment.

8.14 (M) Aircraft.

There are no relevant air quality issues relating to aircraft within Ashfield. No updating and screening has been undertaken for this section.

8.15 CONCLUSION

Assessment for PM₁₀ has been completed against the criteria listed in the LAQM Technical Guidance (03). It is expected that the Air Quality Objectives of 50µg/m³ (35 exceedances) 24hr mean 31st. December 2004 and 40µg/m³ annual mean 31st. December 2004 will be met across Ashfield.

There is no requirement for Ashfield to proceed to a detailed assessment for PM₁₀ in respect of the 2004 objectives. Further assessments will be undertaken against the 2010 annual mean and 24-Hour mean objectives

Section Nine RECOMMENDED ADDITIONAL ELEMENTS

It is recommended that Local Authorities use the Progress Report to provide additional information to support their general air quality management duties which are not covered by the regulations.

9.1 Nottinghamshire Air Quality Strategy and Ashfield District Council's Local Air Quality Strategy

The Nottinghamshire Environmental Protection Working Group, which comprises of air pollution specialists from each Nottinghamshire Authority, formulated a Nottinghamshire Regional Air Quality Strategy 'A Framework for Action'. Broad objectives and actions were identified and agreed upon to ensure effective consultation and co-operation between authorities to improve ambient air quality within Nottinghamshire. The regional strategy was issued in November 2001 with the intention that each authority would use this document as a framework to draw up and implement its own local air quality strategy. Ashfield engaged in this process and issued its own Local Air Strategy in April 2004. This Nottinghamshire framework strategy is currently under revision and it is envisaged that the revised document will be re-launched later in the year under a new title 'A breath of Fresh Air for Nottinghamshire – An Air Quality Strategy for the next Decade'.

Ashfield's Air Quality Strategy - The Air We Breathe is a document that reflects the revisions of the revised County strategy. It has been substantially updated following consultation with stakeholders such as the Environment Agency, the Primary Care Trusts, Nottinghamshire County Council, the Health Protection Agency and local Council officers and members.

Under the headings of Planning and Land Use, Transport, Health and Education, Energy Efficiency, Public Sector, Commercial and Industry, Domestic Sector, and Information and Services, the strategy identifies individual objectives, the achievement of which will bring about significant improvements in air quality. For each objective listed under the above headings a tabulated action plan identifies the Council Divisions and Sections responsible for actions to be taken, deadline for achieving the objective and lists those partner agencies that have a role to play in the delivery of the objective. The strategy also attempts to consolidate into one comprehensive document those initiatives being undertaken elsewhere in the council or by other stakeholders that will also deliver an air quality benefit to the District of Ashfield. The revised strategy is currently in a draft format waiting approval by the Council in the next few weeks (A copy of the draft strategy is contained within Appendix 2).

9.2 Nottinghamshire Website Project

Nottinghamshire authorities have been successful in receiving a Defra grant to support the creation of a County wide website to present real-time air quality monitoring data and air quality information. This will include the automatic collection, collation and presentation of air quality monitoring data from real time monitoring sites across Nottinghamshire's local authorities. Officers, students and members of the public will be able to access county wide air quality data from each local authority's real time monitoring sites, access archive information from each local authority's monitoring diffusion tube and gravimetric data and access databases and information on local authority regulated A2 & Part B and Environment Agency A1 Installations.

The website will provide a one-stop-shop site for further information on all things 'Air' related including information and advice on local air pollution issues such as bonfires and UK smoke control areas. There will be links to national databases such as the NAEI and Air Quality Archive and links to external related websites such as Defra, Environment Agency, Health Protection Agency, Department of Health, and Highways Agency. We will provide a FAQ's database and a point of contact for stakeholders and public. We aim to support the website with survey and customer feedback sections and encourage community engagement in the Local Air Quality Management process.

The website and associated instrumentation is in the final stages of being purchased and once commissioned it is envisaged to launch the website and the revised Nottinghamshire air quality strategy at the same time.

9.3 Nottinghamshire Emissions Inventory

Local authorities within Nottinghamshire have undertaken a recent update to the original Nottinghamshire Emissions Inventory created in 1997 and updated in 2001 by aric²⁵. This recent update has been undertaken by AQA Ltd and represents emissions from a base year of 2004²⁶.

The emissions data has a role in providing the basis for dispersion modeling exercises and air quality management planning. In conjunction with transport models it also provides the basis for forecasting air quality and determining the effects of changes in land use planning and transportation policies.

The atmospheric emissions inventory will therefore be of key significance:

- As an underpinning tool for undertaking air quality reviews as described by the Air Quality Strategy (DETR, 2000) and enshrined in the Environment Act 1995;
- For assessing the impact of new development and the changes to road infrastructure; or their use of identifying the environmental benefits of proposed urban change;
- For developing air quality action plans; and
- To provide input to dispersion modelling which can be used to guide or refine air quality monitoring networks

Emissions of the key primary pollutants in the Air Quality Strategy were estimated from all sources where possible. Emissions of the greenhouse gas CO₂ were also estimated. Emissions from lead, benzene, 1,3 butadiene and PAH's were estimated where emission factors were readily available.

Emission Source Categories

Emission estimates for the districts of Nottinghamshire have been made for individual sources in the following source categories:

- Road transport (including major and minor roads, cold start and hot soak emissions);
- Part A processes;
- Part B processes;

25 Aric 1998 Nottinghamshire Emissions Inventory.

26 AQA May 2006 Nottinghamshire Emissions Inventory.

- Boilers;
- Petrol Stations;
- Industrial and commercial combustion plants;
- Residential combustion; and
- Other transport sources including railway sources and aviation.

Summary of the Emission Inventory

The largest contributions to the estimated emissions of key pollutants in Nottinghamshire are made by the 3 power stations. The second largest contributor to NOx and PM10 emissions is road transport. Road transport is the largest single contributor to emissions of CO, benzene and 1,3-butadiene.

The inventory demonstrated that overall emissions have reduced since 2001 continuing a downward trend from 1997. This is for all pollutants apart from the greenhouse gas CO2. This is a pattern shared with most areas in the UK. Emissions of the key pollutants from road transport have decreased significantly from 1997 and further still since 2001, with emissions of NOx down by approximately 20% and emissions of PM10 down by approximately 16%. This decrease is largely due to the improvements in engine technology and the increased penetration of the vehicle fleet with more modern vehicles with lower emissions of these pollutants.

Emissions of the key pollutants from industrial processes are also generally lower than in 2001 and significantly lower than industrial emissions in 1997.

The increase in CO2 emissions since 2001 (86%) is mostly from an increase in CO2 emissions from the 3 power stations in Nottinghamshire. The power stations are estimated to account for about 96% of the CO2 emissions in Nottinghamshire. It is worth noting that emissions of CO2 are not a local air quality issue and contribute only to global climate change, the location of these emissions whether within or outside Nottinghamshire has no bearing on their impact. The increase in CO2 emissions is of course related to our increased demand for energy (A full copy of the Emission inventory is contained within Appendix 1).

9.4 Planning Applications

Close co-operation exists between the Council's Planning Officers and Air Quality Officers. Procedures are in place which requires all planning applications to be reviewed for their impact on air quality during the planning application process.

9.5 Planning Applications in the pipe line

Ashfield are currently reviewing a planning application for a large combined landfill development and restoration of a pit tip site at Bentinck Void in Selston Nottinghamshire. This location is adjacent to the M1 motorway which intersects the district and the residential areas of Annesley and Selston. Nottinghamshire County Council is the relevant planning authority for the application.

9.6 Large Developments

A number of locations within the District of Ashfield have experienced a steady growth in housing and retail development. One such location in Hucknall has seen considerable changes which are set to continue over the next few years. An Environmental Audit undertaken in 2003 in support of an outline planning application for residential development relating to a large area east of Hucknall concluded that impacts on air quality as a result of increased residential development assessed at 7

worst-case receptors would only give rise to very small changes in the nitrogen dioxide and particulate concentrations. The Government's statutory air quality objectives would not be exceeded at any property as a result of the development. Additional air quality assessment over the next few years will need to include monitoring to assess the impact on the Town Centre of Hucknall and associated road networks.

9.7 Nottinghamshire County Council Local Transport Plans (LTPs)

The North Nottinghamshire Local Transport Plan covers the districts of Ashfield (excluding Hucknall), Bassetlaw, Mansfield and Newark & Sherwood. The Greater Nottingham Local Transport Plan is developed in partnership with Nottingham City Council, and covers the Broxtowe, Gedling and Rushcliffe districts, as well as Hucknall and the City of Nottingham.

The aims and objectives of the second local transport plans have been developed both nationally and locally. Nationally, the objectives were developed through the Department for Transport and Local Government Association. Locally, through consultation the plans have also been developed to take account of what local people feel is important. Nationally, four objectives were determined which all local authorities in the country must address within their transport plans.

These are:

- Improving accessibility to services
- Improving road safety
- Reducing congestion
- Improving air quality.

As a result of consultation, the County Council has also adopted three local objectives which the public and stakeholders felt were important.

These are:

- Improving quality of life (such as health, the physical environment and safety)
- Regenerating less well-off areas
- Making best use of the existing highway network.

The local transport plans identify the problems and opportunities within each of these areas. They also detail the transport strategy to meet each of the objectives during the period April 2006 to March 2011.

LTP Improving Air Quality

The Nottinghamshire Air Quality Strategy has been drawn up in partnership with agencies and organisations involved in assessing and monitoring air quality in Nottinghamshire, such as the borough and district councils. The Strategy helps to ensure that air quality is assessed and monitored in a consistent way across the county. Due to exceedances in nitrous oxide levels (NO_x) Air Quality Management Areas have been declared in Broxtowe Local Transport Plan 3 and Rushcliffe boroughs. The County Council is working in partnership with the borough councils to develop action plans to address these. Other key factors in ensuring air quality in the county are promoting the use of cleaner vehicles (both buses and private vehicles) and the Strategic Environmental Assessment (SEA). An SEA was carried out on each of the LTPs. The SEA looks at the effects the LTP will have on sustainability

issues such as noise, air pollution, wildlife and climate change and the findings of the SEA were considered when finalising the LTP.

More detail about air quality is detailed within Chapters 3 and 9 of the North Nottinghamshire LTP and Chapters 4 and 8 of the Greater Nottingham LTP, as well as within the North Nottinghamshire and Greater Nottingham Strategic Environmental Assessments²⁷.

9.8 M1 Widening M1 (Junctions 21-31)

The Highways Agency proposes to improve by widening and junction works approximately 50 miles (85km) of the M1 between Leicester (Junction 21) and Chesterfield (Junction 30).

This includes a stretch of the M1 Motorway between Junctions 27 and 28 which falls within the district of Ashfield.

The scheme is proposed to be undertaken in two phases:

Contract 1: works within the existing highway boundary to enable early congestion relief between Junctions 25 to 28; and Contract 2: the remainder of the improvement works between Junctions 21 and 30 including works at junctions, link roads and crossings that require additional land take.

ARUP has been commissioned to provide design and project management services to develop the scheme, to prepare and publish an Environmental Statement and to take the scheme through the subsequent public exhibition process. As part of this work, Arup is required to assess the environmental implications of the works and to develop appropriate environmental mitigation. Air Quality Officers from Ashfield District Council along with other Councils impacted by these changes have held regular liaison meetings with ARUP to discuss the possible impact on local ambient air quality.

For the purposes of the assessment, development of the Contract 1 scheme was predicted to follow the programme outlined below:

- Environmental Statement published and public exhibition –Spring 2006;
- Detailed design start – Summer 2006;
- Start of works on site – Spring 2007;
- Completion of works – End 2008.

However, as a result of recent changes Contract 1 works will not begin on site until late 2007, with completion of the works due early in 2010. This change in project timescale is not predicted to significantly alter the findings of the air quality assessment undertaken by ARUP.

The current programme for the development of the Contract 2 scheme is outlined below:

- Public Consultation – 2006/07;
- Preferred Route Announcement – 2007/08;
- Draft Order Publication & Environmental Statement – 2007/08;
- Public Inquiry (if required) – 2008/09;
- Start of works on site – 2010/11;

²⁷ www.nottinghamshire.gov.uk/home/traffic_and_travel/strategy-policy/ltp.htm#ltps

- Completion of works – 2014/15.

The Environmental Assessment for the Contract 1 works is now complete and has been issued in an Environmental Statement. The Environmental Statement comprises of a summary providing a brief report summarising the principle findings from the main Volume 1 report in non-technical language and the main report (Volume 1), a comprehensive but concise document drawing together all the relevant information about the proposals and the significant environmental effects of the scheme.

Air Quality Assessment

Air quality impacts have been assessed in accordance with Volume 11, Section 3, and Part 1 of the Design Manual for Roads and Bridges (DMRB). This document provides a three-stage appraisal methodology, using screening and detailed modelling as and where appropriate for comparison with the relevant UK air quality standards and guidelines.

Summary of the Air Quality Assessment undertaken by ARUP

The forecast concentrations indicate that the effect of the proposals on local air quality would largely be minor to negligible. Most receptors across the areas assessed experience either no increase in pollutant concentrations or a minor increase between the 2010 Do Minimum and Do Something scenarios. All national objectives and EU limit values are predicted to be met in the relevant years both with and without the proposals in place. Further information can be found in the full Environmental Statement²⁸.

²⁸ Widening the M1J21-30 Environmental Statement of Contract 1 works (J25-28) Volume 2a Detailed Assessments

Appendix 1

Appendix 2