



# 2011 Air Quality Progress Report for *Newark & Sherwood District Council*

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

April, 2011

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## Executive Summary

Following on from the 2009/10 progress report, the next stage of the local air quality management process is another progress report conducted during 2010/2011. It considers new monitoring data, new sources or significant changes to existing sources (either locally or within neighbouring authorities), or any other local changes that may be significant. In this report we have carefully considered any relevant changes to public exposure e.g. new residential developments alongside busy roads etc.

This authority has re-assessed all the issues that were considered in previous rounds and has given re-consideration to each item, and as a minimum confirmed that the item is not relevant or has not changed.

The district has seen a slight rise in NO<sub>2</sub> emissions but all monitored sites continue to remain under the national objective.

This report has assessed all new and continuing developments that may have an impact on air quality objectives such as the Potterdyke/Asda redevelopment, Staythorpe (gas fired) Power Station and the proposed Energy Recovery Facility and the dualling of the A46 between Newark and Widmerpool.

Having considered all monitoring data, all new and proposed developments and existing sources, the results of this assessment indicate that the relevant air quality objectives are likely to be met and a Detailed Assessment will not be required for any of the pollutants considered.

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# 1 Introduction

## 1.1 Description of Local Authority Area

Newark and Sherwood district covers one third of the county of Nottinghamshire. To the east the district forms the county boundary with Lincolnshire and parts of Leicestershire to the south. A map of the district council area (Figure 1.1a) can be seen on the following page. Its total of 255 square miles is home to a population of just over 104,000 people, with Newark being the largest urban centre with 35,000 residents. The busy market town of Newark is located to the south of the district in the centre of the fertile Trent valley. To the west of the Trent valley is farming country with the small cathedral town of Southwell. To the north of the district are Sherwood Forest and the mining communities of Ollerton, Edwinstowe, Rainworth and Clipstone.

The A1 trunk road enters the district in the south and precedes northerly in the east of the district, passing next to Newark town. The district is predominantly rural but has an industrial heart, which was once focused around the coal mining industry. There is now only one deep mine operating within the district. Regeneration has taken place to industrial areas in particularly on or around disused coal mine sites. It is anticipated that such development will encourage new and innovative enterprises and ensure a sound economic and employment base for Newark and Sherwood in the future. An established feature of Newark town is the extensive sugar beet factory, which occupies a site of nearly 1300 acres and produces in the region of approximately 850 tonnes of sugar each day during the campaign time.

There are a substantial number of industrial installations requiring regulation under the pollution control regimes, these numbers have been reviewed this year. There are over 50 Part B prescribed processes, one A2 process and over 30 A1 processes registered under The Environmental Permitting (England and Wales) Regulations 2010 (as amended). Not all of these processes emit significant amounts of those pollutants for which the air quality objectives have been set. Further consideration has been given to other large industrial processes situated in neighbouring authorities that may influence the air quality in the district.

Figure 1.1a



The number of Part B installations within the district requiring a permit to operate has decreased. There has been one new application for a waste oil burner at Ollerton, however two spray paint processes have gone out of business, one in Newark and one in Blidworth. Cemex decided to close a small concrete batcher in Newark and a furniture manufacturers, also from Newark fell out of the Environmental Permitting regime. There are currently 46 Part B installations, one A2 installation and 18 petrol service stations.

In recent years potential exceedences of the PM10 objectives have been associated with emissions from poultry farms. These were not specifically identified as a cause of concern within LAQM.TG (09). A small number of authorities have identified potential exceedences but no Detailed Assessments have yet been completed and there are currently insufficient data to draw any firm conclusions. The larger poultry farms (those housing more than 40,000 birds) came under PPC regulation in 2007. The district being rural in nature does include a number of these sites including several installations permitted as A1 process, however there is no relevant exposure and there have been no local complaints. This department will continue to monitor the situation in light of any new guidance.

## **Housing and Redevelopment**

There has been a downturn with housing development within the district and around Newark town in line with national trends and is probably due to factors such as the economic climate. There have been a few medium sized developments pass through the planning process but construction has yet to commence. The town of Newark has seen development with conversion of former brewery buildings into apartments and new estates on Lincoln Road, Beacon Hill Road and a former secondary school site continuing on from last year.

The new developments discussed in last year's report on the districts former colliery, Clipstone and Sherwood Energy Village (former Ollerton colliery) have advanced little. The energy village proposal is for a mixed-use development including eco-housing and light industrial eco units. Phase one of this is completed but works on phase 2 has currently halted due to the present economic climate. The former Bilsthorpe colliery is currently under developed with approved planning applications for commercial units again due to the economic climate work has not yet commenced on this. This regeneration of large derelict sites close to the district's former mining communities is not expected to have a significant impact on local air quality. The roads surrounding these sites are not the districts busiest roads and should easily have the capacity to cope with increasing traffic flows brought about by increased residential areas. It is expected that most new residential development will incorporate gas central heating therefore no impact on air quality is anticipated.

Construction work on the Potterdyke site on the edge of Newark town centre has recently begun. Please see section 5 Planning Applications below for further details. Air quality considerations were voiced and sought and an impact assessment was

carried out and extensive modelling for the effects of the development indicated that there would be no significant negative impact on air quality.

It is anticipated that none of the developments taking place will have any major effect upon the local air quality from emissions such as traffic. However, their impact will be assessed and monitored as part of the LAQM process.

## 1.2 Purpose of Progress Report

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the Local Air Quality Management process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

## 1.3 Air Quality Objectives

The air quality objectives applicable to Local Air Quality Management (LAQM) **in England** are set out in the Air Quality (England) Regulations 2000 (SI 928), and the Air Quality (England) (Amendment) Regulations 2002 (SI 3043). They are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre  $\mu\text{g}/\text{m}^3$  (for carbon monoxide the units used are milligrammes per cubic metre,  $\text{mg}/\text{m}^3$ ). Table 1.1. includes the number of permitted exceedences in any given year (where applicable).

**Table 1.1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England.**

<b>Pollutant</b>	<b>Concentration</b>	<b>Measured as</b>	<b>Date to be achieved by</b>
<b>Benzene</b>	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2010
<b>1,3-Butadiene</b>	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
<b>Carbon monoxide</b>	10.0 $\text{mg}/\text{m}^3$	Running 8-hour mean	31.12.2003
<b>Lead</b>	0.5 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
<b>Nitrogen dioxide</b>	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
<b>Particles (PM<sub>10</sub>) (gravimetric)</b>	50 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
<b>Sulphur dioxide</b>	350 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## 1.4 Summary of Previous Review and Assessments

This authority has re-assessed all the issues that were considered in previous rounds and given re-consideration to each item, and as a minimum confirmed that the item is not relevant or has not changed.

The pollutants that were considered as part of the assessment were:

- 1, 3-butadiene
- Benzene
- Carbon monoxide
- Nitrogen dioxide
- Lead
- Fine particulate matter (PM10)
- Sulphur dioxide

All of the assessments undertaken as part of this process indicated that the relevant air quality objectives were likely to be met and a Detailed Assessment would not be required for any of the pollutants considered.

## **2 New Monitoring Data**

### **2.1 Summary of Monitoring Undertaken**

#### **2.1.1 Automatic Monitoring Sites**

There are no automatic monitoring sites in Newark and Sherwood.

### **2.1.2 Non-Automatic Monitoring**

This department has continued to carry out its Diffusion Tube monitoring survey for Nitrogen Dioxide. The tubes are used to monitor Nitrogen Dioxide levels at 13 sites throughout the district (see maps 2.2a and 2.2b). The four types of location are Urban Background (quiet village and town sites away from busy roads), Roadside (sites close to busy roads and junctions in Newark and adjacent to the A1), Kerbside (sites within 1m of the kerb of busy roads) and Suburban (residential area on the outskirts of a town or city).

Monitoring of the site at Portland Street in Newark was initiated at the start of 2008. This location is on the busy Beaumont Cross Junction in Newark that also has the FADS Cartergate monitoring site to the North East towards the town centre and the Albert Street site to South West. This site was chosen as it lies adjacent to the Potterdyke development and would provide a baseline reading prior to the development commencing.

The monitoring site to the South of Newark at the junction of Hawton Road and Bowbridge Road was continued during 2010. This site was decided upon as it is on a junction of one of the main roads along which the Newark Growth Point development will be accessed. The Growth Point could include a southern relief road linking the A1 and the A46, 5000 new houses and 100 hectares of employment land. Clearly this large development has the potential to impact local air quality and therefore the new tube location was chosen to assess background NO<sub>2</sub> levels prior to commencement of the development.

Both the Potterdyke and Growth Point developments are discussed in more detail below in section 5 Planning Applications. At the time of writing the Growth Point is at the planning stage and has been somewhat delayed by the financial downturn. The Potterdyke scheme has recently commenced and is at the construction phase. The NO<sub>2</sub> tube monitoring program for 2010 remained the same as that for 2009.

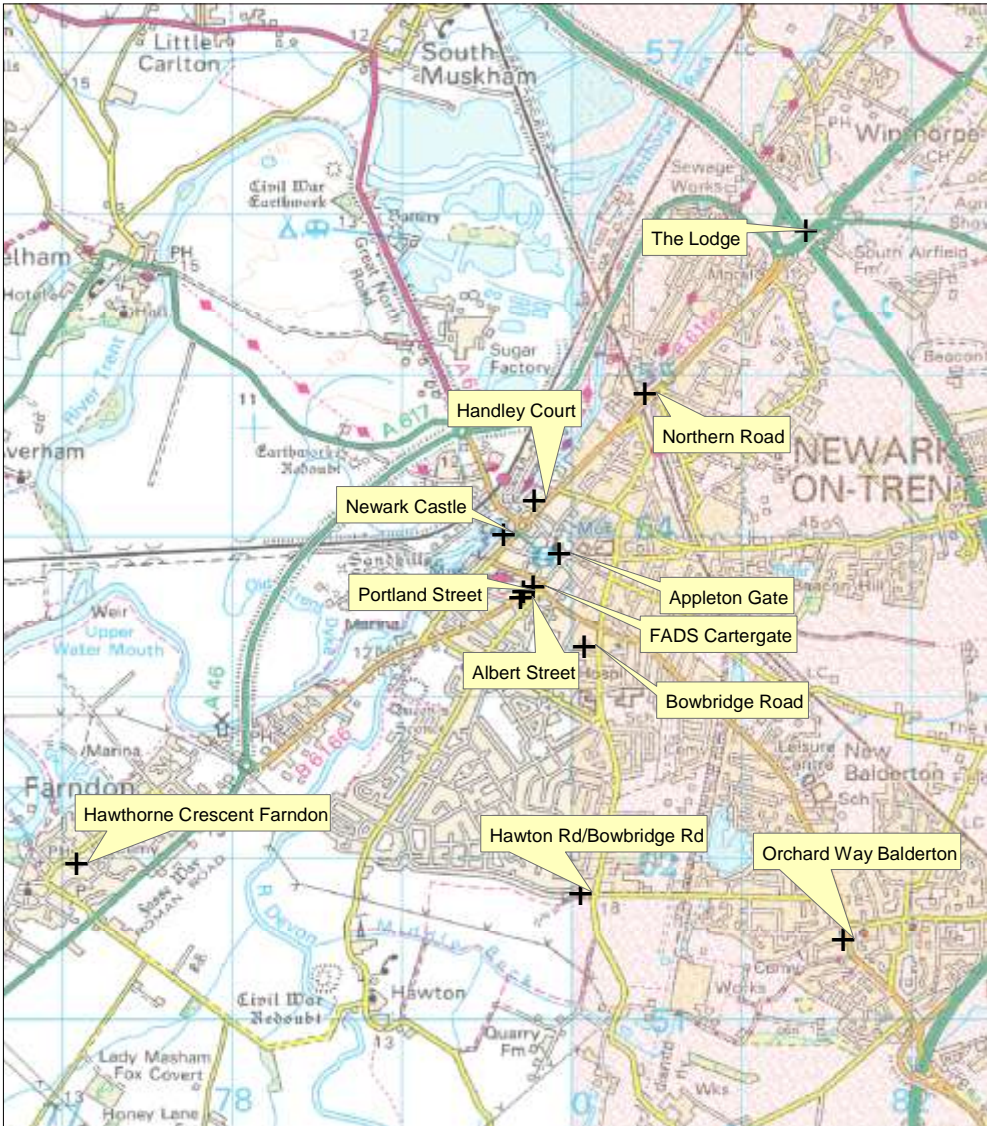
**Figure 2.2 Map(s) of Non-Automatic Monitoring Sites (if applicable)**

**Figure 2.2a NO<sub>2</sub> Diffusion Tube Survey - Monitoring Locations Around Newark & Sherwood**



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**Figure 2.2b NO<sub>2</sub> Diffusion Tube Survey - Monitoring Locations in and Around the Newark Area**



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**Table 2.2 Details of Non- Automatic Monitoring Sites**

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location ?
Orchard Way Balderton (3N)	Urban background	X 481681 Y 351500	NO <sub>2</sub>	N/A	Y (5m)	1m	
Winthorpe Rd /Northern Rd (5N)	Roadside	X 480400 Y 355000	NO <sub>2</sub>	N/A	Y (5m)	1m	N
Bowbridge Rd (7N)	Roadside	X 480153 Y 353320	NO <sub>2</sub>	N/A	Y (2m)	1m	Y
FADS Cartergate (1N)	Roadside	X 479851 Y 353692	NO <sub>2</sub>	N/A	Y (1m)	2m	Y
Hawthorne Crescent Farndon (4N)	Urban background	X 477200 Y 351900	NO <sub>2</sub>	N/A	Y (5m)	2m	
War Memorial Appleton Gate (6N)	Roadside	X 480006 Y 353892	NO <sub>2</sub>	N/A	Y (1m)	2m	Y
Albert St (9N)	Roadside	X 479778 Y 353621	NO <sub>2</sub>	N/A	Y (1m)	1m	Y
Handley Court (10N)	Urban background	X 479859 Y 354223	NO <sub>2</sub>	N/A	Y (1m)	1m	
The Lodge (11N)	Urban background	X 481460 Y 355900	NO <sub>2</sub>	N/A	Y (2m)	N/A	
Newark Castle (12N)	Urban background	X 479676 Y 354016	NO <sub>2</sub>	N/A	Y (3m)	5m	
Rainworth Village Hall (13N)	Urban background	X 459275 Y 358301	NO <sub>2</sub>	N/A	Y (5m)	8m	
Portland Street	Kerbside	X 479796 Y 353659	NO <sub>2</sub>	N/A	Y (1m)	1m	Y
Hawton Rd / Bowbridge Rd (14N) (commenced 2009)	Kerbside	X 480132 Y 351781	NO <sub>2</sub>	N/A	N	2m	N

Newark and Sherwood is one of the eight local authorities within Nottinghamshire, all of which use Gradko laboratory for their NO<sub>2</sub> tube analysis. This arrangement was set up in order to achieve greater consistency across the county. The preparation method used by Gradko is 20% TEA in Water. This preparation method has showed the most consistent precision of the laboratories involved in the network. During 2009 a Nottinghamshire diffusion tubes group was set up with the aims of identifying inconsistencies in handling practices across the county. This resulted in the production of recommendations (using the AEA guidance diffusion tubes for ambient NO<sub>2</sub> monitoring

[http://www.airquality.co.uk/reports/cat05/0802141004\\_NO2\\_WG\\_PracticalGuidance\\_Is\\_sue1a.pdf](http://www.airquality.co.uk/reports/cat05/0802141004_NO2_WG_PracticalGuidance_Is_sue1a.pdf)) which have since been approved by the Nottinghamshire Air Quality Steering Group.

Newark and Sherwood doesn't have an automatic monitor for NO<sub>2</sub> and no co-location study was carried out for NO<sub>2</sub> for 2010, therefore a suitable bias adjustment factor was obtained using the spreadsheet available on the Air Quality Review & Assessment Helpdesk website [5]. This provides a national average factor for many co-location studies for each laboratory and tube preparation method. The spreadsheet is updated every few months and the factors may therefore be subject to change. The bias factor used to calculate annual means for NO<sub>2</sub> tube data was generated using the latest spreadsheet available at the time of writing (version 09/10) a factor of 0.90 was applied to the 2010 tube data.

Gradko laboratory does comply with Defra Harmonisation Practical Guidance and takes part in the WASP scheme, results of which are presented in the appendix table A1. Gradko precision data is presented in appendix table A2.

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

### 2.2.1 Nitrogen Dioxide

Annual mean NO<sub>2</sub> concentrations for 2010 are in table 2.4 below. Data capture for the 2010 monitoring period was good with only one tube (of duplicates at each site) missing from both Appleton Gate and Rainworth meaning that data was still reported for each month. The only exception to this was for Bowbridge Road where both tubes were stolen in January giving a datacapture for 2010 of 91.7%.

There have been no exceedences of the annual mean NO<sub>2</sub> objective of 40 µg/m<sup>3</sup> throughout Newark & Sherwood's tube monitoring programme since the previous (2010) Progress report. The monitoring sites on Beaumont Cross junction in Newark (FADS Cartergate, Albert Street and more recently Portland Street, which is discussed later) returned annual means that were relatively close to the NO<sub>2</sub> objective which is as expected as it is one of busiest junctions in the Newark & Sherwood district, and has been for some time as monitoring data from previous years confirms (see table 2.4 and figure 2.4a). The Bowbridge Road monitoring site is located near to the junction of London Road and regularly has standing traffic waiting at the traffic lights. Bowbridge Road is also used by HGV's as a thoroughfare to the industrial sites based along Hawton Lane which would explain why this site regularly shows elevated results.

Results at the Lodge (11N) have been consistently close to the NO<sub>2</sub> objective since monitoring of the site began. The site lies between two busy roundabouts that link the A1, A46 to Lincoln and A17 to Sleaford and Lincoln Road back into Newark.

The vast majority of NO<sub>2</sub> tube monitoring sites are located where the public could be regularly present for a considerable period of time and are therefore considered to be representative of relevant public exposure.

Monitoring was begun at a new site on the junction of Hawton Road and Bowbridge Road to the south of Newark in January 2009. This site lies at the opposite end of Bowbridge Road to the current monitoring site on the same street and is close to heavy industrial sites on Hawton Road that are frequently visited by heavy goods vehicles. Whilst the nearest receptors (residential bungalows 20m across Bowbridge Road) are some distance away from the tubes, the site is in a location that will provide background prior to the Growth Point development taking place which will extend south out along Bowbridge Road. Although this site may not represent relevant exposure at present, it is anticipated that it will do as the Growth Point commences which may be a little later than originally anticipated due to the financial downturn.

A new monitoring site was chosen in 2008 at Portland Street in Newark as it will provide an additional monitoring point on the very busy Beaumont Cross junction. Additionally this site abuts the Potterdyke development and is a few metres from the proposed Asda car park entrance. Additionally it will be ideally situated to monitor NO<sub>2</sub> levels resulting from the probable increased traffic level once it is completed with the

nearest relevant exposure being users of the development which is to include flats, a doctors surgery and shops as well as the supermarket. Levels observed for 2009 and 2010 have been 33.0 and 36.2  $\mu\text{g}/\text{m}^3$  respectively and with the construction phase of the development just recently begun, it will be important to note what impact this will have on the levels of congestion in this already busy area and how this will affect levels of  $\text{NO}^2$ .

## **2.4 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Diffusion Tube Monitoring Sites.**

### **Diffusion Tube Monitoring Data**

See also Appendix Table A3

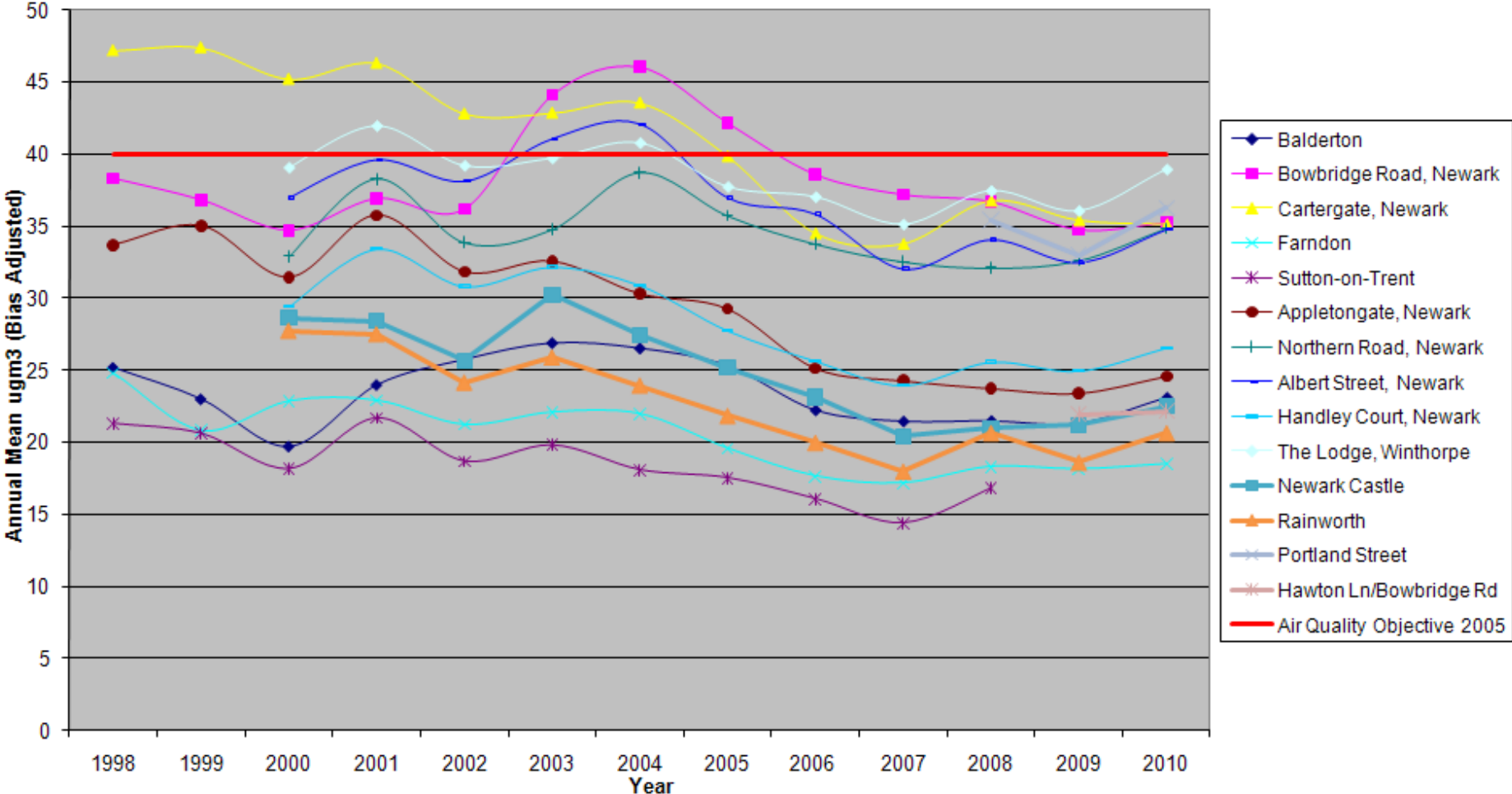
**Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes**

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2010 <sup>b</sup> %	Annual mean concentrations ( $\mu\text{g}/\text{m}^3$ )		
					2008 <sup>c,d</sup>	2009 <sup>c,d</sup>	2010 <sup>c</sup>
3N	Orchard Way Balderton	N/A	N/A	100	21.5	21.3	23.1
5N	Winthorpe Road/ Northern Road	N/A	N/A	100	32.1	32.6	34.9
7N	Bowbridge Road	N/A	N/A	91.7	36.7	34.7	35.2
1N	FADS Cartergate	N/A	N/A	100	36.8	35.4	35.2
4N	Hawthorne Cresce Farndon	N/A	N/A	100	18.3	18.1	18.5
8N	Sutton on Trent	N/A	N/A	N/A	16.8	N/A	N/A
6N	War Memorial Appleton Gate	N/A	N/A	95.8	23.8	23.4	24.6
9N	Albert Street	N/A	N/A	100	34.1	32.5	34.8
10N	Handley Court	N/A	N/A	100	25.6	24.9	26.6
11N	The Lodge	N/A	N/A	100	37.4	36.0	38.9
12N	Newark Castle	N/A	N/A	100	21.0	21.2	22.5
13N	Rainworth Village Hall	N/A	N/A	95.8	20.7	18.6	20.7
14N	Hawton Ln/Bowbr Rd	N/A	N/A	100	N/A	21.9	22.2
15N	Portland Street	N/A	N/A	100	35.4	33.0	36.2

**Bias Factors Used**

Bias Factor From R&A website	2007	0.84
(SYL) Bias Factor from R&A website	2008	0.88
(GRADKO) Bias Factor From R&A website	2008	0.89
Bias Factor From R&A website	2009	0.86 (ver. 02/10)
Bias Factor From R&A website	2010	0.90 (ver. 09/10)

**NSDC Diffusion Tube Survey**



**Fig 2.4a Diffusion tube summary chart from Newark and Sherwood**

**2.2.2 PM<sub>10</sub>**

Newark and Sherwood currently do not monitor for PM10

**2.2.3 Sulphur Dioxide**

Newark and Sherwood currently do not monitor for Sulphur Dioxide

**2.2.4 Benzene**

Newark and Sherwood currently do not monitor for Benzene

**2.2.5 Other pollutants monitored**

Newark and Sherwood currently do not monitor for any other pollutants

**2.2.6 Summary of Compliance with AQS Objectives**

Newark and Sherwood District Council has examined the results from monitoring in the district. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

### **3 New Local Developments**

As detailed above, the Potterdyke development started at the end of 2010 and as a result of this busses now use Castlegate as a pick up point as there is currently no bus station. However the castle NO<sub>2</sub> results have shown little increase since last year above the small increase of all of the NO<sub>2</sub> tube results. The bus station will be back in its original location when the Potterdyke development is completed next year. Staythorpe C Power Station is now completed and operational.

The A46 duelling has continued as previously discussed and is due to finish by 2012. This will have a positive effect on local Air quality.

#### **3.1 Road Traffic Sources**

There have been no new road traffic sources identified since the last assessment.

#### **3.2 Other Transport Sources**

There have been no new transport sources identified since the last assessment.

#### **3.3 Industrial Sources**

Staythorpe C Power Station became fully operational in November 2010 and has an A1 IPPC environmental permit from the Environment Agency and as the initial modelling that was submitted with the application predicted, we have seen no change in the pollutants that we currently measure.

#### **3.4 Commercial and Domestic Sources**

Newark and Sherwood District Council confirms that there are no new or newly identified commercial or domestic sources which may have an impact on air quality within the Local Authority area.

#### **3.5 New Developments with Fugitive or Uncontrolled Sources**

There have been no new developments with fugitive or uncontrolled sources identified since the last assessment.

Newark and Sherwood District Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the

Local Authority area.

## **4 Local / Regional Air Quality Strategy**

Officers from Housing and Environmental Services, through their participation with the Nottinghamshire Environmental Protection Working Group (NEPWG) and Nottinghamshire Air Quality Steering Group (NAQSG), have been involved in the process of reviewing and updating the Nottinghamshire Air Quality Strategy. First published in 2001 the document is a collaboration between the various representatives on this group including district, borough and county councils, the Environment Agency and the Health Protection Agency. The updated publication, 'A Breath of Fresh Air' was released during April 2008 along with the launch of a new Nottinghamshire Air Quality web site.

An air quality monitoring network has been established throughout the county and in the near future the data from this network will be published via this website giving local air quality updates. The data will also be processed and displayed in council offices so the general public can have clear, simple information on air quality in their local area. The group has taken a corporate approach to the supply and analysis of NO<sub>2</sub> Diffusion Tubes using a single laboratory to try and obtain consistent reliability of results.

# 5 Planning Applications

## New Local Developments

### Potterdyke

As reported last year, a planning application was submitted for the redevelopment of the Potterdyke area in Newark town centre. This received planning consent at the end of 2008. The scheme includes an ASDA supermarket, other retail developments, a new doctor's surgery and health centre and new residential dwellings. As part of the planning process, the applicant was required to undertake an air quality study to assess and the model the effects of the development.



**Figure 1.1b Potterdyke Area in Newark**

During September 2007, in support of the main planning application, a report was submitted describing the study. This utilised the DMRB (Design Manual Roads and Bridges) screening method and estimates for increased traffic flows due to the proposal. The report concluded that the results of the exercise showed that insignificant impact occurs and due to this negligible impact further detailed modelling and mitigation was not required.

As recent diffusion tube monitoring results close to the development site returned concentrations of pollutants exceeding the worst-case scenario predicted, questions were raised and detailed discussions took place with the consultant who produced this work. This included agreeing on the input parameters and attempting to replicate the modelling exercise to validate the results. This was completed satisfactorily.

The original planning application involved the displacement of the existing bus station. Although negotiations were ongoing to find a new site within the town, unfortunately no suitable site was proposed so this was incorporated back into the facility. Work commenced on this development and has continued throughout 2010.

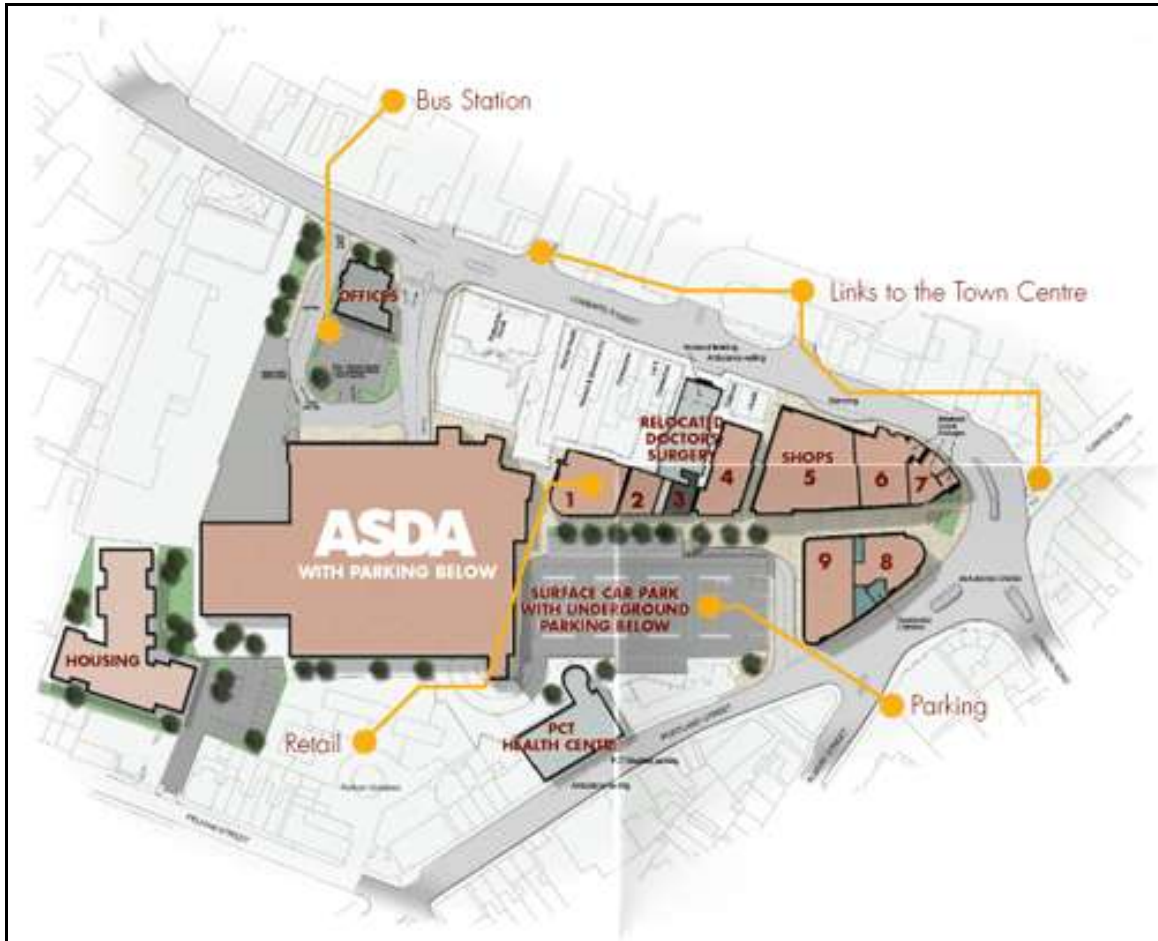


Figure 1.1c Potterdyke Proposals

### Newark Growth Point

As reported in previous years, the government has selected Newark to be a New Growth Point Area. Land around the south of Newark is one of the areas that has been identified for additional development and could be developed to include the following features:

- A Southern Relief Road linking the A46 to the A1
- 5,000 houses by 2016, 30% of which will be affordable homes
- A mixed-use development, including a 100 hectares of employment land
- A 40-hectare Country Park
- Community Facilities including 4 new local centres
- A Multi-Sport Hub

More details at <http://www.newarkfuture.net/>

The proposed road link, along with the A1 and the existing A46 by-pass, will ensure a complete ring road around Newark and Balderton. This will undoubtedly improve traffic flows, alleviate some areas of congestion and have a positive impact on local air quality in terms of traffic passing through Newark. The access to Newark town centre from the new areas of development will lead traffic through areas that are already congested at busy times and therefore the impact that this has in the long term will need to be carefully considered in later reports.

There has been ongoing discussion with the consultants regarding a suitable air quality assessment to support the growth point planning application. A campaign of ambient monitoring was proposed, including a network of diffusion tubes in and around the area along with continuous monitoring at a specific location. A suitable site was agreed and the equipment was installed and monitoring commenced. There has been no further progress with the development to date and there have been no further indications of any plans to move ahead with this at present.

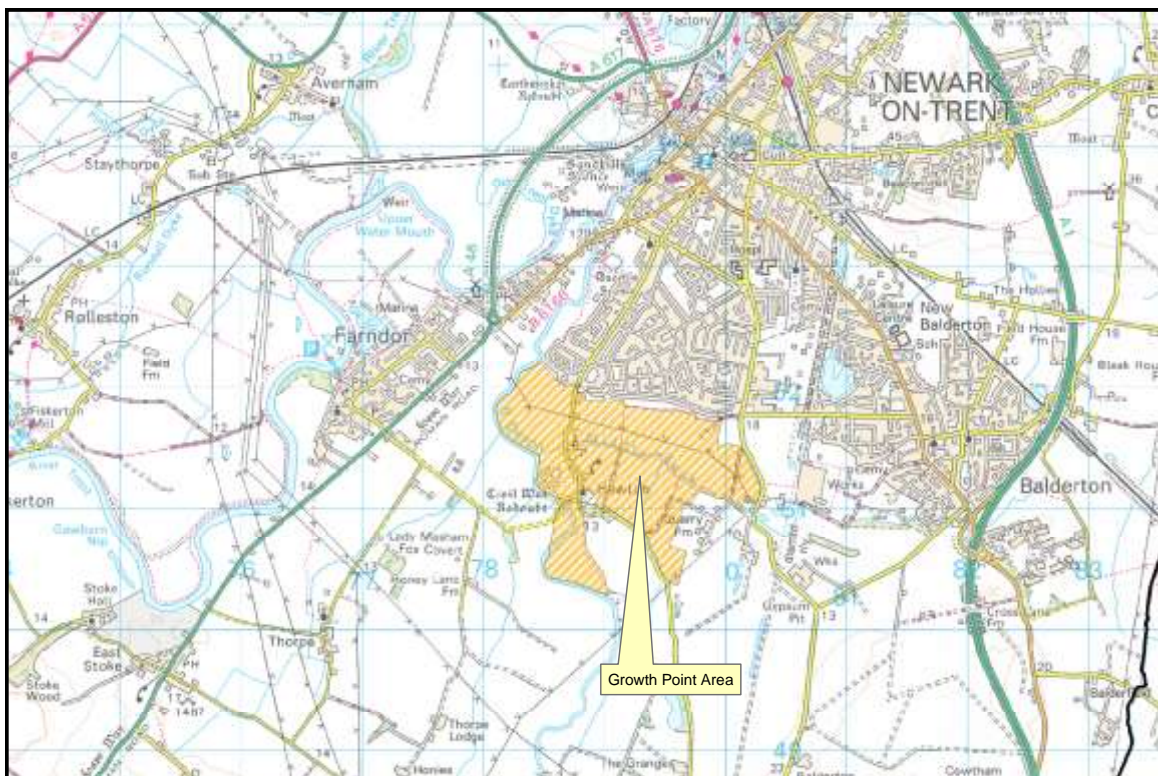


Figure 1.1d Newark Growth Point

### Rufford Energy Recovery Facility (ERF)

As reported in previous years, the former Rufford Colliery site, near Rainworth, is the proposed location for a new Energy Recovery Facility (ERF) to be built. The ERF, which will provide energy from the incineration of waste, is one of the solutions proposed to manage approximately 180,000 tonnes of the county's residual waste (after recycling and composting). If approved, the facility will produce up to 15MW of electrical energy, enough to power up to 15,000 homes.

Following a prolonged series of public consultation events, the planning application was submitted during late 2007. The application for planning consent was approved by Nottinghamshire County Council in January 2008. The facility will be subject to

regulation by the Environment Agency as an A1 installation. The application for the PPC Permit was also submitted during late 2007.



Figure 1.1e Aerial View of Proposed ERF Site

In the run up to these applications, a detailed programme of ambient air monitoring was undertaken. The results and analysis of this exercise were used to provide a baseline for a detailed Air Quality assessment. A two-model approach using ADMS and AERMOD PRIME was undertaken and submitted as part of both applications.

The scope of monitoring, as agreed with both the Environment Agency and this department, included:

- A 12 month diffusion tube survey measuring nitrogen dioxide (NO<sub>2</sub>) and sulphur dioxide (SO<sub>2</sub>) at 10 sites and nitrogen oxides at 3 sites – collocated with the NO<sub>2</sub>/SO<sub>2</sub> sites. These included both roadside and background locations.
- Continuous monitoring for 32 weeks at one agreed sensitive location (primary school) measuring Nitrogen dioxide, Nitrogen oxide, Sulphur dioxide, Particulates (PM<sub>10</sub>) and Carbon monoxide.
- Monitoring of Hydrogen Chloride (HCl) and Poly Aromatic Hydrocarbons (PAH) once every eight weeks using high volume extractive sampling undertaken at the same location as the continuous monitoring.

Although approved by the county council's planning committee in January 2009 no work has commenced, this is due to major objection from the community and protest groups and is currently pending a decision from the secretary of state.

## **6 Air Quality Planning Policies**

There are currently no air quality planning policies for Newark and Sherwood but as part of the 2010 plan we aim to develop these through 2011. Last year very little development was seen coming down from the planning department.

## **7 Local Transport Plans and Strategies**

The current plan is the second to be produced and covers the period 1 April 2006 to 31 March 2011. Newark & Sherwood District Council is in full support of this plan and many of the measures being introduced are particularly relevant to commuters from the district area into the city. Containing both national and local objectives, this plan identifies the problems and opportunities within the area and aims to build on the achievements of the first plan. Proposed schemes that will impact on Newark and Sherwood include: Further Pedestrianisation Scheme in Newark town centre - traffic management and environmental improvement scheme for Kirk Gate, Middle Gate and Stodman Street. The provision of a New Bus Station Facility, close to the town centre, as part of the redevelopment of Potterdyke (See Section 5). Kelham Bypass – involving the construction of new rural village bypass south of the village and including a new river bridge spanning the Trent. Due to the costs involved in this proposal it is unlikely to happen within the timescale of the plan.

## 8 Climate Change Strategies

Newark and Sherwood District Council's climate change strategy is currently in draft form and it is predicted that a final document should soon be adopted. The Climate Change Strategy sets out the framework of what Newark & Sherwood District Council and its partners in Nottinghamshire intend to do to tackle climate change.

The strategy identifies eight key areas where actions locally can assist in both mitigating the impacts of climate change, in energy and addresses the steps needed to adapt to the climate change. These key areas are:

Key Theme 1: Buildings Planning and Regulation

Key Theme 2: Energy

Key Theme 3: Waste

Key Theme 4: Transport

Key Theme 5: Education and Promotion

Key Theme 6: Green Spaces

Key Theme 7: Water

Key Theme 8: Communication (Community & Residents)

### AIMS AND OBJECTIVES

The indicative Carbon Footprint for Newark and Sherwood District Council as at June 2010 is 16,212 tonnes.

The overarching aim of the climate change strategy is to reduce energy use, reduce the carbon footprint of the Council and to assist with the reduction in greenhouse gas emissions in Newark & Sherwood to at least the level set out by Government policy, 34% reduction by 2020 and a 80% reduction by 2050 (against 1990 levels).

Key strategic climate change objectives are to:

- Develop actions to tackle climate change through mitigation of greenhouse gases and adaptation to a changing climate
- Promote and support reductions of greenhouse gas emissions through better waste management and increased energy efficiency
- Undertake a climate impact assessment for Newark & Sherwood and use to raise awareness of mitigation and adaptation need.
- Raise awareness of the principles outlined in the strategy, throughout the District
- Develop an action plan to determine priorities to take forward the objectives in this strategy.

## **9 Implementation of Action Plans**

Currently Newark and Sherwood have no Air quality action plan.

## **10 Conclusions and Proposed Actions**

### **10.1 Conclusions from New Monitoring Data**

There has been no new monitoring undertaken in Newark and Sherwood.

### **10.2 Conclusions relating to New Local Developments**

The Potterdyke development may give rise to some changes in the measured NO<sub>x</sub> tube results. This development has only recently started and lack of significant data is available to comment on. A full year's NO<sub>x</sub> data will be available for the next report.

### **10.3 Other Conclusions**

### **10.4 Proposed Actions**

Our next course of action is to submit an update and screening report in 2012.

## 11 References

- [1] <http://www.newark-sherwooddc.gov.uk/pp/gold/viewGold.asp?ID=2031>
- [2] [http://www.nottinghamshire.gov.uk/home/traffic\\_and\\_travel/strategy-policy/ltp.htm](http://www.nottinghamshire.gov.uk/home/traffic_and_travel/strategy-policy/ltp.htm)
- [3] <http://www.highways.gov.uk/news/pressrelease.aspx?pressreleaseid=125868>
- [4] <http://www.airquality.co.uk/archive/laqm/tools.php>
- [5] <http://www.uwe.ac.uk/aqm/review/index.html>
- [6] Technical Guidance LAQM.TG (09) – DEFRA Publications
- [7] <http://air-quality.fdns.net/>
- [8] <http://www.rwe.com/web/cms/en/294312/rwe-npower/about-us/our-businesses/new-power-stations/staythorpe/>

## Appendices

Appendix A: QA/QC Data

## Appendix A: QA:QC Data

### Diffusion Tube Bias Adjustment Factors

NSDC uses Gradko laboratory for the analysis and the method was 20% TEA in Water. Bias Factor used for 2010 was 0.90 (ver. 09/10).

### QA/QC of diffusion tube monitoring

#### Analysis by UV/Vis spectrophotometry (GLM7) and continuous flow analysis (GLM9)

WASP Round No:-	R108A	R108B	R109A	R109B	R110A	R110B	R111A	R111B
Assigned Value	1.92	1.47	1.03	1.27	0.99	2.37	1.54	1.84
GLM7	1.862	1.443	1.074	1.022	0.891	2.245	1.57	1.851
GLM7	1.872	1.462	1.236	1.065	0.930	2.240	1.532	1.864
Average	1.867	1.453	1.155	1.044	0.911	2.243	1.551	1.858
Z Score	-0.3	-0.2	0.2	-1.2	-0.9	-0.7	0.1	0.1
GLM9	1.978	1.521	1.299	1.076	0.901	2.264	1.590	1.896
GLM9	2.028	1.536	1.252	1.075	0.934	2.243	1.599	1.9
Average	2.003	1.529	1.276	1.076	0.918	2.254	1.599	1.898
Z Score	0.6	0.5	0.6	0.1	-0.8	-0.6	0.5	0.4

Table A1 Gradko Laboratory WASP information for 2010

Gradko Precision Data

Spreadsheet Version Number: 09/10										
Follow the steps below in the correct order to show the results of relevant co-location studies										
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods										
Whenever presenting adjusted data, you should state the adjustment factor used										
This spreadsheet will be updated every few months; the factors may therefore be subject to change. This should not discourage their immediate use.										
Published by Air Quality Consultants Ltd on behalf of Defra, the Welsh Assembly Government, the Scottish Government and the Department of the Environment Northern Ireland										
Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List										
Step 2: Select a Preparation Method from the Drop-Down List										
Step 3: Select a Year from the Drop-Down List										
Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor <sup>1</sup> shown in blue at the foot of the final column.										
If you have your own co-location study then see footnote <sup>1</sup> . If uncertain what to do then contact the Review and Assessment Helpdesk 0117 328 3668 sqm-review@uwe.ac.uk.										
Analysed By <sup>2</sup>	Method <sup>3</sup>	Year <sup>4</sup>	Site Type	Local Authority	Length of Study (month)	Diffusion Tube Mean Conc. (Dm) (µg/m <sup>3</sup> )	Automatic Monitor Mean Conc. (Cm)	Bias (B)	Tube Precision <sup>5</sup>	Bias Adjustment Factor (A)
Gradko	20% TEA in Water	2009	R	Lancaster CC	12	37	31	19.0%	G	0.84
Gradko	20% TEA in Water	2009	R	Cheshire East Council	12	34	21	62.1%	G	0.62
Gradko	20% TEA in Water	2009	R	Dartford Council	12	60	58	4.6%	G	0.96
Gradko	20% TEA in Water	2009	R	Fareham BC	11	44	36	21.1%	G	0.83
Gradko	20% TEA in Water	2009	R	Gedling BC	12	45	36	25.1%	G	0.80
Gradko	20% TEA in Water	2009	UB	East Hertfordshire DC	9	29	33	-11.0%	G	1.12
Gradko	20% TEA in Water	2009	R	Exeter CC	12	38	39	-4.0%	G	1.04
Gradko	20% TEA in Water	2009	K	New Forest DC	12	54	45	20.0%	G	0.83
Gradko	20% TEA in Water	2009	R	New Forest DC	12	37	26	42.4%	G	0.70
Gradko	20% TEA in Water	2009	K	South Lakeland DC	10	46	36	27.8%	P	0.78
Gradko	20% TEA in Water	2009	R	Carlisle CC	9	38	31	21.5%	G	0.82
Gradko	20% TEA in Water	2009	R	Newtownabbey BC	12	37	34	7.0%	G	0.93
Gradko	20% TEA in Water	2009	UC	Nottingham CC	12	36	34	8.2%	G	0.92
Gradko	20% TEA in Water	2009	R	Nottingham CC	12	45	41	11.8%	G	0.89
Gradko	20% TEA in Water	2009	R	Nottingham CC	11	45	41	9.4%	G	0.91
Gradko	20% TEA in Water	2009	UC	Belfast CC	10	39	34	14.4%	G	0.87
Gradko	20% TEA in Water	2009	R	Bromsgrove DC	11	55	53	3.3%	P	0.97
Gradko	20% TEA in Water	2009	R	Chelmsford BC	10	39	36	3.5%	G	0.91
Gradko	20% TEA in Water	2009	R	Coventry CC	11	45	44	2.8%	P	0.97
Gradko	20% TEA in Water	2009	R	Coventry CC	11	38	30	25.6%	P	0.80
Gradko	20% TEA in Water	2009	R	Coventry CC	12	37	36	2.1%	G	0.98
Gradko	20% TEA in Water	2009	R	Coventry CC	9	51	65	-22.0%	G	1.28
Gradko	20% TEA in Water	2009	R	Dudley MBC	11	42	37	13.1%	G	0.88
Gradko	20% TEA in Water	2009	B	Dudley MBC	12	30	27	9.4%	G	0.91
Gradko	20% TEA in Water	2009	Rural	Dudley MBC	12	19	17	11.2%	G	0.90
Gradko	20% TEA in Water	2009	R	Dudley MBC	12	44	40	11.3%	G	0.90
Gradko	20% TEA in Water	2009	R	Sandwell MBC	12	47	44	7.1%	S	0.93
Gradko	20% TEA in Water	2009	UB	Sandwell MBC	10	19	16	19.5%	S	0.84
Gradko	20% TEA in Water	2009	UB	Sandwell MBC	12	29	27	5.8%	S	0.94
Gradko	20% TEA in Water	2009	R	Sandwell MBC	11	42	40	5.8%	S	0.95
Gradko	20% TEA in Water	2009	R	Rushmoor BC	10	35	33	6.2%	G	0.94
Gradko	20% TEA in Water	2009	K	AEA Tech Intercomparison	12	121	107	12.6%	G	0.89
Gradko	20% TEA in Water	2009	R	Cheshire West & Chester Council	11	41	37	10.0%	G	0.91
Gradko	20% TEA in Water	2009	R	Winchester	9	41	47	-13.2%	G	1.15
Gradko	20% TEA in Water	2009		<b>Overall Factor<sup>1</sup> (34 studies)</b>					<b>Use</b>	<b>0.90</b>

Table A2 Gradko laboratory precision information from spreadsheet 09/10

## NEWARK &amp; SHERWOOD - NITROGEN DIOXIDE SURVEY (microgrammes/cubic metre)

	Month	Balderton (3N)	Northern Rd (5N)	Bowbridge Rd (7N)	FADS Cartergate (1N)	Farndon (4N)	War Memorial Appleton Gate (6N)	Albert St (9N)	Handley Court (10N)	The Lodge (11N)	Newark Castle (12N)	Rainworth (13N)	Portland street (15N)	Hawton Ln / Bowbridge Rd (14N)	Travel Blank
GRADKO	Jan-10	37.81	53.05	tube missing	49.67	32.13	35.42	53.41	39.24	50.12	28.56	34.65	53.84	35.7	0.15
GRADKO	Jan-10	37.94	51.23	tube missing	49.37	31.37	38.69	51.71	41.45	54.19	34.36	33.33	58.05	37.19	
GRADKO	Feb-10	36.65	49.99	52.26	45.62	28.76	34.68	49.38	35.67	55.93	30.78	32.73	56.15	34.4	0.18
GRADKO	Feb-10	36.31	47.33	52.86	47.11	29.78	35.45	48.42	36.76	52.04	34.34	30.21	57.64	35.51	
GRADKO	Mar-10	27.49	40.46	44.84	42.48	24.90	31.18	41.57	36.3	51.91	31.04	25.27	40.91	26.69	0.16
GRADKO	Mar-10	28.32	42.47	41.27	43.3	25.39	31.51	42.93	33.3	46.26	29.15	24.98	44.89	28.86	
GRADKO	Apr-10	21.47	39.09	41.19	39.56	17.06	23.57	41.02	27.53	46.31	22.70	21.64	36.48	21.91	0.18
GRADKO	Apr-10	21.02	38.26	39.93	37.43	17.08	tube missing	38.26	29.27	48.72	25.00	21.44	38.18	21.18	
GRADKO	May-10	18.10	30.36	36.16	28.64	12.41	19.90	30.46	25.14	40.41	19.17	17.71	33.33	17.15	0.08
GRADKO	May-10	18.33	32.45	36.59	30.43	15.09	20.57	30.60	24.16	38.15	18.06	15.75	32.96	17.99	
GRADKO	Jun-10	16.55	31.88	33.84	28.12	12.76	19.57	29.82	23.77	36.30	17.92	13.29	32.33	15.36	0.04
GRADKO	Jun-10	16.25	30.31	28.24	29.14	13.06	18.94	31.52	21.12	34.65	18.83	14.67	31.35	16.29	
GRADKO	Jul-10	15.26	25.24	25.01	31.61	13.21	18.76	26.38	19.47	36.86	17.24	13.69	27.93	15.54	0.19
GRADKO	Jul-10	15.40	29.70	27.94	31.05	13.15	16.41	27.25	20.43	33.95	16.73	tube missing	26.94	17.27	
GRADKO	Aug-10	17.29	32.46	31.61	33.26	14.88	21.21	29.77	20.58	40.40	17.31	14.58	28.02	16.70	0.11
GRADKO	Aug-10	16.99	30.85	31.82	34.88	12.94	21.13	30.41	22.62	39.04	18.33	13.75	30.96	17.04	
GRADKO	Sep-10	21.78	38.62	37.20	39.19	13.95	25.60	35.76	28.48	41.38	22.55	17.41	38.74	21.86	0.35
GRADKO	Sep-10	21.86	36.61	37.04	40.34	17.88	24.55	35.59	29.92	44.70	22.96	16.92	39.73	21.45	
GRADKO	Oct-10	26.51	35.84	43.41	37.91	20.10	26.49	35.30	31.46	38.12	26.88	24.40	35.52	22.05	0.62
GRADKO	Oct-10	25.41	38.39	35.15	37.47	20.84	21.71	37.97	33.80	47.67	23.81	25.12	40.20	22.88	
GRADKO	Nov-10	34.37	38.36	43.26	48.21	25.51	31.47	43.14	35.35	43.48	31.52	25.54	52.07	31.38	0.21
GRADKO	Nov-10	32.64	41.74	42.29	37.99	25.96	35.28	43.26	34.07	42.64	31.30	24.90	43.64	32.19	
GRADKO	Dec-10	37.16	46.46	48.98	50.32	26.41	37.65	45.02	31.01	33.04	29.74	32.97	44.53	29.72	0.27
GRADKO	Dec-10	35.28	48.28	49.67	44.69	28.07	38.67	48.12	27.15	40.91	31.07	32.80	41.97	34.84	
Annual Average		25.7	38.7	39.1	39.1	20.5	27.3	38.6	29.5	43.2	25.0	22.9	40.3	24.6	
Annual Average (Bias Adjusted)	2010	23.1	34.9	35.2	35.2	18.5	24.6	34.8	26.6	38.9	22.5	20.7	36.2	22.2	

Table A3 Monthly breakdown of NO2 tube results for 2010.

