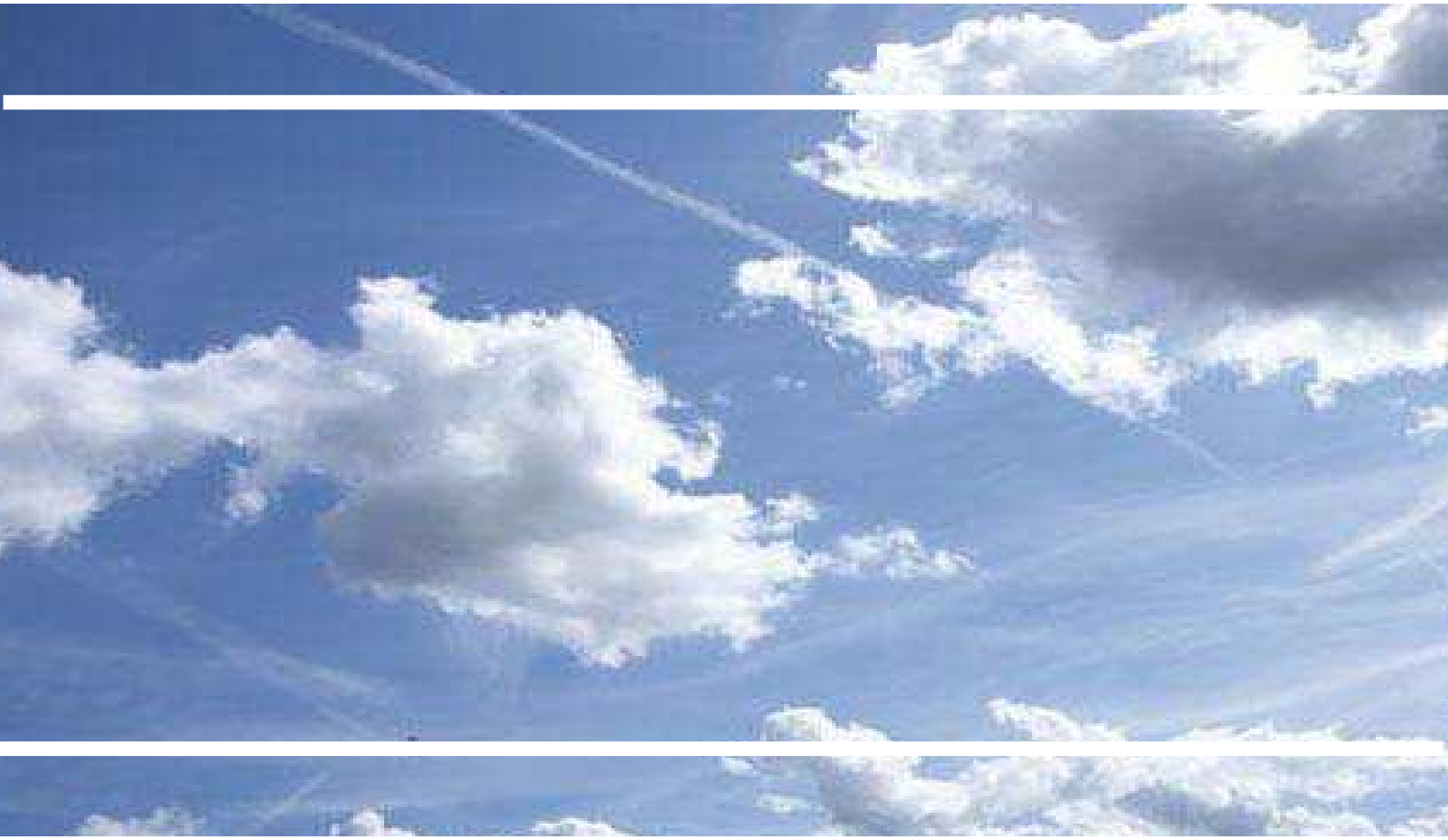

2014 Air Quality Management Progress Report

For Ashfield District Council

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

September 2014

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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. Review and assessment is now undertaken using a phased approach, initially conducting an 'Updating and Screening Assessment' and then a 'Detailed Assessment' where the updating and screening assessment indicates that an Air Quality Objective may be compromised.

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. Progress reports are only required in years when the authority is not carrying out an Updating and Screening Assessment or a Detailed Assessment. This report forms the sixth Progress Report produced by Ashfield District Council following the Updating and Screening Assessment submitted to Defra in May 2012.

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 fifteenth report on air quality produced by Ashfield District Council. It is recommended that the report is read in conjunction with the preceding assessment reports as detailed in Table 1.2 on page nine of this report.

A review of air quality measurement during 2013 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.

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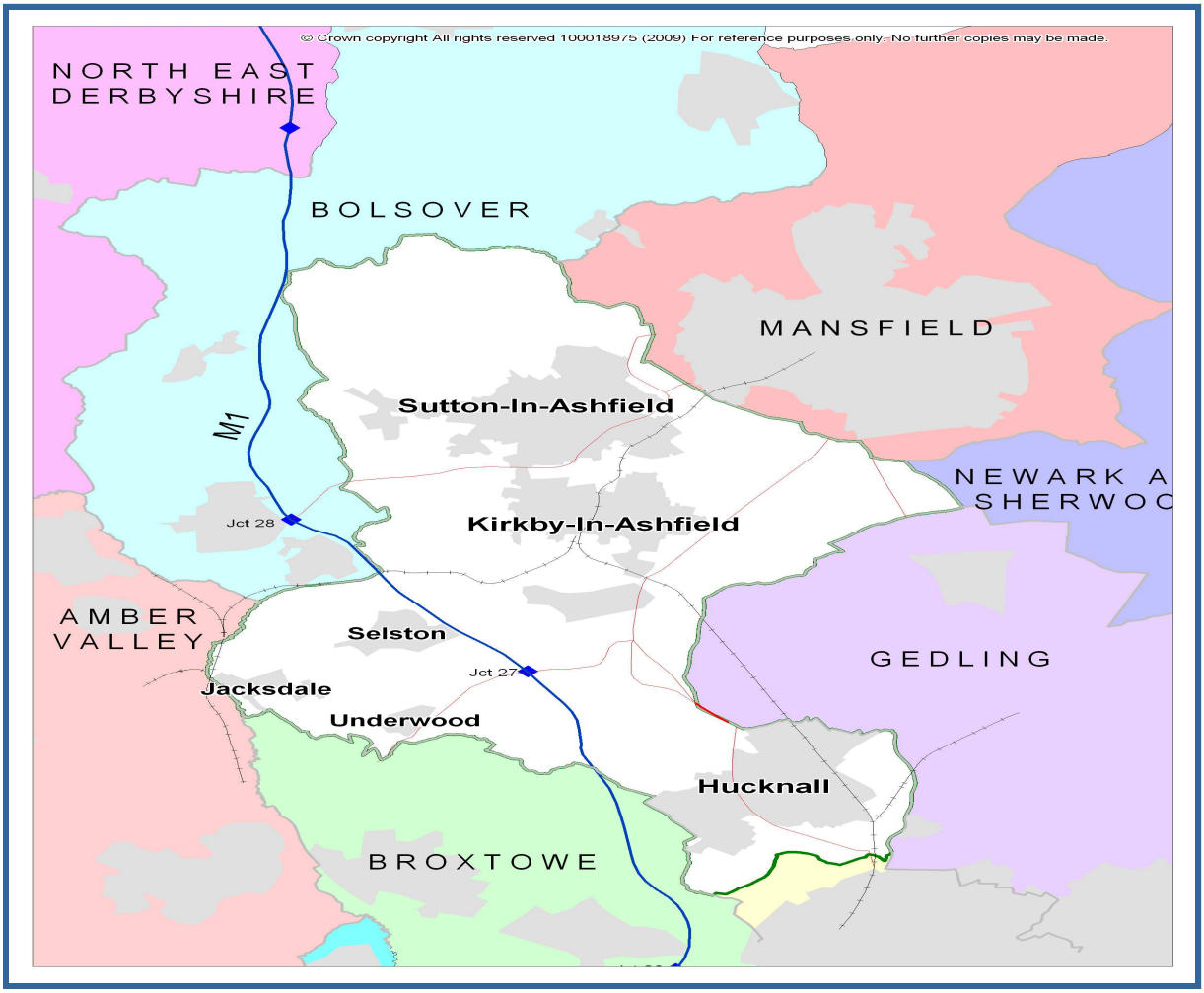
1 Introduction

1.1 Description of Local Authority Area

Ashfield District Council was formed on the 1st April, 1974, and comprises the former urban districts of Hucknall, Kirkby-in-Ashfield and Sutton-in-Ashfield, together with the parishes of Annesley, Felley and Selston, which were part of the Basford Rural District.

The district covers an area of 10,956 hectares and is located on the western side of Nottinghamshire. It adjoins five Districts within the County, including Nottingham City to the south and Mansfield to the north, and also adjoins Derbyshire. It has an estimated population of 120131 (mid-2011 ONS). The majority of this population, together with associated housing, jobs and services, are concentrated within the three main towns of Sutton-in-Ashfield, Hucknall and Kirkby-in-Ashfield, together with 3 large villages in the substantial rural area mainly to the west of the M1 motorway.



The District is well served by road links, notably the M1, A38 and the Mansfield Ashfield Regeneration Route (MARR). The Robin Hood railway line (which runs from Nottingham to Worksop) has stations at Kirkby-in-Ashfield, Hucknall and Sutton Parkway. Hucknall is also a terminus for the recently constructed Nottingham Express Transit (NET) tram route to Nottingham.

The main settlements share strong historic, economic and cultural links based around the growth and subsequent decline of coal mining, textiles and engineering industries. Approximately one third of the District lies within the Nottingham-Derby green belt. Large parts of the landscape have been recovered from the era of mineral extraction, with many areas successfully reclaimed for recreational use or development land. The District has three significant retail centres in each of the main towns.

1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

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 (AQAP), 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 LAQM **in England** are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre µg/m^3

(milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

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

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	5.00 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, 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 progress report represents the fourteenth report on air quality produced by Ashfield District Council. It is recommended that the report is read in conjunction with the preceding reports.

Table 1.2 provides details of the reports and highlights their respective outcomes.

Table 1.2: Previous Review and Assessments

Report	Date of Report	Outcomes
Stage One and Two Air Quality Assessment	May 2000	**Benzene, 1,3-Butadiene, Carbon Monoxide, Lead:** No need for further assessment **Nitrogen Dioxide:** Further review and assessment immediately adjacent to Rolls Royce Fuel Burning Engine Facility, Hucknall. **Particles PM_{10}:** Further review and assessment adjacent to M1 Motorway. **Sulphur Dioxide:** Further review and assessment immediately adjacent to Kings Mill Hospital Boiler Plant
Stage Three Air Quality Assessment	August 2001	**Nitrogen Dioxide:** Further review and assessment undertaken immediately adjacent to Rolls Royce Fuel Burning Engine Facility, Hucknall. Monitoring/Modelling identified no need to declare an AQMA. **Particles PM_{10}:** Further review and assessment undertaken at two locations adjacent to M1 Motorway. Monitoring/Modelling identified no need to

		declare an AQMA. **Sulphur Dioxide:** Further review and assessment undertaken immediately adjacent to Kings Mill Hospital Boiler Plant. Monitoring results were well below modelled predictions as the Hospital had switched to a low sulphur fuel source. In addition, the Hospital would be switching to a CHP plant in the near future. Therefore no need to declare an AQMA.
Update and Screening Assessment	May 2003	**Benzene, 1,3-Butadiene, Carbon Monoxide, Lead, Nitrogen Dioxide, Sulphur Dioxide:** The updating and screening assessment for the above pollutants was completed against the checklist criteria contained in Technical Guidance LAQM.TG (03). It was concluded that the Air Quality Objectives prescribed for these pollutants would be achieved across Ashfield and therefore there was no requirement to undertake a detailed assessment for these pollutants. **Particles PM_{10}:** The updating and screening assessment for PM_{10} was completed against the criteria listed in Technical Guidance LAQM.TG (03). It was concluded that the Air Quality Objectives would be met across Ashfield, except in the location of Pinxton Green where the updating and screening assessment indicated that the 24-hour mean objective may be compromised. It was therefore recommended that a detailed assessment for PM_{10} be undertaken at this location.
Detailed Assessment	April 2004	Detailed assessment for Particles PM_{10} undertaken at Pinxton Green. Monitoring carried out adjacent to a single dwelling within close proximity to the M1 Motorway was completed against the criteria contained within the LAQM Technical Guidance (03). It was concluded that the air quality objectives for PM_{10} achieved in this location and no need to declare an AQMA.

Detailed Assessment	December 2004	An initial assessment was undertaken for Oakfield Avenue and presented in the Updating and Screening Assessment (USA) reported in May 2003. The report concluded that there was no requirement for Ashfield to go to a detailed assessment based upon the data evaluated at this location. However, subsequent monitoring at this location revealed that there were three significant episodes of PM_{10} recorded. Therefore, a detailed assessment was carried out for Particles PM_{10}. It was concluded that the air quality objectives for PM_{10} achieved in this location and no need to declare an AQMA.
Progress Report	April 2005	**Benzene, 1,3-Butadiene, Carbon Monoxide, Lead, Nitrogen Dioxide, Sulphur Dioxide, Particles PM_{10}:** A review of air quality measurement during 2003/04 demonstrated that all the air quality objectives continued to be achieved across Ashfield. There was 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.
Update and Screening Report	April 2006	**Benzene, 1,3-Butadiene, Carbon Monoxide, Lead, Nitrogen Dioxide, Sulphur Dioxide, Particles PM_{10}:** A review of air quality measurement during 2003/04 demonstrated that all the air quality objectives continued to be achieved across Ashfield. There was 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.
Progress Report	April 2007	**Benzene, 1,3-Butadiene, Carbon Monoxide, Lead, Nitrogen Dioxide, Sulphur Dioxide, Particles PM_{10}:** A review of air quality measurement during 2003/04 demonstrated that all the air quality

		objectives continued to be achieved across Ashfield. There was 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.
Progress Report	April 2008	**Benzene, 1,3-Butadiene, Carbon Monoxide, Lead, Nitrogen Dioxide, Sulphur Dioxide, Particles PM_{10}:** A review of air quality measurement during 2003/04 demonstrated that all the air quality objectives continued to be achieved across Ashfield. There was 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.
Update And Screening Assessment **Progress Report** **Progress Report**	May 2009 May 2010 April 2011	**Benzene, 1,3-Butadiene, Carbon Monoxide, Lead, Nitrogen Dioxide, Sulphur Dioxide, Particles PM_{10}:** A review of air quality measurement during 2008/09 demonstrated that Ashfield continued to meet all the air quality objectives. There was no requirement to proceed to a detailed assessment for any of the Air Quality Strategy pollutants. The assessment did highlight the need to secure capital investment for the replacement of air monitoring equipment. Investment in automatic monitoring equipment would enable more accurate and in – depth monitoring to occur. **Benzene, 1,3-Butadiene, Carbon Monoxide, Lead, Nitrogen Dioxide, Sulphur Dioxide, Particles PM_{10}:** A review of air quality measurement during 2009 demonstrated that all the air quality objectives continued to be achieved across Ashfield. There was 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.

Update and Screening Assessment	May 2012	**Benzene, 1,3-Butadiene, Carbon Monoxide, Lead, Nitrogen Dioxide, Sulphur Dioxide, Particles PM_{10}:** A review of air quality measurement during 2010 demonstrated that all the air quality objectives continued to be achieved across Ashfield. There was 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. **Benzene, 1,3-Butadiene, Carbon Monoxide, Lead, Nitrogen Dioxide, Sulphur Dioxide, Particles PM_{10}:** The updating and screening assessment for the above pollutants was completed against the checklist criteria contained in Technical Guidance LAQM.TG (03). It was concluded that the Air Quality Objectives prescribed for these pollutants would be achieved across Ashfield and therefore there was no requirement to undertake a detailed assessment for these pollutants
Progress Report	Nov 2013	A review of air quality measurement during 2012 demonstrated that all the air quality objectives continued to be achieved across Ashfield. There was 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. **Benzene, 1,3-Butadiene, Carbon Monoxide, Lead, Nitrogen Dioxide, Sulphur Dioxide, Particles PM_{10}:**

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

No automatic monitoring data available from the Automatic Monitoring Site due to both technical and data logging problems.

2.1.2 Non-Automatic Monitoring

The Council measures Nitrogen Dioxide by non-automatic means by placing diffusion tubes at a variety of locations throughout the district. Diffusion tubes are passive samplers: they consist of small plastic tubes containing a chemical reagent to absorb the pollutant to be measured directly from the air. They are categorised as an “indicative” monitoring technique. They are useful for indicating long-term average Nitrogen Dioxide concentrations and highlighting areas of high Nitrogen Dioxide concentration. This form of monitoring has relatively high uncertainty, in the case of diffusion tubes quoted as ± 25%. Although, it should be noted that a positive bias is more common than a negative one (although the latter is certainly not rare).

Figure 2.2 shows a map of diffusion tube sites and Table 2.1 details the location of relevant diffusion tubes within the district.

Figure 2.1 Map of Non-Automatic Monitoring Sites

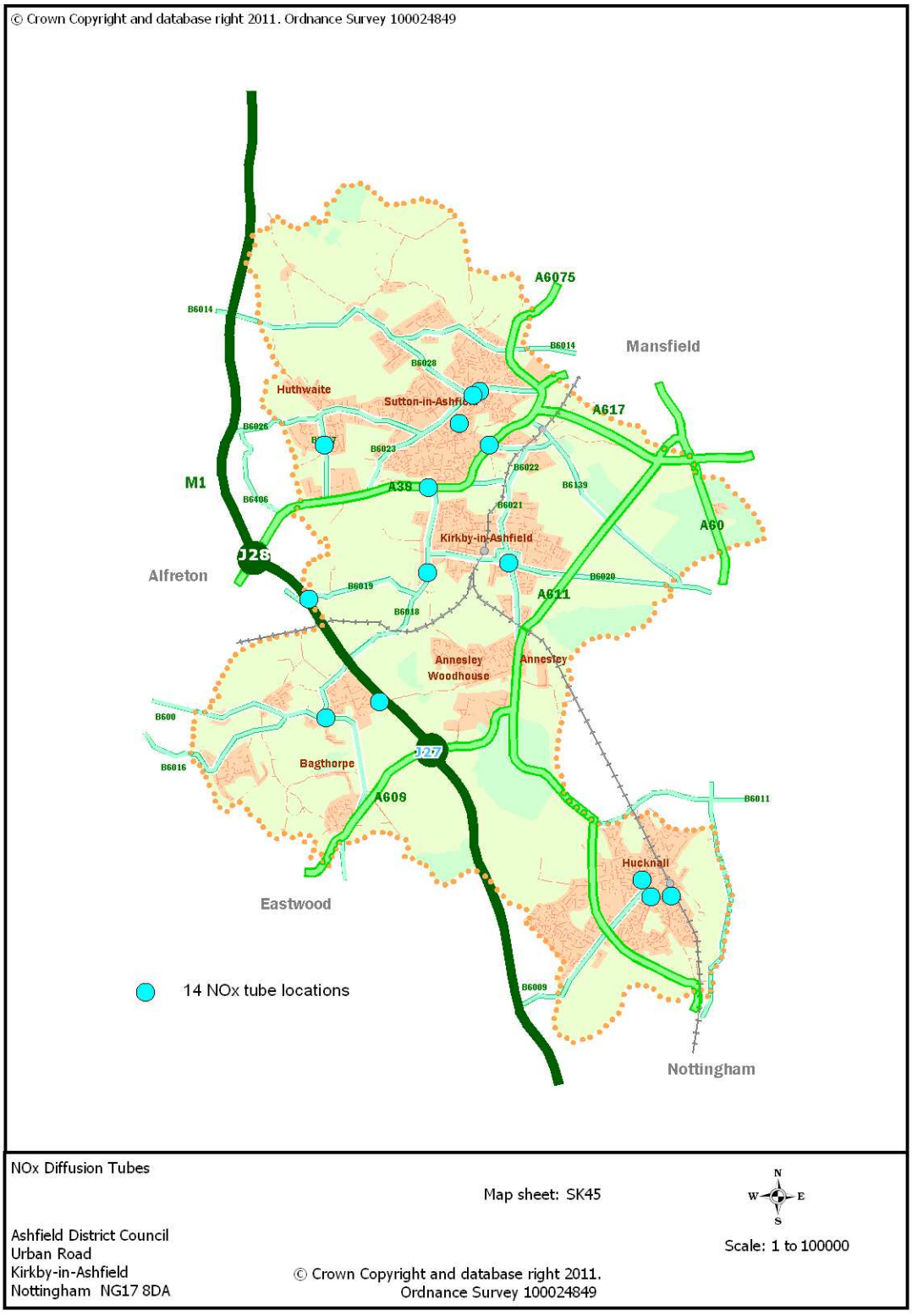


Table 2.1 Details of Non- Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Site Height (m)	Pollutants Monitored	In AQMA	Co located With a Continuous Analyser	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road	Worst-case Location?
Sutton Outram Street	Urban Centre	449628 358967	2m	NO_2	N	N	3	1.5	Y
A 38 Fire Station	Roadside	448987 357610	2m	NO_2	N	N	5	2	Y
Selston Nottingham Road	Roadside	446852 352754	2m	NO_2	N	N	20	2.5	Y
Hucknall High Street	Urban Centre	453477 349315	2m	NO_2	N	N	5.3	2	Y
Hucknall Croft/Beardall Street	Urban background	453631 348972	2m	NO_2	N	N	2.2	2	Y
Kirkby Naggs Head	Urban Centre	450673 356017	2m	NO_2	N	N	7	3.3	Y
Forest Close M1	Roadside	447968 353086	2m	NO_2	N	N	6	2	Y
M1 Pinxton	Roadside	446492 355266	2m	NO_2	N	N	7	1.5	Y
Kirkby Church Hill	Kerbside	448968 355816	2m	NO_2	N	N	1.5	0.5	Y
Sutton Stoneyford Court	Roadside	449812 359577	2m	NO_2	N	N	6	3.5	Y
Sutton Dalestorth Street	Roadside	450062 359653	2m	NO_2	N	N	5.5	3.5	Y
Hucknall Ashgate Road	Roadside	454057 348989	2m	NO_2	N	N	6.3	3.5	Y
Sutton Station Road	Roadside	450259 358512	2m	NO_2	N	N	10	2.4	Y
Huthwaite Common Road	Roadside	446827 358508	2m	NO_2	N	N	2.4	2.4	Y

Laboratory Used

Nottinghamshire Authorities agreed to employ a single laboratory to undertake the supply and analysis of diffusion tubes over a three year period. All authorities have agreed to use Gradko Laboratories, utilising the 20% TEA in Water. This is to enable the authorities to effectively compare results over the whole of the county.

Consequently, Ashfield District Council started utilising Gradko Laboratories from April, 2008 and continues to do so.

Laboratory Performance

There can be considerable differences in diffusion tube performance due to a number of factors. One of the issues affecting diffusion tubes is the exposure procedures employed.

Such factors have been reduced as much as possible by Ashfield District Council implementing the Quality Assurance procedures, in the deployment, exposure and collection of the tubes. However, another factor in diffusion tube performance is related to the way in which the diffusion tubes are prepared and analysed. Accordingly, it is important the Council utilise the services of a Laboratory that operates its own QA/QC systems to ensure reliability and consistency of analysis results.

Ashfield District Council, along with all other Nottinghamshire Councils, utilise the services of Gradko Laboratories for the supply and analysis of Nitrogen Dioxide diffusion tubes. Gradko is UKAS accredited for Nitrogen Dioxide diffusion tube analysis. Additionally, they participate in a centralised QA/QC scheme, namely the Workplace Analysis Scheme for Proficiency (WASP). WASP is an independent analytical performance testing scheme, operated by the Health and Safety Laboratory (HSL). It is recommended that diffusion tubes used for Local Air Quality Management should be obtained from laboratories that have demonstrated satisfactory performance in the WASP scheme. From the report *'Annual Performance Criteria for NO_2 Diffusion Tubes used in Local Air Quality Management (LAQM), 2008 onwards, and Summary of Laboratory Performance in Rounds 98-102' (February 2009)*, it is shown that Gradko's performance has been rated as **Good**.

Gradko Laboratories NO_2 diffusion tube procedures have been amended to follow the guidelines of the DEFRA document related to the preparation, extraction, analysis and calculation procedures for NO_2 passive diffusion tubes. These amendments are minimal because they already carried out most of the procedures before the introduction of the Guidelines. Their internal analysis procedures are assessed by U.K.A.S. on an annual basis for compliance to ISO17025.

Bias Adjustment Factors

Diffusion tubes generally under or over-read when compared to a reference automatic analyser. This is referred to as bias. This bias can be corrected by applying a correction factor that is derived either from a local study or from a nationally derived database. Local Authorities are advised to report on both local and national adjustment factors and thereafter decide which to utilise, depending on a number of factors.

Ashfield District Council did not have suitable data to undertake a co-location study to calculate a local bias factor . Therefore the bias adjustment factor derived from the national database has been utilised for the purpose of this report.

This report as used a **Bias Adjustment Factor of 0.95**

Table 2.2: Diffusion Tube Bias Adjustment Factor

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 06/14

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 and the version of the spreadsheet
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of September 2014

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the

If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down

If a year is not shown, we have no data[2]

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[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953

Analysed By[1]	Method	Year[2]	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[4]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2013		Overall Factor[3] (35 studies)				Use		0.95
Gradko	50% TEA in acetone	2013		Overall Factor[3] (19 studies)				Use		1.01
Kent Scientific Services	20% TEA in water	2013		Overall Factor[3] (1 study)				Use		0.77
Kirklees Council	50% TEA in acetone	2013		Overall Factor[3] (2 studies)				Use		0.74
Lambeth Scientific Services	50% TEA in acetone	2013		Overall Factor[3] (7 studies)				Use		0.87
Milton Keynes Council	20% TEA in water	2013		Overall Factor[3] (1 study)				Use		0.84
Northampton BC	20% TEA in water	2013		Overall Factor[3] (4 studies)				Use		0.73
Somerset County Council	20% TEA in water	2013		Overall Factor[3] (3 studies)				Use		0.90
South Yorkshire Air Quality Samplers	50% TEA in acetone	2013		Overall Factor[3] (3 studies)				Use		0.84
Staffordshire Scientific Services	20% TEA in water	2013		Overall Factor[3] (11 studies)				Use		0.87
Tayside Scientific Services	20% TEA in water	2013		Overall Factor[3] (1 study)				Use		0.78
West Yorkshire Analytical Services	50% TEA in acetone	2013		Overall Factor[3] (7 studies)				Use		0.79

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

No automatic monitoring data available from the Automatic Monitoring Site due to both technical and data logging problems.

Diffusion Tube Monitoring Data

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes 2012

Site ID	Location	Site Type	Within AQMA?	Triplicate Tubes Used	Full Calendar Year Data Capture 2013 (Number of Months or %)[a]	2013 Annual mean concentrations (µg/m^3)-Bias Adjustment factor = 0.95
Tubes 1,2 & 3	Naggs Head	Urban Centre	N	Y	100	31.0
Tube 4	Outram Street	Urban Centre	N	N	92	29.8
Tube 5	Dalestorth Road	Roadside	N	N	100	33.1
Tubes 7,8 & 9	A38	Roadside	N	Y	100	30.0
Tubes 10,11&12	Church Hill	Kerbside	N	Y	100	38.3
Tube 14	M1 Pinxton	Roadside	N	N	100	28.2
Tubes 15	Nottingham Rd Selston	Roadside	N	N	100	26.1
Tubes 16	Forest Close	Roadside	N	N	100	27.6
Tube 19	Ashgate Road Hucknall	Roadside	N	N	100	25.7
Tube 20	High Street Hucknall	Urban Centre	N	N	100	35.6
Tube 21	Beardall Street Hucknall	Urban Background	N	N	100	22.9
Tube 22	Station Road	Roadside	N	N	100	34.7

Tube 23	Common Road	Roadside	N	N	92	36.7
Tubes 24,25,26	Stoneyford Court Sutton	Roadside	N	Y	97	35.0

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes (2009 to 2013)

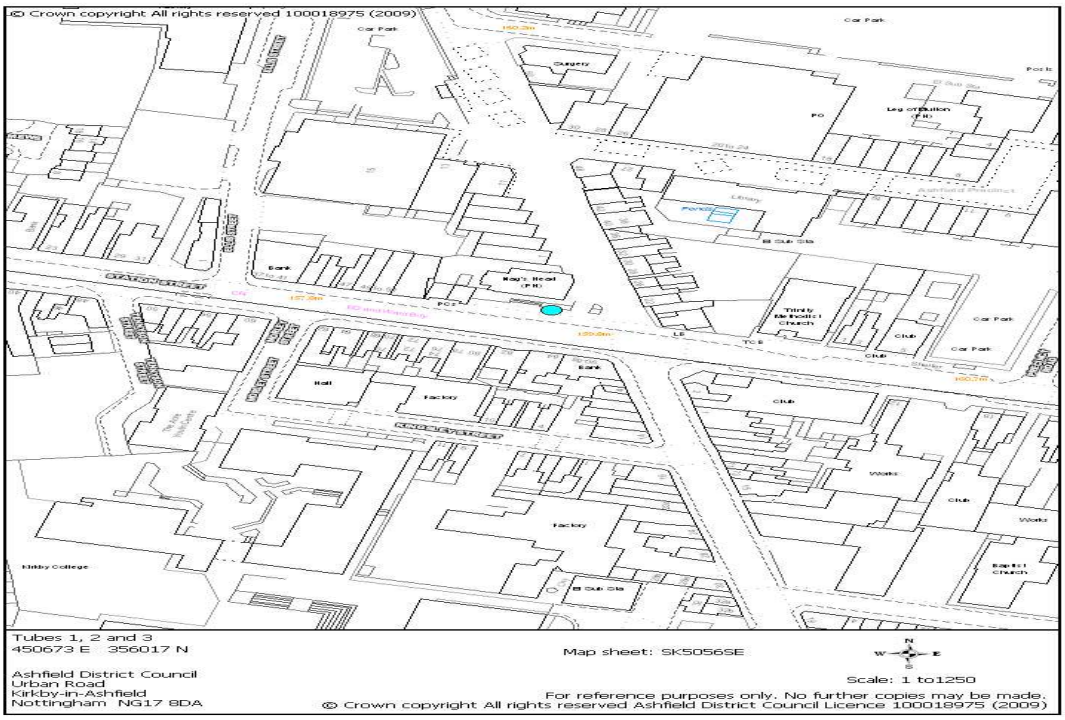
Site ID	Site Type	Within AQMA ?	Annual mean concentration (adjusted for bias) µg/m^3				
			2009* (Bias Adjustment Factor = 0.90 XX)	2010* (Bias Adjustment Factor = 0.92 XX)	2011 (Bias Adjustment Factor = 0.89 XX)	2012 (Bias Adjustment Factor = 0.96 XX	2013 (Bias Adjustment Factor = 0.95 XX
Kirkby Naggs Head	Urban Centre	No	35.0	32.0	29.7	31.7	31.0
Sutton Outram Street	Urban Centre	No	34.0	37.0	29.4	34.7	29.8
Sutton Dalestorth Street	Kerbside	No	36.0	35.0	32.0	34.2	33.1
A38 Fire Station	Roadside	No	40.0	40.0	26.6	29.2	30.0
Kirkby Church Hill	Kerbside	No	40.0	39.0	35.4	40	38.3
M1 Pinxton	Roadside	No	36.0	31.0	30.2	32.5	28.2
Selston Nottingham Road	Roadside	No	32.0	28.0	26.5	29.4	26.1
Forest Close M1	Roadside	No	29.0	29.0	23.9	26.6	27.6
Hucknall Ashgate Road	Roadside	No	30.0	28.0	26.2	26.6	25.7
Huchnall High Street	Urban Centre	No	40.0	39.0	38.0	36.5	35.6
Hucknall Beardall Street	Urban Background	No	27.0	25.0	26.7	25.8	22.9
Sutton Station Road	Roadside	No	37.8	37.0	38.7	35.2	34.7
Huthwaite Common Road	Roadside	No	37.0	37.0	33.3	35.8	36.7

Site ID	Site Type	Within AQMA ?	Annual mean concentration (adjusted for bias) µg/m^3				
			2009* (Bias Adjustment Factor = 0.90 XX)	2010* (Bias Adjustment Factor = 0.92 XX)	2011 (Bias Adjustment Factor = 0.89 XX)	2012 (Bias Adjustment Factor = 0.96 XX	2013 (Bias Adjustment Factor = 0.95 XX
Stoneyford Court	Roadside	No	N/A	N/A	34.7	34.5	35.0

Diffusion Tube Sites Where There is Distance Fall Off

Kirkby Naggs Head – Urban Centre Tubes 1, 2 and 3

Location of Nitrogen Dioxide Diffusion Tubes At Naggs Head , Kirkby

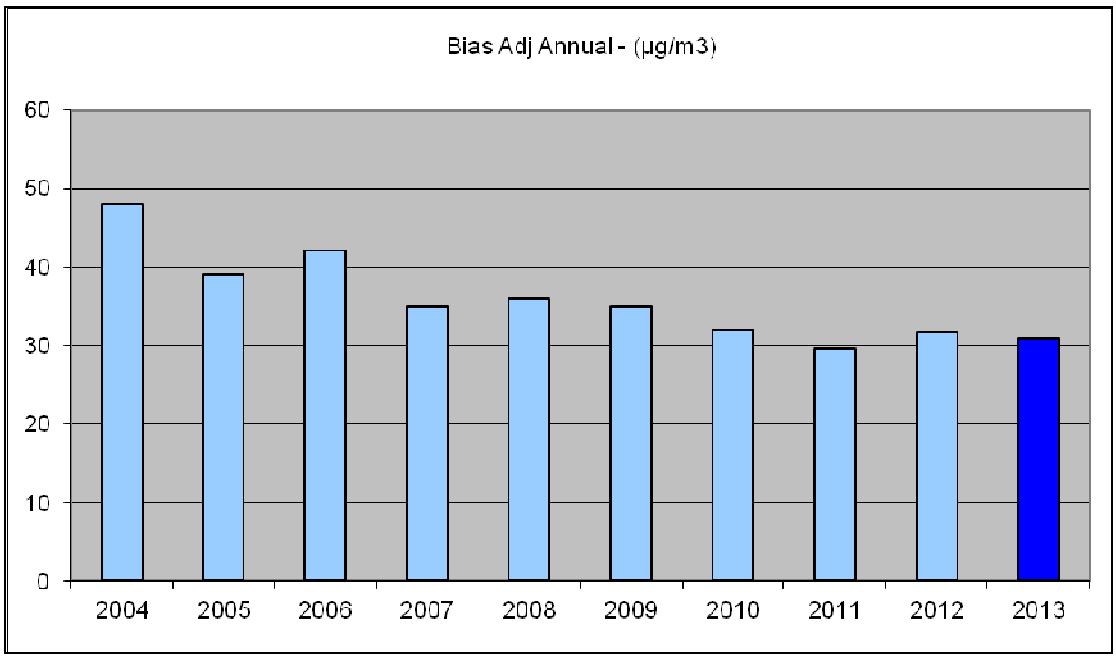


This is an urban centre location. The tube is located adjacent to a road junction, where Station Road filters onto Diamond Avenue and Kingsway. This location experiences traffic going to and coming from Mansfield, and Nottingham (via Hucknall). The tube is situated next to a shopping precinct.

Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95) (µg/m^3)
32.2	31.0

Triplicate tubes deployed

Figure 2.2 Trend Analysis for Nitrogen Dioxide Diffusion Tube at Naggs Head, Kirkby In Ashfield



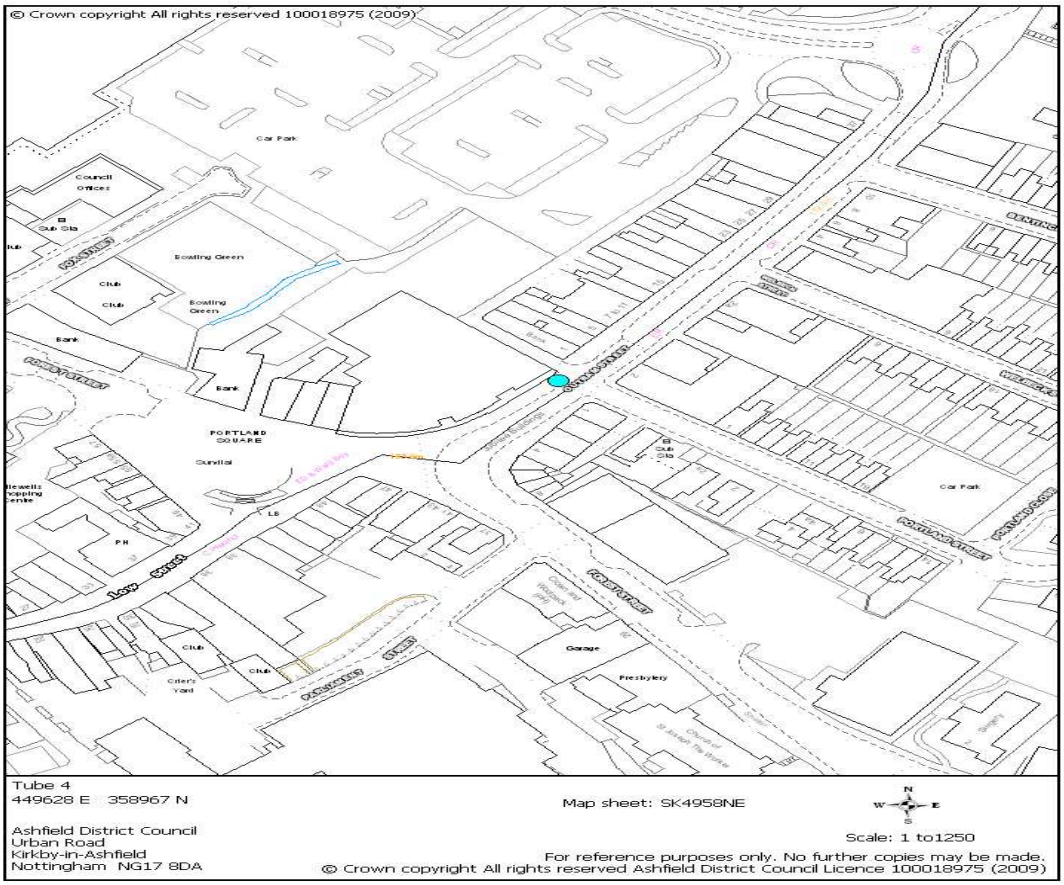
Distance Fall-off Calculation

The receptor nearest the actual diffusion tube location is 8.8m from the road, however there are properties adjacent to the location that are closer to the road. These properties do not have a suitable location for the diffusion tube to be sited. Therefore, the distance fall-off calculation has been carried out using the distance of the residential properties closest to the road to give an indication of likely levels. The resultant Nitrogen Dioxide level at the receptor is **28.5µg/m^3** (Appendix B). However, it should be noted that the residential receptors in question are located further from the busy junction where the tube is currently located.

This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location.

Sutton Outram Street – Urban Centre Tube 4

Location of Nitrogen Dioxide Diffusion Tube At Outram Street, Sutton

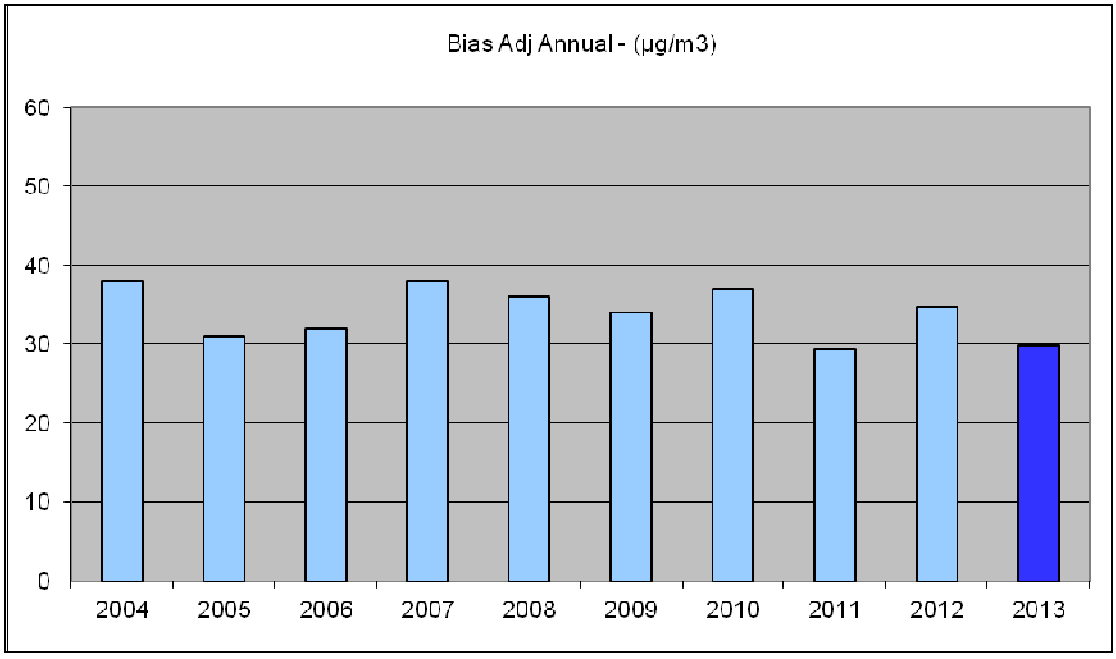


This is an urban centre location. The diffusion tube is situated at the beginning of Outram Street, directly after pedestrian lights. The road experiences traffic going to and from Mansfield and Kirkby entering Sutton Town Centre.

Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95) (µg/m^3)
31.4	29.8

Single tube deployed not duplicate or triplicates.

Figure 2.3 Trend Analysis for Nitrogen Dioxide Diffusion Tube at Outram Street, Sutton In Ashfield



Distance Fall-off Calculation

It is necessary for exceedences of objectives to be assessed on locations where the public are likely to be regularly present and are likely to be exposed for a period of time appropriate to the averaging period of the objective.

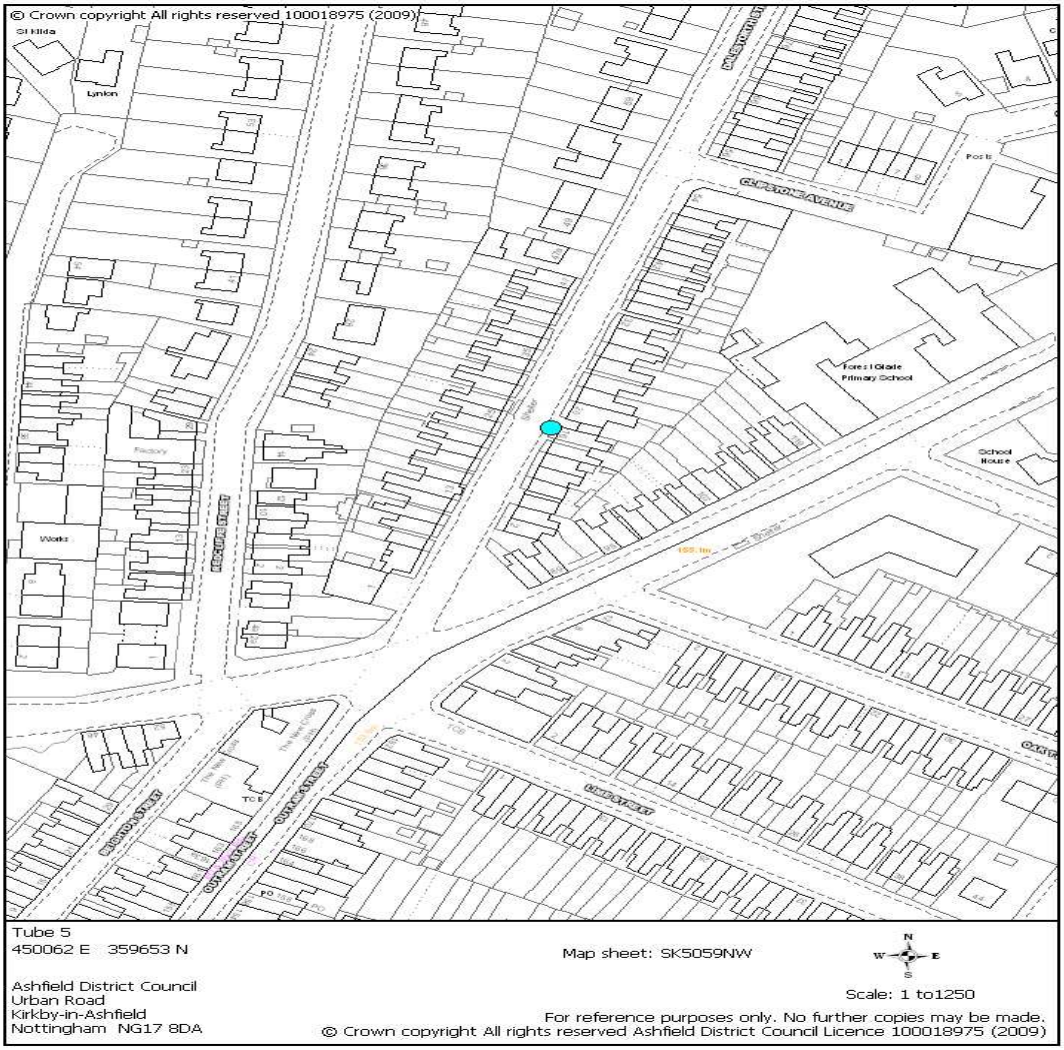
Concentrations of Nitrogen Dioxide drop off with regards to distance from a road and therefore it is essential to predict levels at the relevant receptor when monitoring has been undertaken at a different distance from the road source.

Undertaking the relevant calculation for distance fall-off, the resultant Nitrogen Dioxide level at the receptor is **28.3µg/m^3** (Appendix B).

This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location.

Sutton Dalestorth Street – Roadside Tube 5

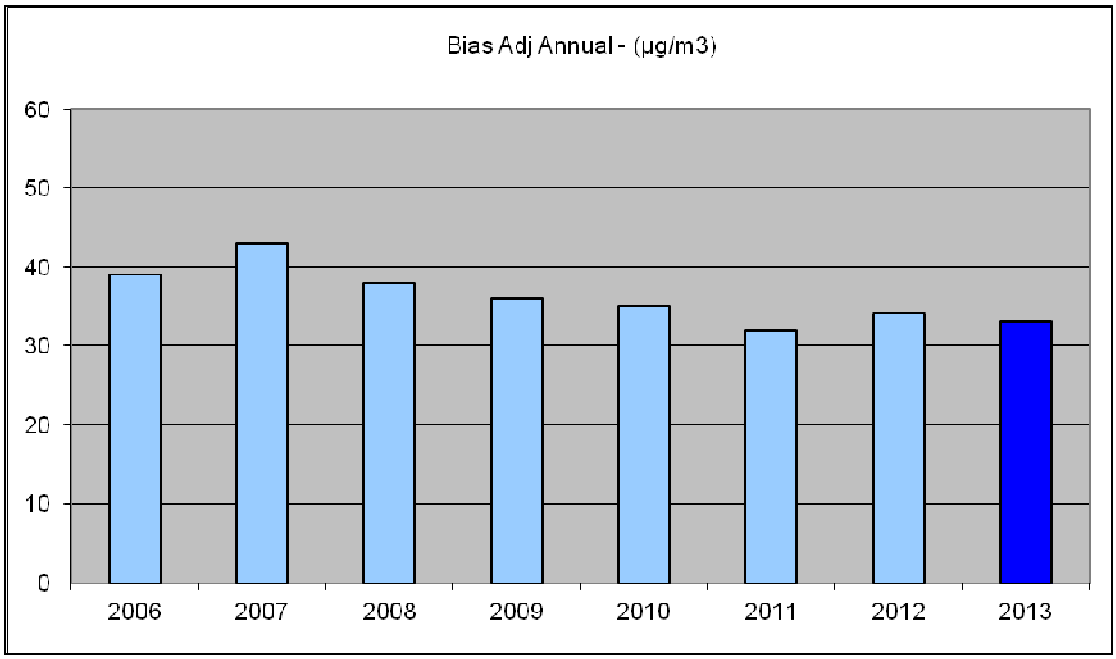
Location of Diffusion Tube At Dalestorth Street, Sutton



This is a roadside location. The diffusion tube is located after the junction between Mansfield Road, Dalestorth Street and Outram Street. This location experiences traffic coming to and from Mansfield and entering Sutton Town Centre.

Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95) (µg/m^3)
34.8	33.06

Figure 2.4 Trend Analysis for Nitrogen Dioxide Diffusion Tube at Dalestorth Street, Sutton In Ashfield



Single tube deployed not duplicate or triplicates

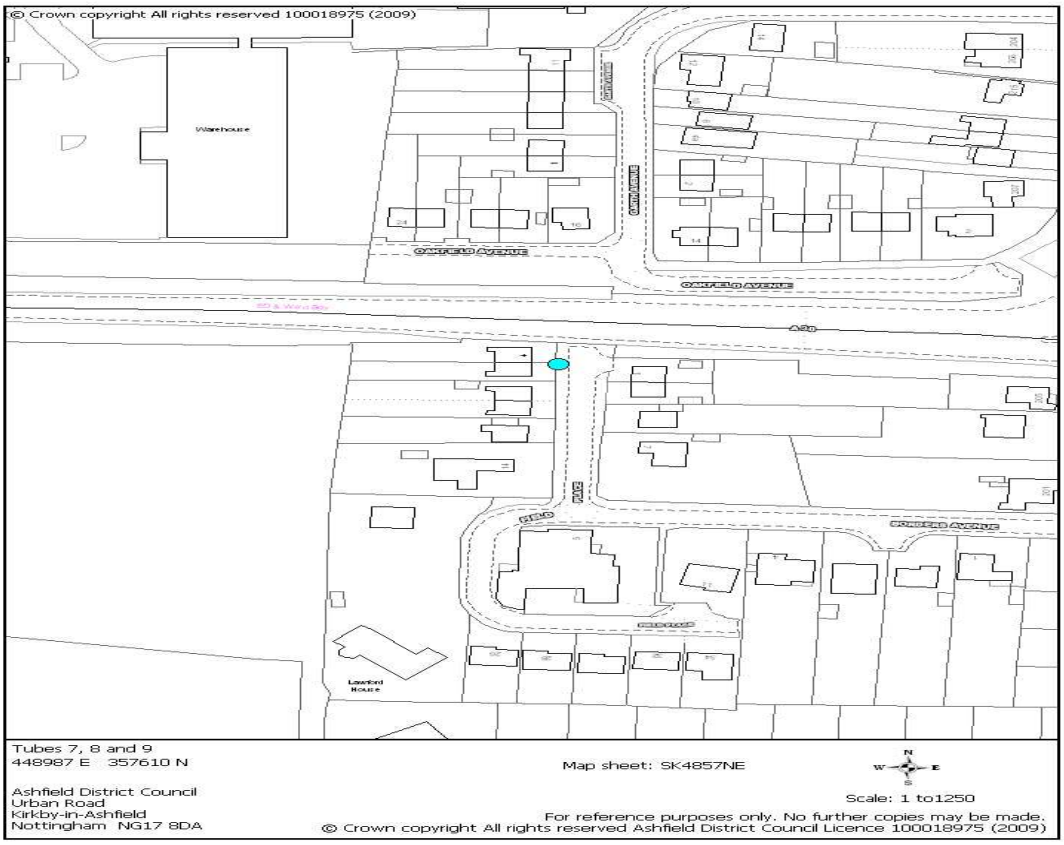
Distance Fall-off Calculation

Undertaking the relevant calculation for distance fall-off, the resultant Nitrogen Dioxide level at the receptor is **31.3µg/m^3** (Appendix B).

This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location.

A38 Fire Station – Roadside Tubes 7,8 and 9

Location of Nitrogen Dioxide Diffusion Tubes At A38 Fire Station, Sutton

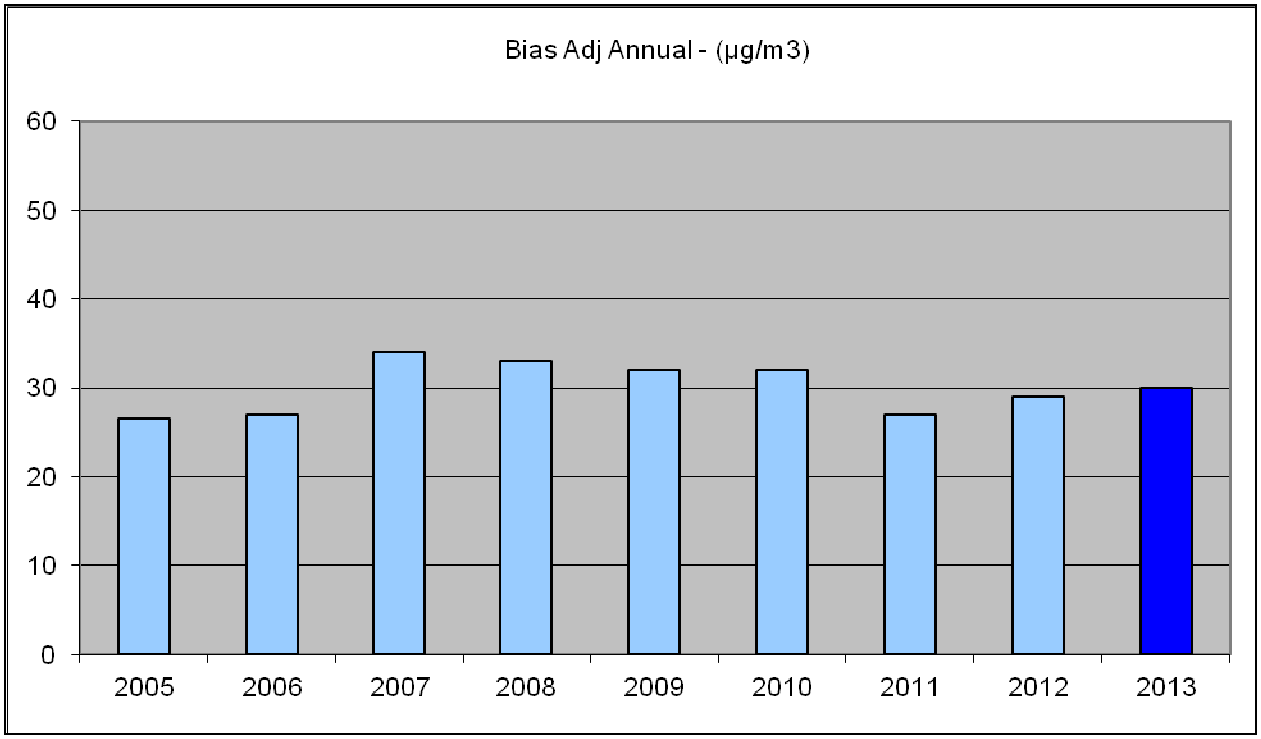


This is a roadside location. The diffusion tube is located immediately adjacent to the A38. The A38 is the major route for traffic going between Derby and Mansfield.

Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95) (µg/m^3)
32.0	30.0

Triplicate tubes deployed

Figure 2.5 Trend Analysis for Nitrogen Dioxide Diffusion Tube at A38 Fire Station, Sutton In Ashfield



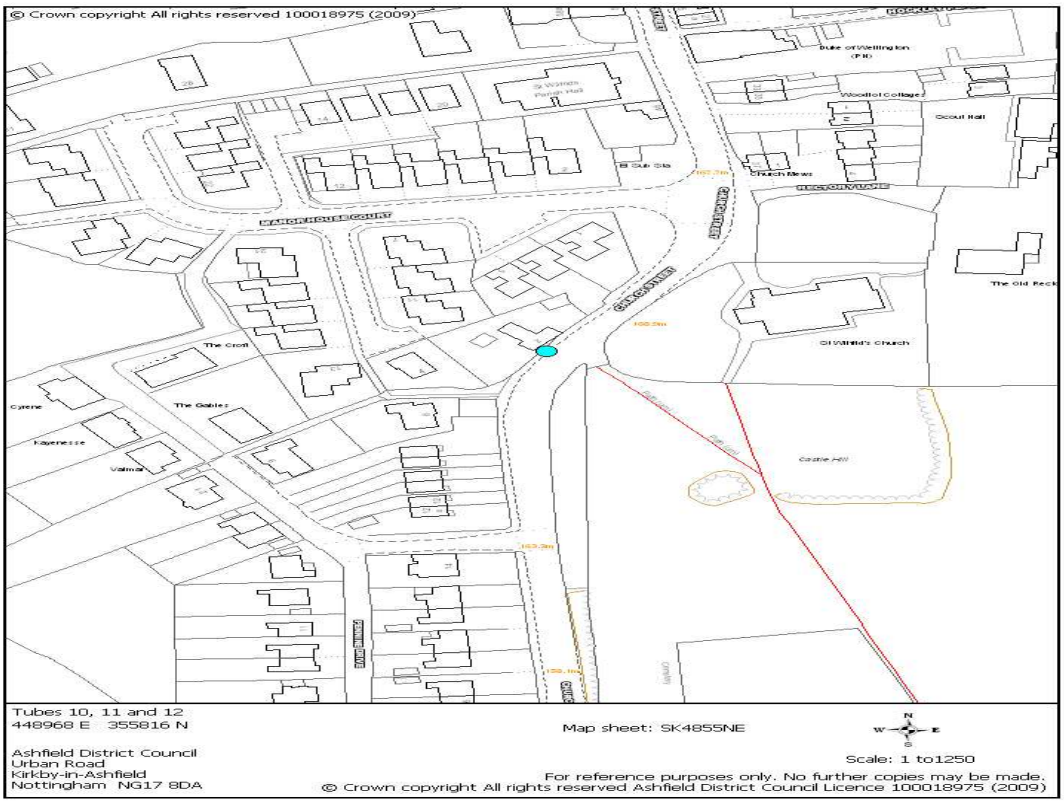
Distance Fall-off Calculation

Undertaking the relevant calculation for distance fall-off, the resultant Nitrogen Dioxide level at the receptor is **27.8µg/m^3** (Appendix B).

This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location.

Kirkby Church Hill – Kerbside Tubes 10,11 and 12

Location of Nitrogen Dioxide Diffusion Tubes At Church Hill, Kirkby



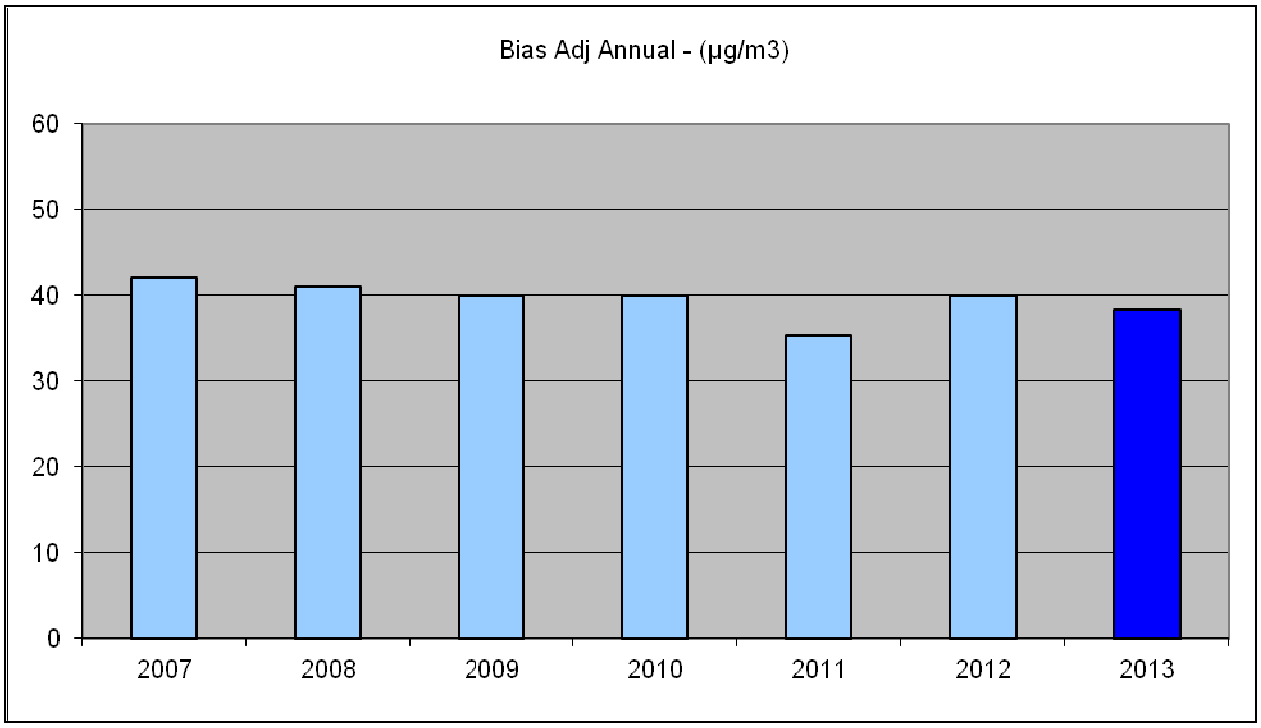
This is a kerbside location. The diffusion tube is located on a hill that is taking traffic from Sulston to Kirkby. The location is near a busy round about that can experience traffic build-up during peak times.

This is a borderline location as a consequence of traffic build-up during peak times.

Measured Annual Mean For 2013 Based on 12 months Data ($\mu g/m^3$)	Bias Adjusted Annual Mean (Factor 0.95) ($\mu g/m^3$)
40.3	38.3

Triplicate tubes deployed

Figure 2.6 Trend Analysis for Nitrogen Dioxide Diffusion Tube at Church Hill, Kirkby In Ashfield



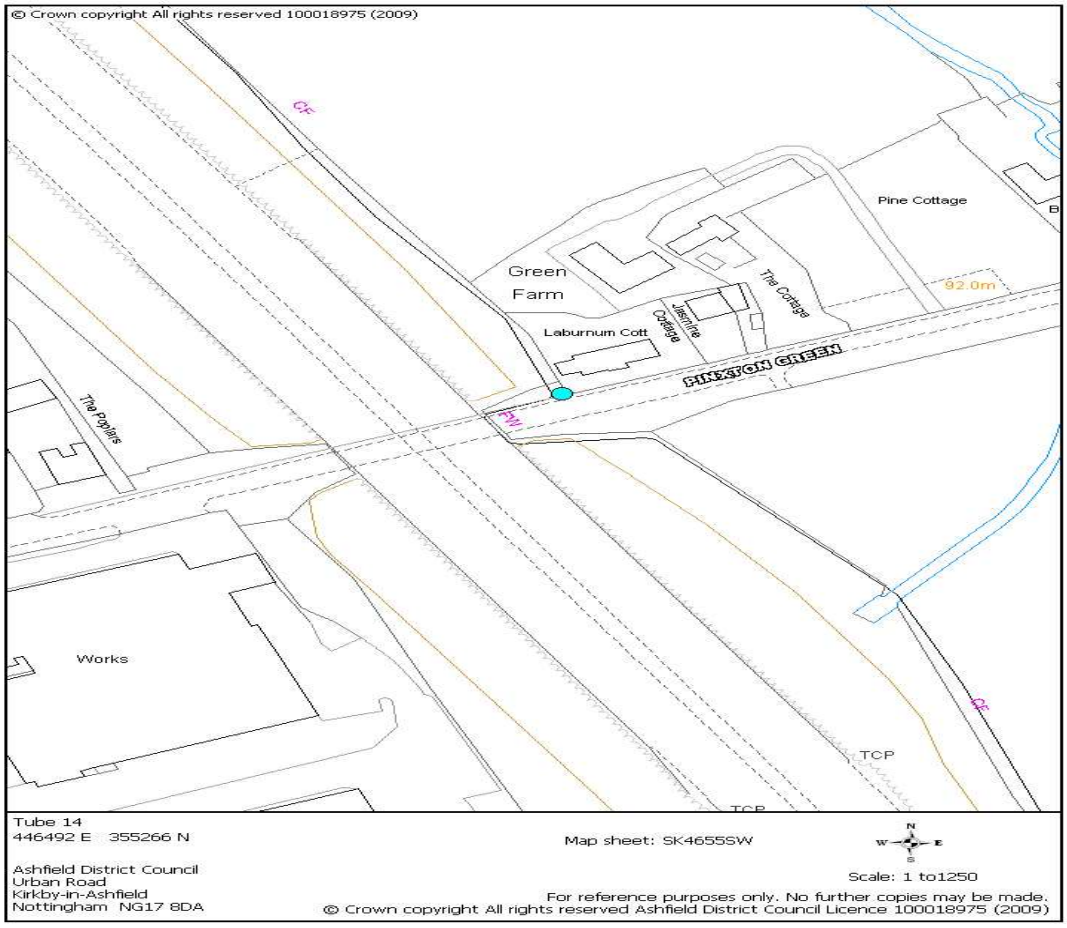
Distance Fall-off Calculation

Undertaking the relevant calculation for distance fall-off, the resultant Nitrogen Dioxide level at the receptor is **34.0µg/m^3** (Appendix B).

This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location.

M1 Pinxton – Roadside Tube 14

Location of Nitrogen Dioxide Diffusion Tube At M1 Pinxton

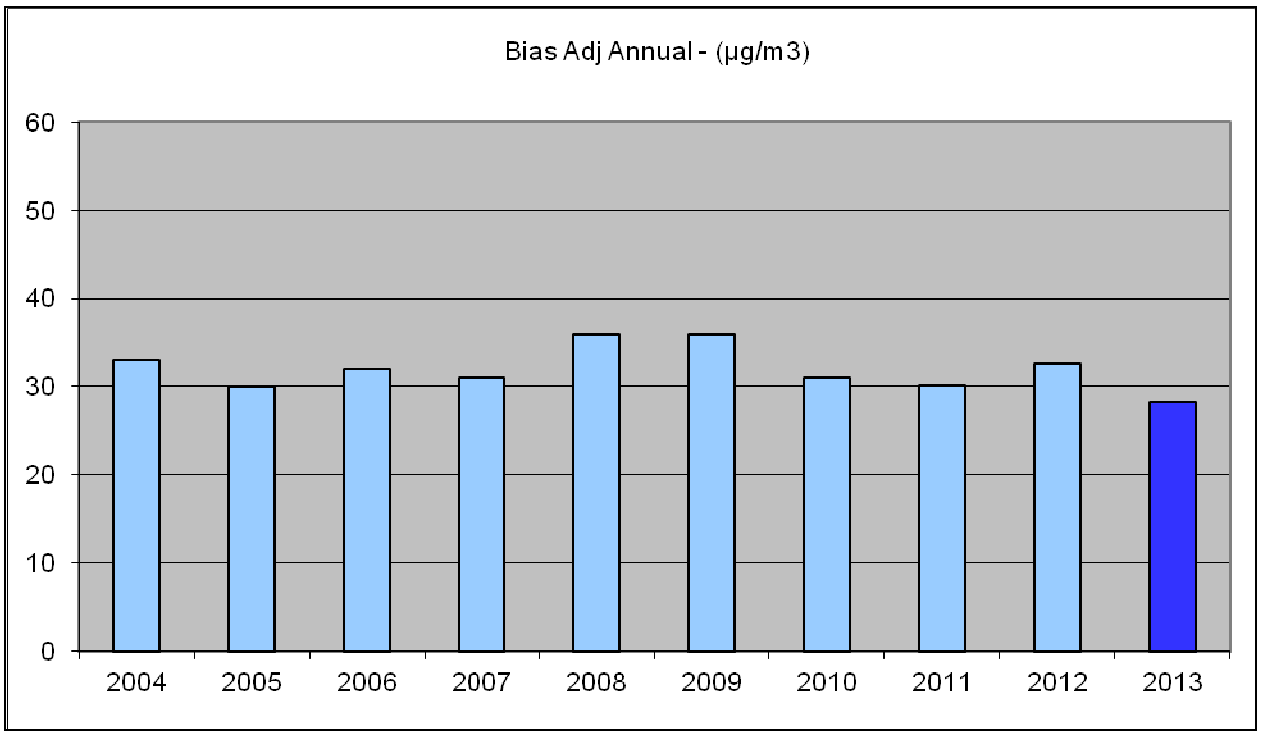


This is a roadside location. The diffusion tube is located in a residential area adjacent to the M1 at Pinxton, on the boundary of the District.

Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95)(µg/m^3)
29.7	28.2

Single tube deployed not duplicate or triplicates

Figure 2.7 Trend Analysis for Nitrogen Dioxide Diffusion Tube at M1 Pinxton



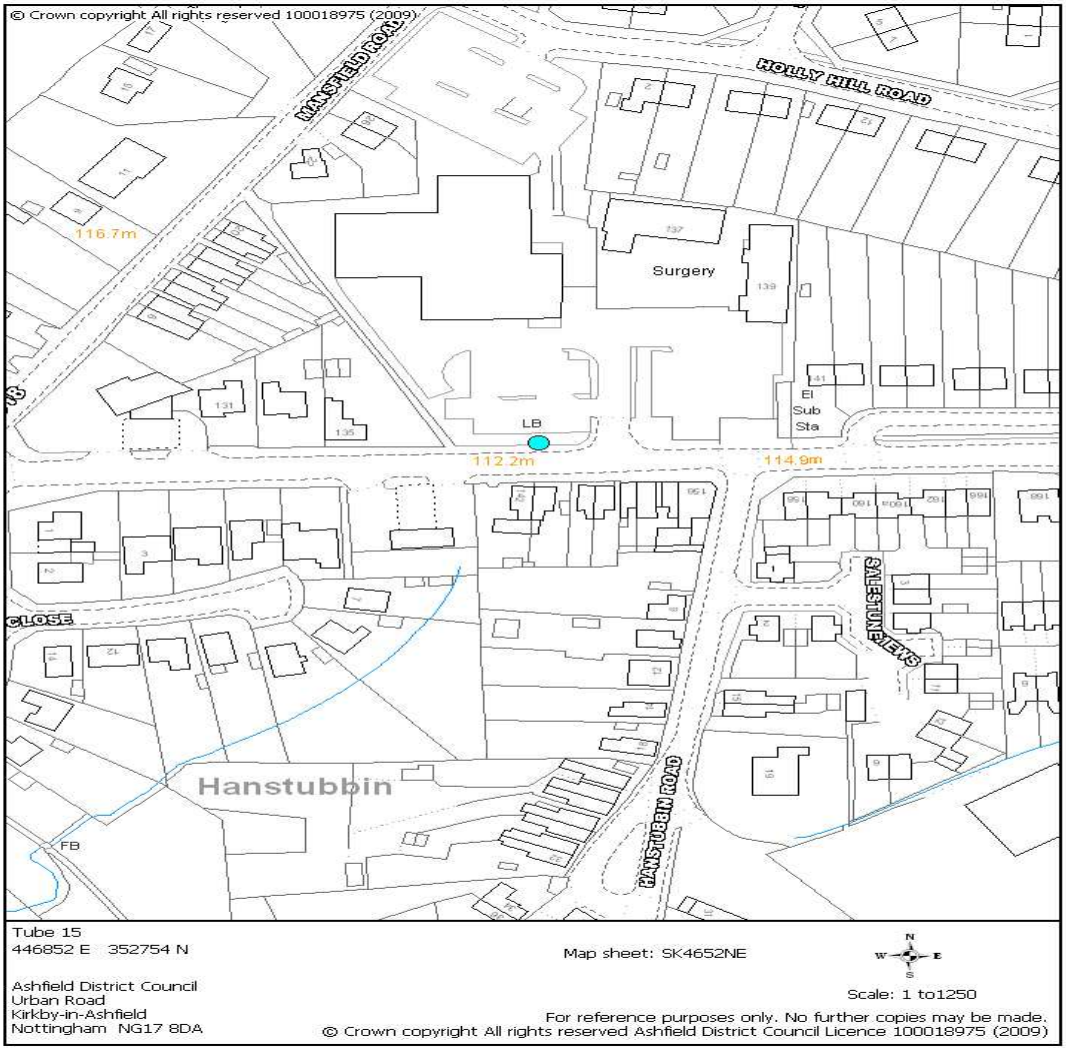
Distance Fall-off Calculation

Undertaking the relevant calculation for distance fall-off, the resultant Nitrogen Dioxide level at the receptor is **26.7µg/m^3** (Appendix B).

This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location

Selston Nottingham Road – Roadside Tube 15

Location of Nitrogen Dioxide Diffusion Tube At Nottingham Road, Selston

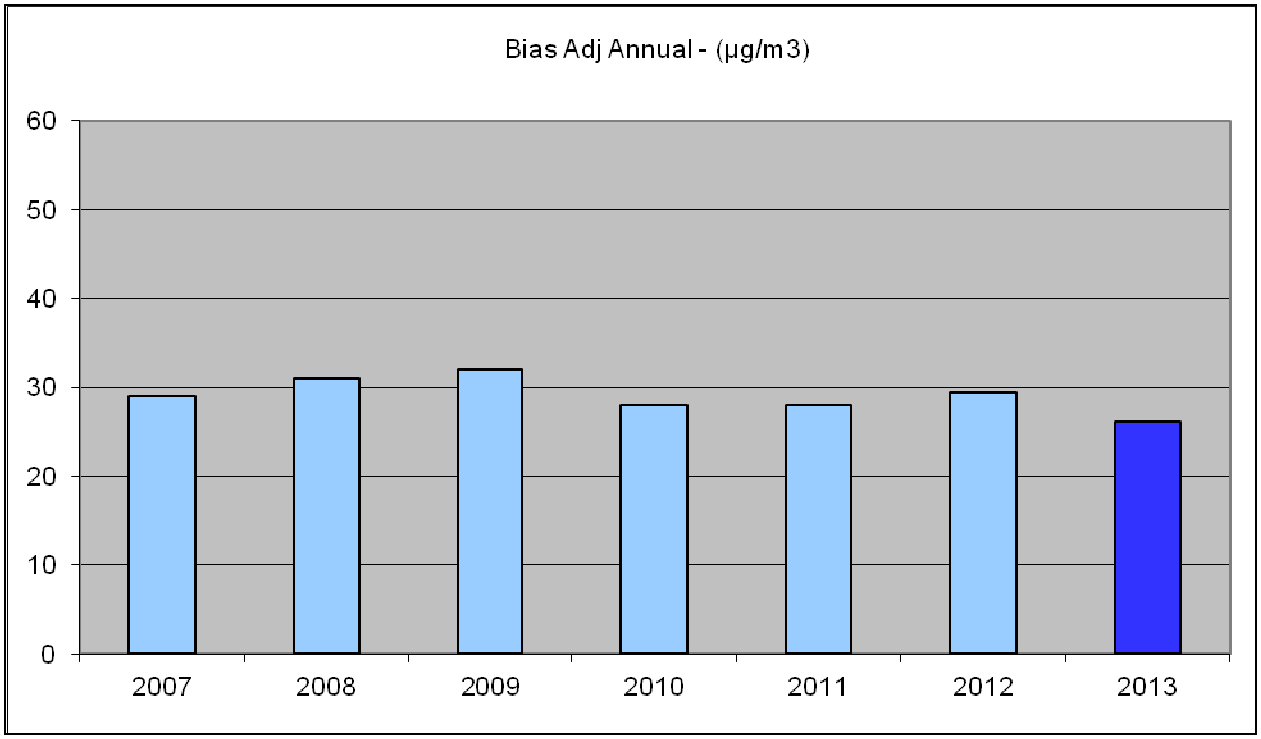


This is a roadside location. The diffusion tube is located adjacent to the main road running through Selston from Kirkby in Ashfield.

Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95) (µg/m^3)
27.5	26.1

Single tube deployed not duplicate or triplicates

Figure 2.8 Trend Analysis for Nitrogen Dioxide Diffusion Tube at Nottingham Road, Selston



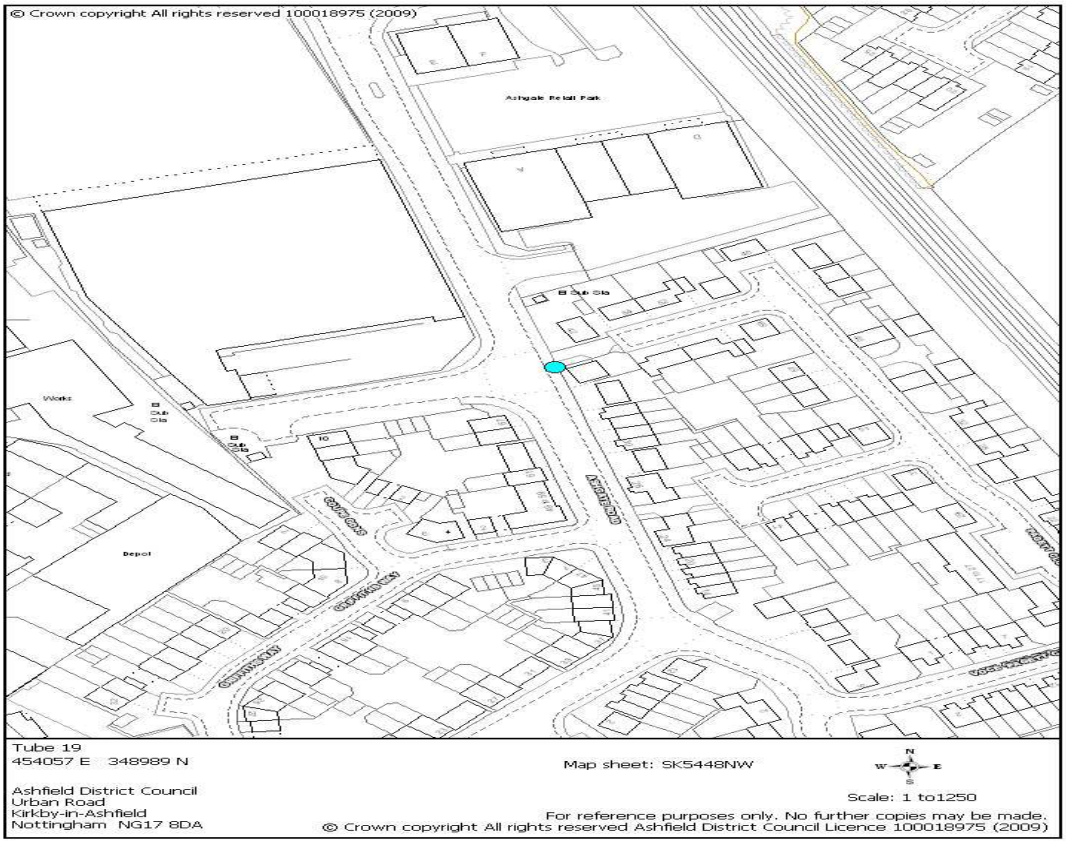
Distance Fall-off Calculation

The receptor nearest the diffusion tube location is 16.3m from the road, however there are properties adjacent to the diffusion tube location that are closer to the road, however, they do not have a suitable location for the diffusion tube to be sited. Therefore, the distance fall-off calculation has been carried out using the distance of the residential properties closest to the road to give an indication of likely levels. The resultant Nitrogen Dioxide level at the receptor is **20.5µg/m^3.** (Appendix B).

This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location.

Hucknall Ashgate Road – Roadside Tube 19.

Location of Nitrogen Dioxide Diffusion Tube At Hucknall Ashgate Road

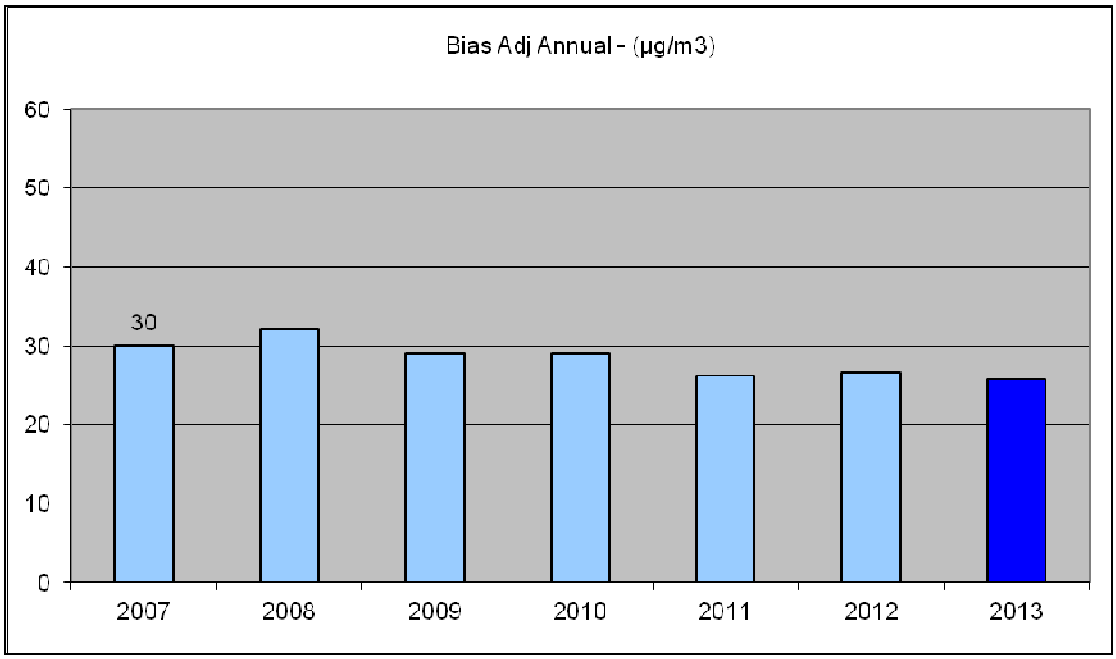


This is a roadside location. The diffusion tube is located adjacent to a new housing estate on Ashgate Road where developments such as the Nottingham Tram Station and Tesco Superstore may be contributing to increased levels of traffic.

Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95) (µg/m^3)
27.0	25.7

Single tube deployed not duplicate or triplicates

Figure 2.10 Trend Analysis for Nitrogen Dioxide Diffusion Tube at Ashgate Road, Hucknall



Distance Fall-off Calculation

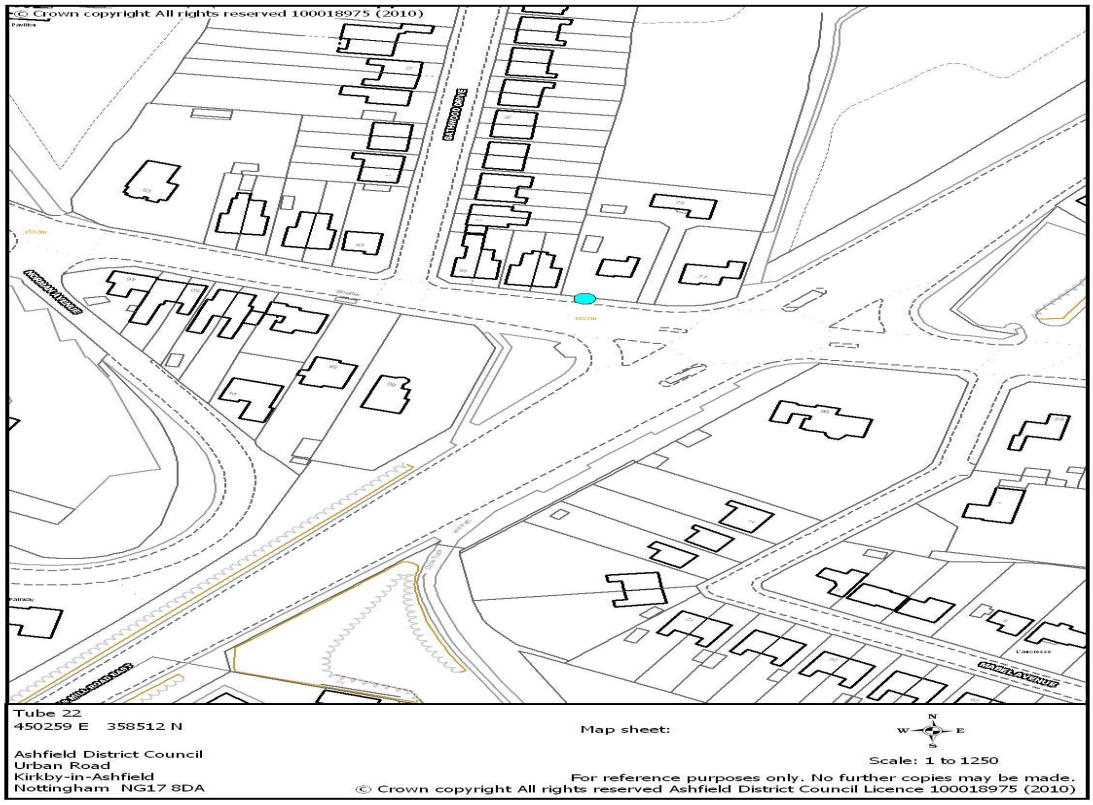
Undertaking the relevant calculation for distance fall-off, the resultant Nitrogen Dioxide level at the receptor is **24.3 µg/m^3** (Appendix B).

This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location.

Station Road, Sutton Roadside Tube 22

This is a roadside location. The diffusion tube is located immediately adjacent to the A38. The A38 is the major route for traffic going between Derby and Mansfield.

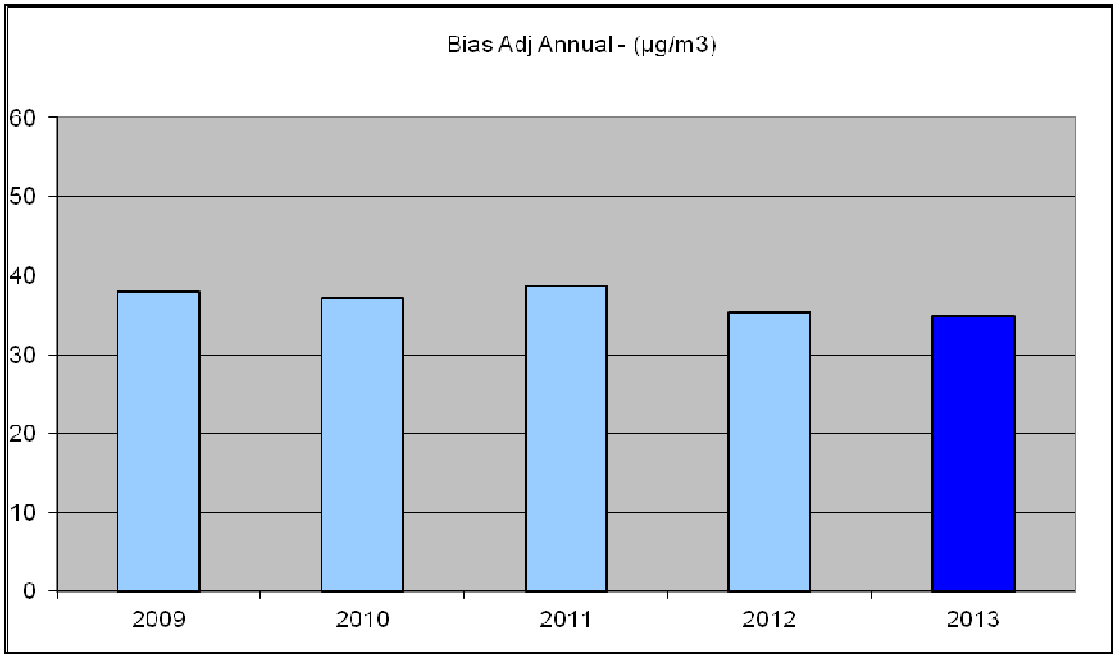
Location of Nitrogen Dioxide Diffusion Tube At Station Road, Sutton



Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95) (µg/m^3)
36.5	34.7

Single tube deployed not duplicate or triplicates

Figure 2.11 Trend Analysis for Nitrogen Dioxide Diffusion Tube at Station Road, Sutton



Distance Fall-off Calculation

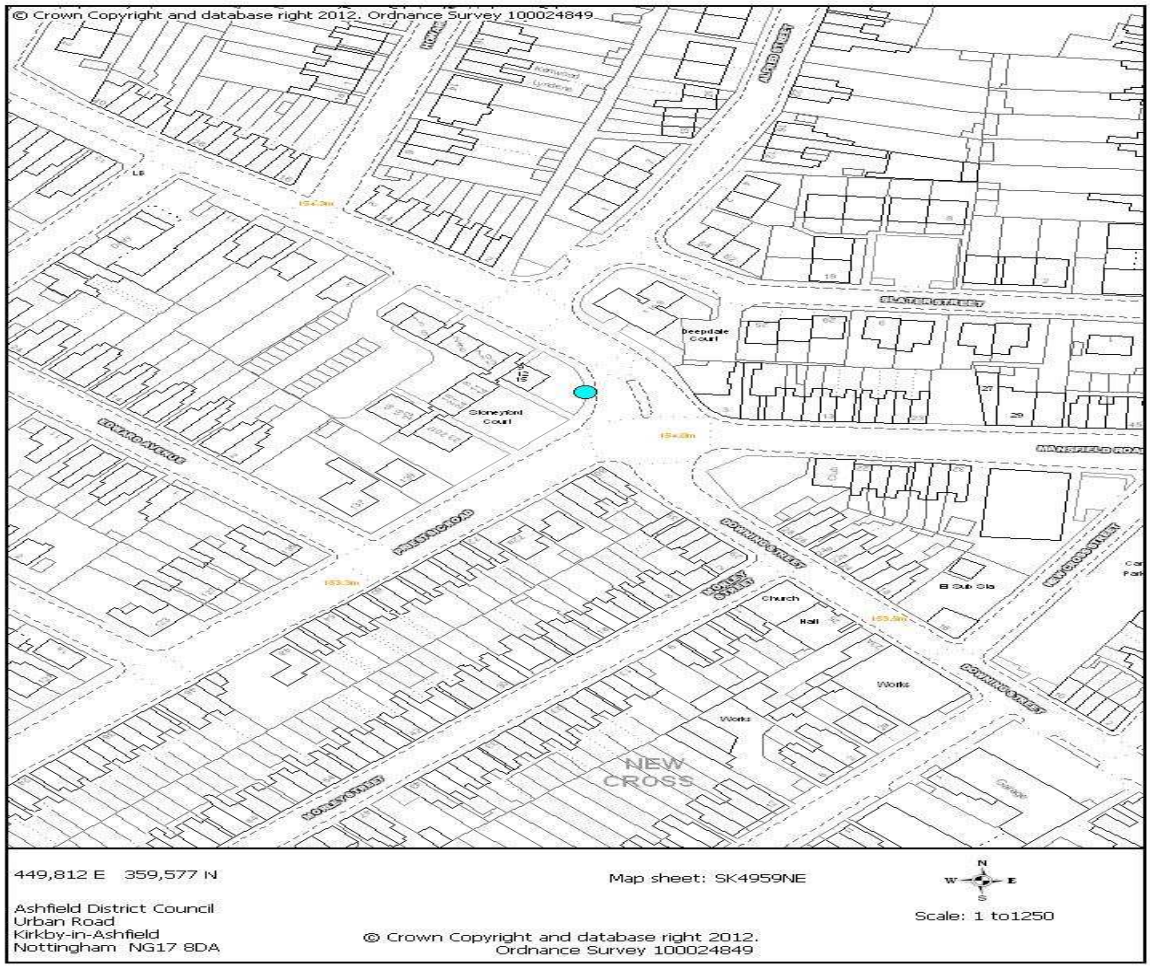
Undertaking the relevant calculation for distance fall-off, the resultant Nitrogen Dioxide level at the receptor is **30.4 µg/m^3** (Appendix B).

This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location

Stoneyford Court RoadsideTubes 24,25 and 26

This is a roadside location adjacent to a busy box junction that is fed by three main roads the B6023 Priestsic Road feeding traffic from Huthwaite and Kirkby, the B6014 Mansfield road feeding traffic from Mansfield and Skegby and the B6028 Stoneyford road feeding traffic from Skegby and Stanton Hill. The junction also feeds traffic from Downing Street which allows traffic to cut through from Outram Street. Triplicate tubes were deployed at this site to use as a co location study in conjunction with the air quality monitoring station.

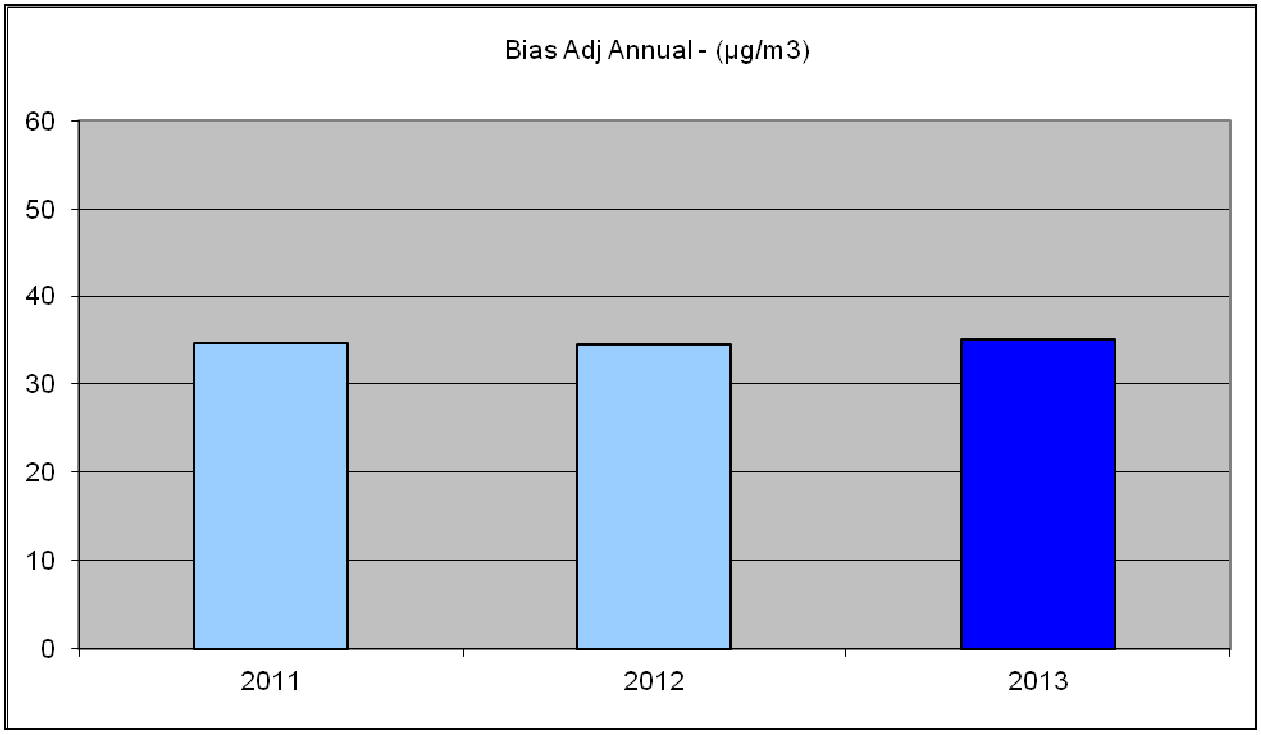
Location of Nitrogen Dioxide Diffusion Tube At Station Road, Sutton



Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95) (µg/m^3)
36.9	35.0

Triplicate tubes were deployed.

Figure 2.12 Trend Analysis for Nitrogen Dioxide Diffusion Tube at Stoneyford Court, Sutton in Ashfield



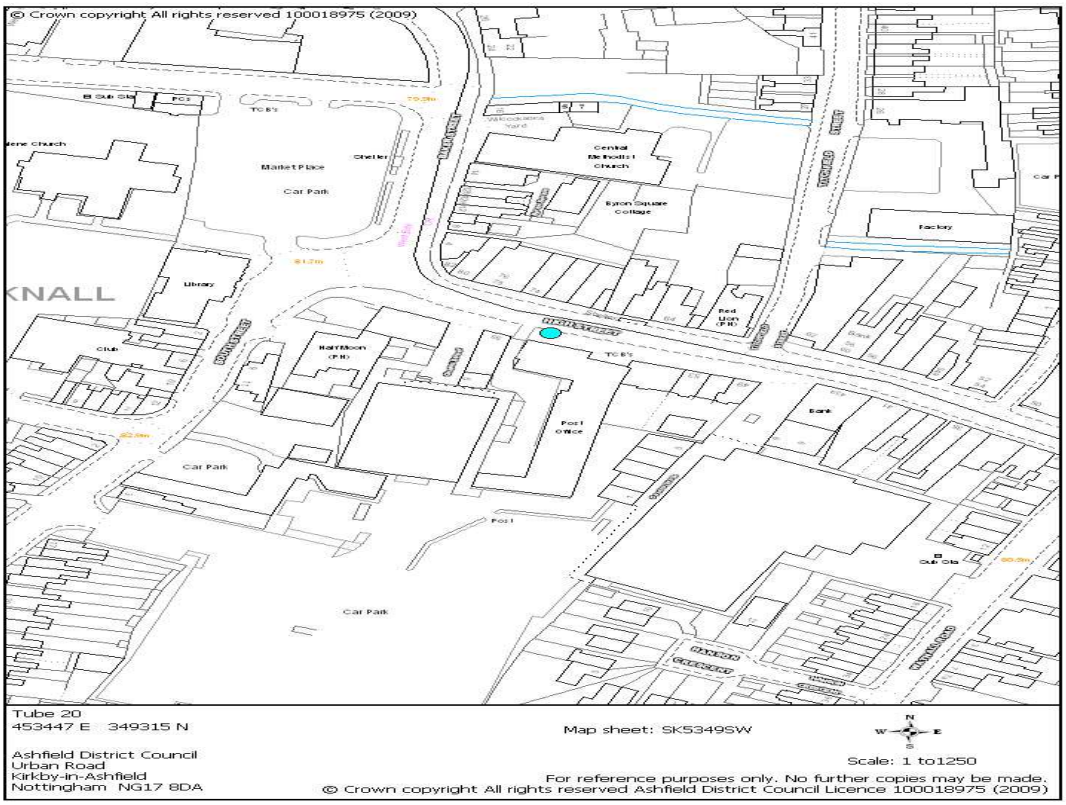
Distance Fall-off Calculation

Undertaking the relevant calculation for distance fall-off, the resultant Nitrogen Dioxide level at the receptor is **30.9 µg/m^3** Appendix B).

This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location.

Hucknall High Street - Urban Centre Tube 20

Location of Nitrogen Dioxide Diffusion Tube At Hucknall High Street



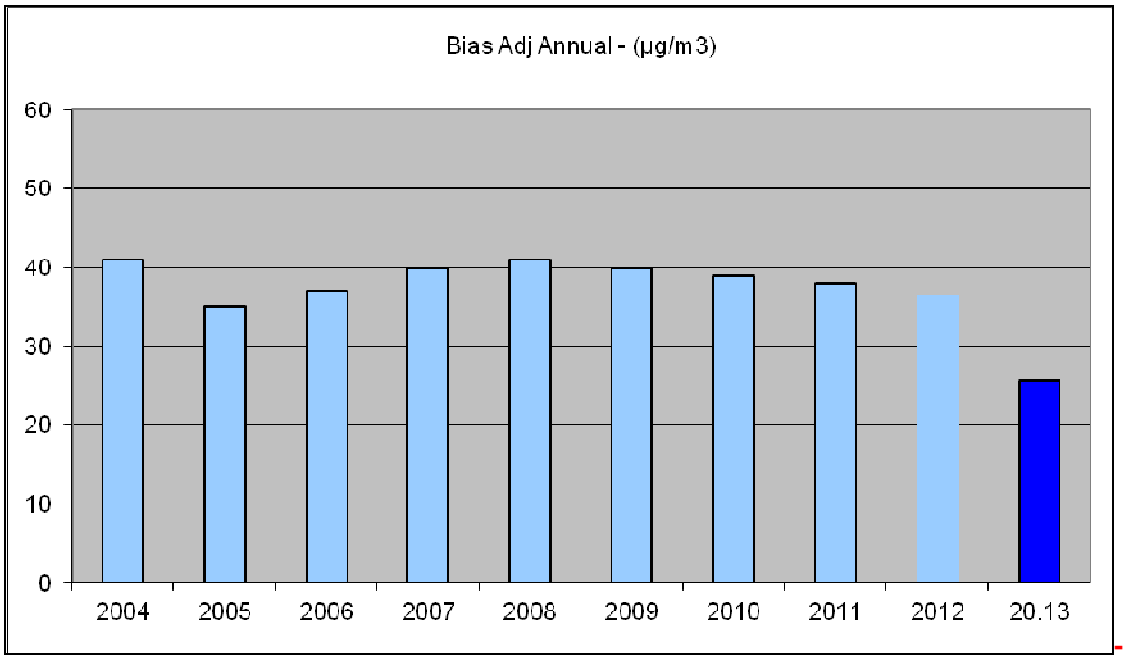
This is an urban centre location. The diffusion tube is located adjacent to the main road running through Hucknall town centre, directly adjacent to a junction that experiences traffic going to Mansfield, Nottingham, Annesley Road and the Hucknall bypass. This location has a number of commercial properties and is a busy shopping area.

This is a borderline location as a consequence of traffic build-up during peak times.

Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95)(µg/m^3)
37.5	35.6

Single tube deployed not duplicate or triplicates

Figure 2.13 Trend Analysis for Nitrogen Dioxide Diffusion Tube at High Street, Hucknall



This is a town centre roadside location where it is unlikely that people will be exposed to levels of NO_2 over a full 24 hour period. The annual level recorded indicates that the 1-hour mean value for Nitrogen Dioxide is unlikely to be exceeded. It does however provide an indication of annual spatial concentration for this area.

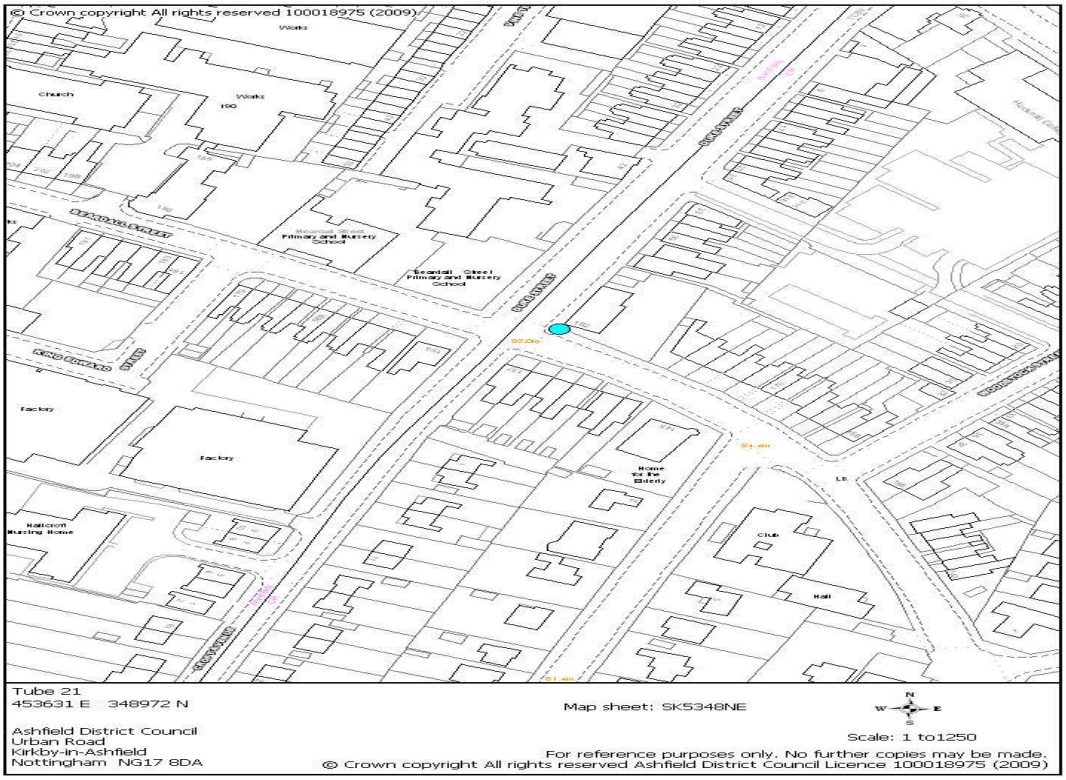
Distance Fall-off Calculation

Undertaking the relevant calculation for distance fall-off, the resultant Nitrogen Dioxide level at the receptor is **31.7µg/m^3** (Appendix B).

This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location

Hucknall Croft/Beardhall Street – Urban Background Tube 21

Location of Nitrogen Dioxide Diffusion Tube at Hucknall Croft/Beardhall Street

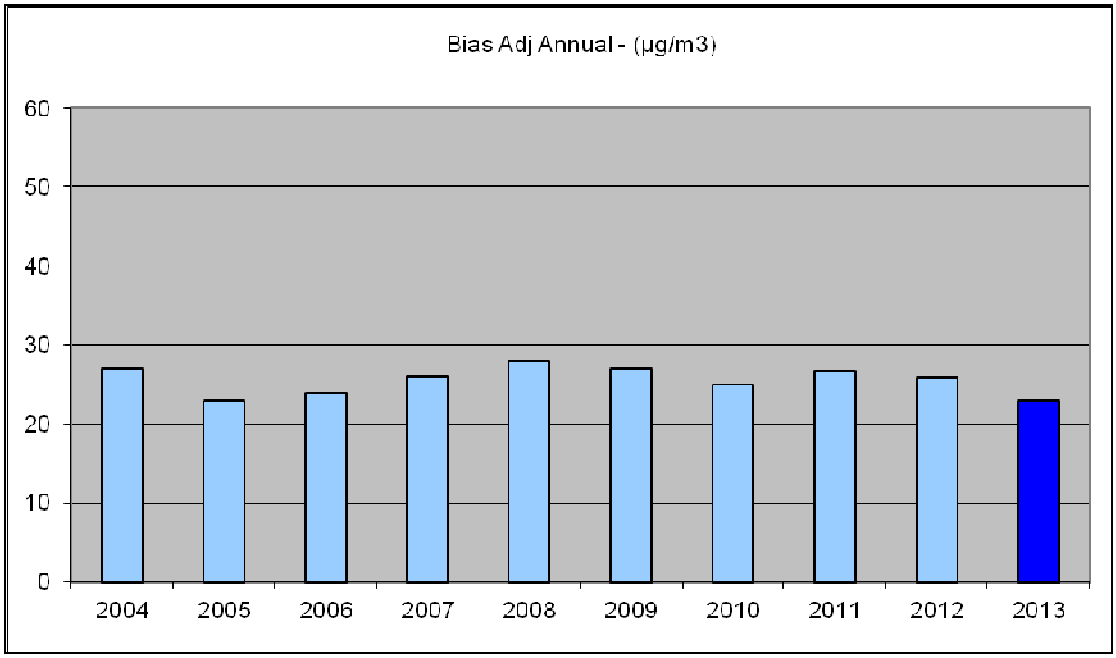


This is an urban background location. The diffusion tube is located on Beardall Street, some distance from the town centre.

Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95) (µg/m^3)
24.1	22.9

Single tube deployed not duplicate or triplicates

Figure 2.14 Trend Analysis for Nitrogen Dioxide Diffusion Tube at Beardall Street, Hucknall



Distance Fall-off Calculation

Undertaking the relevant calculation for distance fall-off, the resultant Nitrogen Dioxide level at the receptor is **22.8 µg/m^3** (Appendix B).

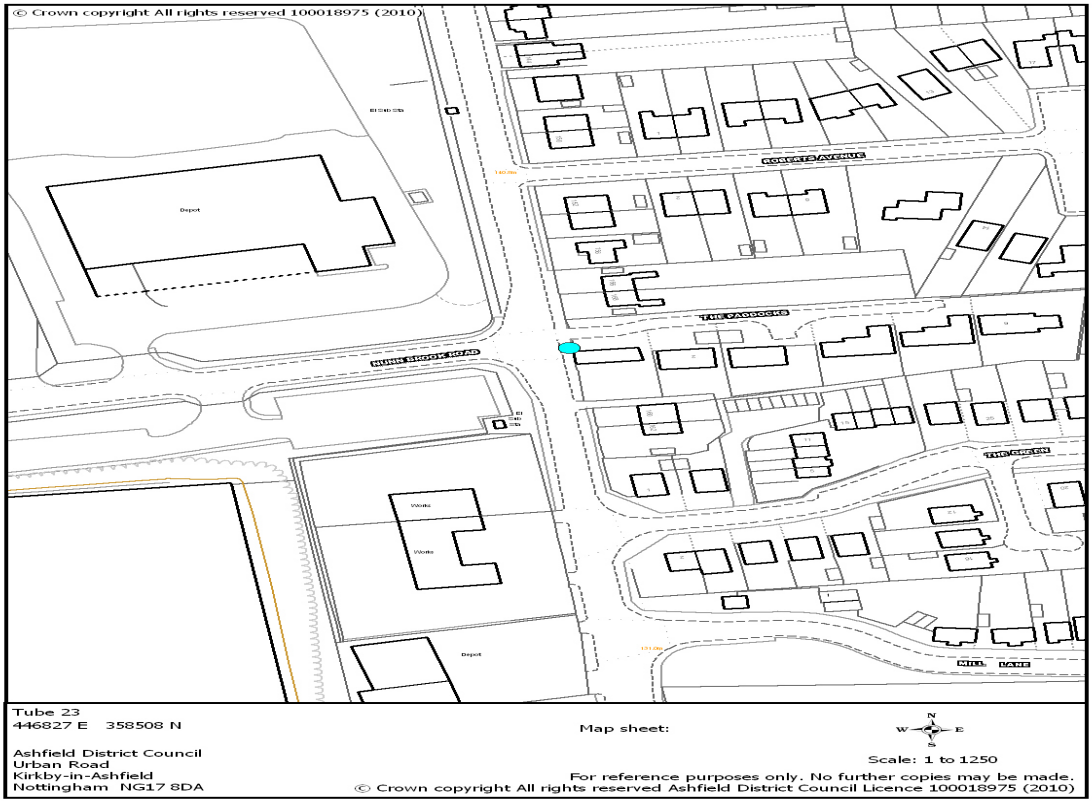
This bias adjusted annual mean value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location.

DiffusionTube Sites Where There is No Distance Fall Off

Common Road, Huthwaite Roadside Tube 23

This is a roadside tube. It is situated along a road that links the A38 with Huthwaite but the road also runs towards Sutton town centre. The road also runs adjacent to a large industrial site.

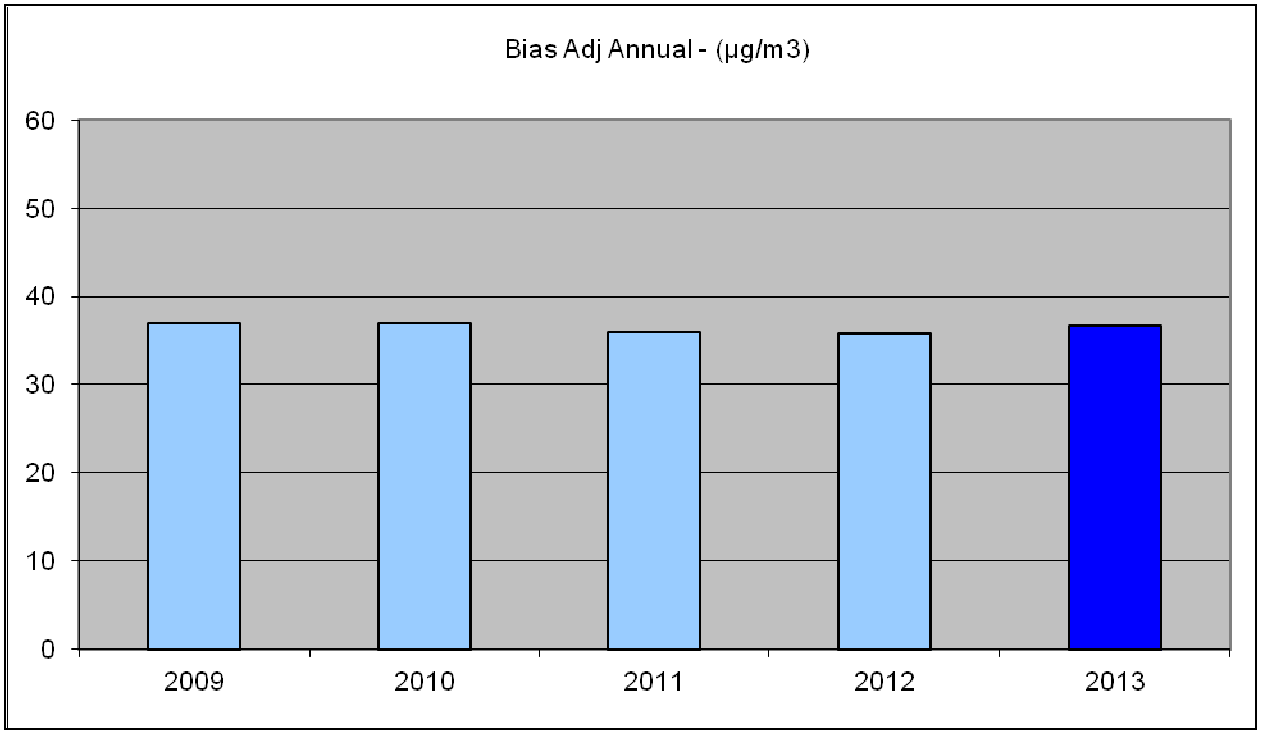
Location of Nitrogen Dioxide Diffusion Tube at Station Road, Sutton



Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95) (µg/m^3)
38.6	36.7

Single tube deployed not duplicate or triplicates

Figure 2.15 Trend Analysis for Nitrogen Dioxide Diffusion Tube at Common Road, Huthwaite



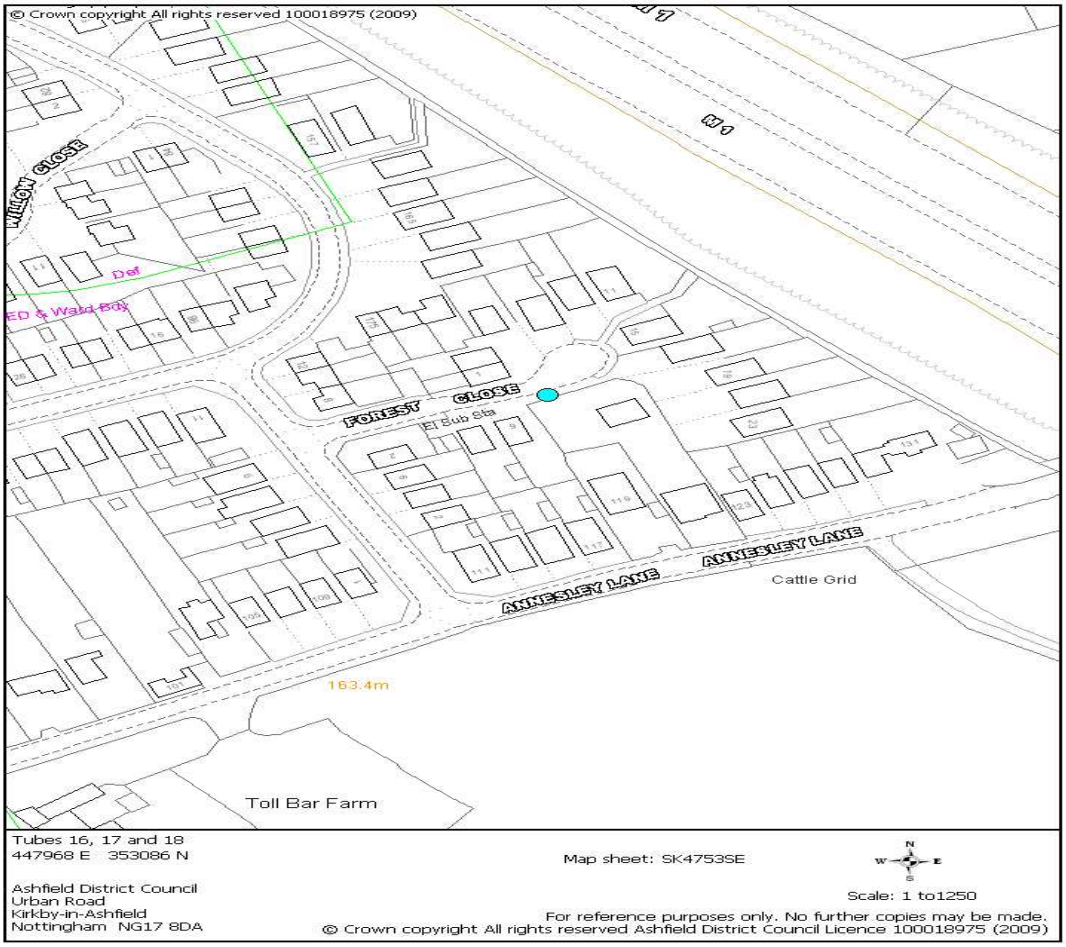
Distance Fall-off Calculation

No distance fall-off calculation has been carried out as the diffusion tube is located directly at the nearest receptor. Therefore, the relevant annual mean value at the receptor is **36.7 µg/m^3.**

This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location.

Forest Close M1 – Roadside Tubes 16

Location of Nitrogen Dioxide Diffusion Tube Forest Close M1

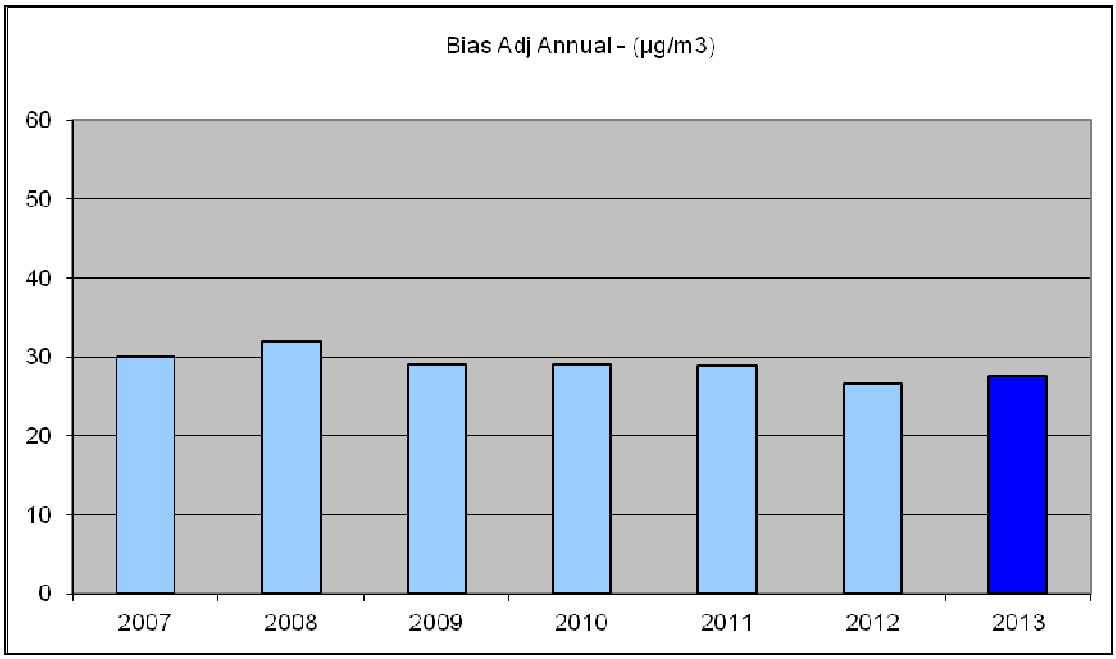


This is a roadside location. The diffusion tube is located in a residential estate adjacent to the M1.

Measured Annual Mean For 2013 Based on 12 months Data (µg/m^3)	Bias Adjusted Annual Mean (Factor 0.95) (µg/m^3)
29.1	27.6

Single Tubes Deployed

Figure 2.9 Trend Analysis for Nitrogen Dioxide Diffusion Tube at Forest Close



This value is below the annual mean objective of 40µg/m^3 and therefore there is no need to proceed to a detailed assessment for this location.

2.2.2 Particulate Matter (PM_{10})

No automatic monitoring data available from the Automatic Monitoring Site due to both technical and Staffing Issues.

2.2.3 Sulphur Dioxide (SO_2)

No monitoring of Sulphur Dioxide is carried out within the district.

2.2.4 Benzene

No monitoring of Benzene is carried out within the district.

2.2.5 Other pollutants monitored

No other pollutants are monitored within the district.

2.2.6 Summary of Compliance with AQS Objectives

Ashfield 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

3.1 Road Traffic Sources

There are no new road sources.

3.2 Other Transport Sources

There are no new other transport sources.

3.3 Industrial Sources

There are no new industrial sources.

3.4 Commercial and Domestic Source

There are no new commercial and domestic sources.

3.5 New Developments with Fugitive or Uncontrolled Sources

There are no new developments with fugitive or uncontrolled sources.

Ashfield 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.

Ashfield District Council confirms that all the following have been considered:

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

4 Local / Regional Air Quality Strategy

Local Air Quality Strategy

Ashfield District Council has developed and approved a Local Air Quality Strategy 'The Air We Breathe'

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 which council divisions and sections are responsible for the 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 was approved by the Council in April 2007.

Ashfield District Council will be reviewing the Air Quality Strategy between September 2014 and April 2015 and will also be hoping to feed in information in relation to the Regional Air Quality Strategy which is currently scheduled for review by the Nottinghamshire Environmental Protection Pollution Group.

Regional Air Quality Strategy

The Nottinghamshire Environmental Protection Pollution Group, which comprises air pollution specialists from each Nottinghamshire Authority, issued the first Nottinghamshire Regional Air Quality Strategy in 2001. The Nottinghamshire framework strategy was reviewed and revised in 2006 and re – launched under a new title 'A Breath of Fresh Air for Nottinghamshire – An Air Quality Strategy for the next Decade. The strategy is currently up for review and will be revised and updated by the Nottinghamshire Environmental Protection Pollution Group.

5 Planning Applications

Planning Applications in the Pipe Line

Rolls Royce Muse Development

Ashfield District Council received a screening assessment to consider the potential or likely significant environmental effects associated with the proposed redevelopment of Rolls Royce aerodrome on Watnall Road in Hucknall for residential and employment and with the associated infrastructure.

The air quality information contained in the **The Environmental Statement Volume 1** submitted by URS in October 2012 was reviewed and the report concludes that during both the development and opening phases of the above development will remain within the air quality objectives for all the pollutants considered NO_2. PM_{10} and $PM_{2.5}$ and associated will the increased traffic associated with the development. The Environmental Protection Team offered no objection to the granting of Planning Permission.

This scheme was discussed in the 2013 Progress Report and is still in the pipeline although more information has been provided.

Hucknall Road Improvement Scheme

Ashfield District Council is considering a planning application submitted by Nottinghamshire County Council for a regeneration improvement project for Hucknall Town Centre, encompassing the demolition and alteration of existing buildings, lying out and construction of a new inner relief road between Annesley Road and the Bolsover Street/Station Road Junction. Ashfield District Council has not objected to the project which is being considered by Nottinghamshire County Council.

An Environmental Assessment was carried out by the URS Consultancy, Project Reference 47063682

This scheme was discussed in the 2013 Progress Report and is still in the pipeline; however there are proposed changes to the scheme and the Environmental Protection Team are awaiting the submission of further data.

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6 Air Quality Planning Policies

Currently Ashfield District Council does not have formal planning policies that links air quality issues with development control.

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.

7 Local Transport Plans and Strategies

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 plan 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.

8 Climate Change Strategies

Ashfield District Council's Environment and Sustainability Section developed a Climate Change and Action Plan for 2009 to 2012. The strategy outlined how Ashfield District Council aims to deliver action on climate change and move towards meeting national targets for the reduction of carbon dioxide emissions.

The climate change strategy focused on the local economy, buildings and land, transport, people and communities, waste and other environmental services as priority areas where action can be taken to reduce emissions and adapt to the risks of more extreme climatic conditions.

This strategy is now under review and a new climate change action plan is currently being developed.

9 Implementation of Action Plans

Ashfield District Council has not declared any air quality management areas and therefore the Council has subsequently not produced a report nor is there a requirement to submit an action plan.

10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

Automatic Monitoring

No automatic monitoring data available from the Automatic Monitoring Site due to both technical and data logging problems.

Non Automatic Monitoring

The Council measures Nitrogen Dioxide by non-automatic means. This is carried out by diffusion tubes being placed at a variety of locations throughout the district.

Analysis of the monitoring results indicates that there is no need to proceed to a detailed assessment at any of the locations where monitoring has been undertaken.

10.2 Conclusions relating to New Local Developments

No new developments have been given planning approval that would have a significant detrimental effect on air quality.

10.3 Other Conclusions

None.

10.4 Proposed Actions

This progress report has not identified the need for Ashfield District Council to proceed to a Detailed Assessment for any relevant pollutants at any assessed locations.

11 References

None Used

Appendices

Appendix A – QA:QC Data

Diffusion Tube Bias Adjustment Factors

This report has used a **Bias Adjustment Factor of 0.96**

Table 2.2 details the use of the national database to obtain the relevant bias adjustment factor for this report.

Table 2.2: Diffusion Tube Bias Adjustment Factor

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 06/14

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 and the version of the spreadsheet
This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of September 2014
LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the

If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down

If a year is not shown, we have no data[2]

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[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953

Analysed By[1]	Method	Year[2]	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[4]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2013		Overall Factor[3] (35 studies)				Use		0.95
Gradko	50% TEA in acetone	2013		Overall Factor[3] (19 studies)				Use		1.01
Kent Scientific Services	20% TEA in water	2013		Overall Factor[3] (1 study)				Use		0.77
Kirklees Council	50% TEA in acetone	2013		Overall Factor[3] (2 studies)				Use		0.74
Lambeth Scientific Services	50% TEA in acetone	2013		Overall Factor[3] (7 studies)				Use		0.87
Milton Keynes Council	20% TEA in water	2013		Overall Factor[3] (1 study)				Use		0.84
Northampton BC	20% TEA in water	2013		Overall Factor[3] (4 studies)				Use		0.73
Somerset County Council	20% TEA in water	2013		Overall Factor[3] (3 studies)				Use		0.90
South Yorkshire Air Quality Samplers	50% TEA in acetone	2013		Overall Factor[3] (3 studies)				Use		0.84
Staffordshire Scientific Services	20% TEA in water	2013		Overall Factor[3] (11 studies)				Use		0.87
Tayside Scientific Services	20% TEA in water	2013		Overall Factor[3] (1 study)				Use		0.78
West Yorkshire Analytical Services	50% TEA in acetone	2013		Overall Factor[3] (7 studies)				Use		0.79

Factor from Co Location Studies

Ashfield District Council did not undertake any continuous monitoring during 2013 and therefore the council was unable to undertake a Co Location Study.

Discussion of Choice of Factor to Use

Ashfield District Council did not undertake any continuous monitoring during 2013 and therefore the council was unable to undertake a Co Location Study.

Ashfield District Council did not undertake any continuous monitoring during 2013 and therefore the council was unable to undertake a Co Location Study.

PM Monitoring Adjustment

Ashfield District Council did not undertake any continuous monitoring during 2013 and therefore the council was did not undertake any Particulate Matter monitoring.

Short- term to Long –Term Data adjustment

Due to the quality of the diffusion tube monitoring data it was not necessary for Ashfield District Council to undertake any adjustment of the data.

Appendix B – Nitrogen Dioxide Diffusion Tube Results and Distance fall off Calculations

Diffusion Tubes Monthly Mean Data

Naggs Head (Tubes 1, 2 and 3)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	41.12	40.47	44.66	42.08	
Feb	30/01/2013 – 27/02/2013	33.83	35.52	38.36	35.9	
March	27/02/2013 – 27/03/2013	33.67	35.03	34.77	34.49	
April	27/03/2013 – 30/04/2013	23.3	26.58	22.74	24.21	
May	30/04/2013 – 29/05/2013	26.0	27.27	24.71	25.99	
June	29/05/2013 – 26/06/2013	26.51	25.13	29.1	26.91	
July	26/06/2013 – 31/07/2013	27.14	26.43	25.79	26.45	
August	31/07/2013 – 28/08/2013	32.02	31.22	32.21	31.82	
September	28/08/2013 – 25/09/2013	33.23	34.31	33.7	33.75	
October	25/09/2013 – 29/10/2013	27.9	28.63	30.78	29.10	
November	29/10/2013 – 27/11/2013	40.54	41.52	42.86	41.64	
December	27/11/2013 – 31/12/2013	32.41	33.79	36.05	34.08	
Total		12			386.43	**32.2**

Outram Street (Tube 4)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	39.83			39.83	
Feb	*30/01/2013 – 27/02/2013*	*39.55*			*39.55*	
March	27/02/2013 – 27/03/2013				0.00	
April	27/03/2013 – 30/04/2013	23.67			23.67	
May	30/04/2013 – 29/05/2013	25.05			25.05	
June	29/05/2013 – 26/06/2013	27.61			27.61	
July	26/06/2013 – 31/07/2013	24.18			24.18	
August	31/07/2013 – 28/08/2013	27.86			27.86	
September	28/08/2013 – 25/09/2013	34.28			34.28	
October	25/09/2013 – 29/10/2013	26.16			26.16	
November	29/10/2013 – 27/11/2013	42.86			42.86	
December	27/11/2013 – 31/12/2013	34.56			34.56	
Total		11			**345.61**	**31.4**

Dalestorth (Tube 5)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	44.87			44.87	
Feb	*30/01/2013 – 27/02/2013*	38.81			38.81	
March	27/02/2013 – 27/03/2013	34.53			34.53	
April	27/03/2013 – 30/04/2013	24.88			24.88	
May	30/04/2013 – 29/05/2013	26.96			26.96	
June	29/05/2013 – 26/06/2013	28.4			28.4	
July	26/06/2013 – 31/07/2013	29.3			29.3	
August	31/07/2013 – 28/08/2013	34.63			34.63	
September	28/08/2013 – 25/09/2013	32.38			32.38	
October	25/09/2013 – 29/10/2013	33.37			33.37	
November	29/10/2013 – 27/11/2013	42.94			42.94	
December	27/11/2013 – 31/12/2013	45.95			45.95	
Total		12			417.02	**34.8**

A38 (Tubes 7, 8 and 9)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	38.9	38.52	40.06	39.16	
Feb	*30/01/2013 – 27/02/2013*	38.14	41.49	38.45	39.36	
March	27/02/2013 – 27/03/2013	43.99	41.98	39.73	41.9	
April	27/03/2013 – 30/04/2013	27.69	28.88	23.33	26.63	
May	30/04/2013 – 29/05/2013	26.96	25.34	28.58	26.96	
June	29/05/2013 – 26/06/2013	30.03	32.65	30.69	31.12	
July	26/06/2013 – 31/07/2013	29.6	31.18	29.59	30.12	
August	31/07/2013 – 28/08/2013	24.15	26.73	26.51	25.8	
September	28/08/2013 – 25/09/2013	29.96	32.4	30.93	31.10	
October	25/09/2013 – 29/10/2013	24.36	27.41	25.23	25.67	
November	29/10/2013 – 27/11/2013	37.7	38.51	38.84	38.35	
December	27/11/2013 – 31/12/2013	29.59	25.17	27.74	27.5	
Total		12			383.67	**32.00**

Church Hill (Tubes 10, 11 and 12)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	45.81	46.68	44.94	45.81	
Feb	*30/01/2013 – 27/02/2013*	39.97	42.54	40.86	41.12	
March	27/02/2013 – 27/03/2013	45.03	38.63	41.16	41.61	
April	27/03/2013 – 30/04/2013	26.79	27.43	32.35	28.86	
May	30/04/2013 – 29/05/2013	32.04	34.05	33.42	33.17	
June	29/05/2013 – 26/06/2013	36.2	37.14	42.41	38.58	
July	26/06/2013 – 31/07/2013	38.01	39.17	39.9	39.03	
August	31/07/2013 – 28/08/2013	44.09	45.79	43.58	44.49	
September	28/08/2013 – 25/09/2013	42.8	45.2	49.54	45.85	
October	25/09/2013 – 29/10/2013	28.11	41.4	38.32	35.94	
November	29/10/2013 – 27/11/2013	41.22	49.83	52.39	47.81	
December	27/11/2013 – 30/12/2013	39.83	46.39	39.5	41.91	
Total		12			484.17	**40.3**

Pinxton (Tubes 14)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	40.94			40.94	
Feb	*30/01/2013 – 27/02/2013*	34.87			34.87	
March	27/02/2013 – 27/03/2013	24.39			24.39	
April	27/03/2013 – 30/04/2013	22.79			22.79	
May	30/04/2013 – 29/05/2013	25.01			25.01	
June	29/05/2013 – 26/06/2013	24.02			24.02	
July	26/06/2013 – 31/07/2013	27.0			27.0	
August	31/07/2013 – 28/08/2013	35.82			35.82	
September	28/08/2013 – 25/09/2013	34.36			34.36	
October	25/09/2013 – 29/10/2013	26.55			26.55	
November	29/10/2013 – 27/11/2013	24.99			24.99	
December	27/11/2013 – 30/12/2013	35.11			35.11	
Total		12			355.85	**29.7**

Selston (Tube 15)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	40.02			40.02	
Feb	*30/01/2013 – 27/02/2013*	29.36			29.36	
March	27/02/2013 – 27/03/2013	32.18			32.18	
April	27/03/2013 – 30/04/2013	22.40			22.40	
May	30/04/2013 – 29/05/2013	22.79			22.79	
June	29/05/2013 – 26/06/2013	23.65			23.65	
July	26/06/2013 – 31/07/2013	20.72			20.72	
August	31/07/2013 – 28/08/2013	22.8			22.8	
September	28/08/2013 – 25/09/2013	26.03			26.03	
October	25/09/2013 – 29/10/2013	24.49			24.49	
November	29/10/2013 – 27/11/2013	34.66			34.66	
December	27/11/2013 – 30/12/2013	30.43			30.43	
Total		12			329.53	**27.5**

Forest Close (16)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	41.05			41.05	
Feb	*30/01/2013 – 27/02/2013*	35.37			35.37	
March	27/02/2013 – 27/03/2013	41.52			41.52	
April	27/03/2013 – 30/04/2013	24.77			24.77	
May	30/04/2013 – 29/05/2013	26.97			26.97	
June	29/05/2013 – 26/06/2013	26.09			26.09	
July	26/06/2013 – 31/07/2013	20.19			20.19	
August	31/07/2013 – 28/08/2013	22.39			22.39	
September	28/08/2013 – 25/09/2013	24.56			24.56	
October	25/09/2013 – 29/10/2013	25.61			25.61	
November	29/10/2013 – 27/11/2013	35.82			35.82	
December	27/11/2013 – 30/12/2013	26.06			26.06	
Total		12			349.40	**29.1**

Ashgate Road Hucknall (Tube 19)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	40.75			40.75	
Feb	*30/01/2013 – 27/02/2013*	26.65			26.65	
March	27/02/2013 – 27/03/2013	23.17			23.17	
April	27/03/2013 – 30/04/2013	18.89			18.89	
May	30/04/2013 – 29/05/2013	21.14			21.14	
June	29/05/2013 – 26/06/2013	19.91			19.91	
July	26/06/2013 – 31/07/2013	17.17			17.17	
August	31/07/2013 – 28/08/2013	24.69			24.69	
September	28/08/2013 – 25/09/2013	27.56			27.56	
October	25/09/2013 – 29/10/2013	27.0			27.0	
November	29/10/2013 – 27/11/2013	43.43			43.43	
December	27/11/2013 – 30/12/2013	33.49			33.49	
Total		12			323.85	**27.0**

High Street Hucknall (Tube 20)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	47.48			47.48	
Feb	*30/01/2013 – 27/02/2013*	41.56			41.56	
March	27/02/2013 – 27/03/2013	38.2			38.2	
April	27/03/2013 – 30/04/2013	29.24			29.24	
May	30/04/2013 – 29/05/2013	32.28			32.28	
June	29/05/2013 – 26/06/2013	31.15			31.15	
July	26/06/2013 – 31/07/2013	34.43			34.43	
August	31/07/2013 – 28/08/2013	33.84			33.84	
September	28/08/2013 – 25/09/2013	36.85			36.85	
October	25/09/2013 – 29/10/2013	33.55			33.55	
November	29/10/2013 – 27/11/2013	47.18			47.18	
December	27/11/2013 – 30/12/2013	44.56			44.56	
Total		12			450.32	**37.5**

Beardall Street Hucknall (Tube21)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	36.6			36.6	
Feb	*30/01/2013 – 27/02/2013*	29.5			29.5	
March	27/02/2013 – 27/03/2013	27.96			27.96	
April	27/03/2013 – 30/04/2013	17.87			17.87	
May	30/04/2013 – 29/05/2013	18.68			18.68	
June	29/05/2013 – 26/06/2013	15.78			15.78	
July	26/06/2013 – 31/07/2013	18.81			18.81	
August	31/07/2013 – 28/08/2013	21.91			21.91	
September	28/08/2013 – 25/09/2013	26.54			26.54	
October	25/09/2013 – 29/10/2013	20.77			20.77	
November	29/10/2013 – 27/11/2013	21.16			21.16	
December	27/11/2013 – 30/12/2013	33.56			33.56	
Total		12			289.14	**24.1**

Station Road Sutton (Tube 22)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	53.41			53.41	
Feb	*30/01/2013 – 27/02/2013*	40.47			40.47	
March	27/02/2013 – 27/03/2013	36.69			36.69	
April	27/03/2013 – 30/04/2013	26.59			26.59	
May	30/04/2013 – 29/05/2013	31.51			31.51	
June	29/05/2013 – 26/06/2013	28.11			28.11	
July	26/06/2013 – 31/07/2013	30.91			30.91	
August	31/07/2013 – 28/08/2013	36.55			36.55	
September	28/08/2013 – 25/09/2013	35.26			35.26	
October	25/09/2013 – 29/10/2013	33.85			33.85	
November	29/10/2013 – 27/11/2013	48.12			48.12	
December	27/11/2013 – 30/12/2013	36.12			36.12	
Total		12			437.59	**36.5**

Common Road Huthwaite (Tube 23)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	50.13				
Feb	*30/01/2013 – 27/02/2013*	0				
March	27/02/2013 – 27/03/2013	40.12				
April	27/03/2013 – 30/04/2013	28.09				
May	30/04/2013 – 29/05/2013	32.55				
June	29/05/2013 – 26/06/2013	28.22				
July	26/06/2013 – 31/07/2013	36.61				
August	31/07/2013 – 28/08/2013	40.89				
September	28/08/2013 – 25/09/2013	44.45				
October	25/09/2013 – 29/10/2013	36.33				
November	29/10/2013 – 27/11/2013	50.36				
December	27/11/2013 – 30/12/2013	36.82				
Total		11			424.57	**38.6**

Stoneyford Court Sutton (Tubes 24, 25, and 26)

Month	Date	Tube 1	Tube 2	Tube 3	Mean	Annual Mean
Jan	02/01/2013 – 30/01/2013	46.19	43.18	49.12		
Feb	*30/01/2013 – 27/02/2013*	39.32	39.42	36.59		
March	27/02/2013 – 27/03/2013	37.64	39.96	39.74		
April	27/03/2013 – 30/04/2013	25.72	25.06	26.27		
May	30/04/2013 – 29/05/2013	24.61	26.47	30.13		
June	29/05/2013 – 26/06/2013	23.96	24.81	30.02		
July	26/06/2013 – 31/07/2013	20.49	29.21	29.1		
August	31/07/2013 – 28/08/2013	30.68	33.44	31.43		
September	28/08/2013 – 25/09/2013	31.1	34.14	33.75		
October	25/09/2013 – 29/10/2013	32.45	31.42	36.16		
November	29/10/2013 – 27/11/2013	42.61	43.97	42.85		
December	27/11/2013 – 30/12/2013	0	34.61	31.95		
Total		12			393.14	**36.9**

Nitrogen Dioxide – Distance Fall-Off Calculations

Sutton Outram Street (Tube 4)

Step 1		**How far from the KERB was your measurement made (in metres)?**	(Note 1)		**1.5**	metres
Step 2		**How far from the KERB is your receptor (in metres)?**	(Note 1)		**3**	metres
Step 3		**What is the local annual mean background NO_2 concentration (in µg/m^3)?**	(Note 2)		**19.6**	µg/m^3
Step 4		**What is your measured annual mean NO_2 concentration (in µg/m^3)?**	(Note 2)		**29.8**	µg/m^3
Result		**The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor**	(Note 3)		**28.3**	µg/m^3

A38 Fire Station (Tubes 7, 8 and 9)

Step 1		**How far from the KERB was your measurement made (in metres)?**	(Note 1)		**2**	metres
Step 2		**How far from the KERB is your receptor (in metres)?**	(Note 1)		**5**	metres
Step 3		**What is the local annual mean background NO_2 concentration (in µg/m^3)?**	(Note 2)		**19.9**	µg/m^3
Step 4		**What is your measured annual mean NO_2 concentration (in µg/m^3)?**	(Note 2)		**30.0**	µg/m^3
Result		**The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor**	(Note 3)		**27.8**	µg/m^3

Selston Nottingham Road (Tube 15)

Step 1		**How far from the KERB was your measurement made (in metres)?**	(Note 1)		**2.5**	metres
Step 2		**How far from the KERB is your receptor (in metres)?**	(Note 1)		**20**	metres
Step 3		**What is the local annual mean background NO_2 concentration (in µg/m^3)?**	(Note 2)		**15.3**	µg/m^3
Step 4		**What is your measured annual mean NO_2 concentration (in µg/m^3)?**	(Note 2)		**26.1**	µg/m^3
Result		**The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor**	(Note 3)		**20.5**	µg/m^3

Kirkby Naggs Head (Tubes 1,2 and 3)

Step 1		**How far from the KERB was your measurement made (in metres)?**	(Note 1)		**3.3**	metres
Step 2		**How far from the KERB is your receptor (in metres)?**	(Note 1)		**7**	metres
Step 3		**What is the local annual mean background NO_2 concentration (in $\mu g/m^3$)?**	(Note 2)		**18.6**	$\mu g/m^3$
Step 4		**What is your measured annual mean NO_2 concentration (in $\mu g/m^3$)?**	(Note 2)		**31.0**	$\mu g/m^3$
Result		**The predicted annual mean NO_2 concentration (in $\mu g/m^3$) at your receptor**	(Note 3)		**28.5**	$\mu g/m^3$

M1 Pinxton (Tube 14)

Step 1		**How far from the KERB was your measurement made (in metres)?**	(Note 1)		**1.5**	metres
Step 2		**How far from the KERB is your receptor (in metres)?**	(Note 1)		**8.5**	metres
Step 3		**What is the local annual mean background NO_2 concentration (in $\mu g/m^3$)?**	(Note 2)		**24.3**	$\mu g/m^3$
Step 4		**What is your measured annual mean NO_2 concentration (in $\mu g/m^3$)?**	(Note 2)		**28.2**	$\mu g/m^3$
Result		**The predicted annual mean NO_2 concentration (in $\mu g/m^3$) at your receptor**	(Note 3)		**26.7**	$\mu g/m^3$

Kirkby Church Hill (Tubes 10,11 and 12)

Step 1		**How far from the KERB was your measurement made (in metres)?**	(Note 1)		**0.5**	metres
Step 2		**How far from the KERB is your receptor (in metres)?**	(Note 1)		**1.5**	metres
Step 3		**What is the local annual mean background NO_2 concentration (in $\mu g/m^3$)?**	(Note 2)		**15.9**	$\mu g/m^3$
Step 4		**What is your measured annual mean NO_2 concentration (in $\mu g/m^3$)?**	(Note 2)		**38.3**	$\mu g/m^3$
Result		**The predicted annual mean NO_2 concentration (in $\mu g/m^3$) at your receptor**	(Note 3)		**34.0**	$\mu g/m^3$

Sutton Dalestorth Street (Tube 5)

Step 1		**How far from the KERB was your measurement made (in metres)?**	(Note 1)		**3.5**	metres
Step 2		**How far from the KERB is your receptor (in metres)?**	(Note 1)		**5.5**	metres
Step 3		**What is the local annual mean background NO_2 concentration (in $\mu g/m^3$)?**	(Note 2)		**18.6**	$\mu g/m^3$
Step 4		**What is your measured annual mean NO_2 concentration (in $\mu g/m^3$)?**	(Note 2)		**33.1**	$\mu g/m^3$
Result		**The predicted annual mean NO_2 concentration (in $\mu g/m^3$) at your receptor**	(Note 3)		**31.3**	$\mu g/m^3$

Hucknall Ashgate Road (Tube 19)

Step 1		**How far from the KERB was your measurement made (in metres)?**	(Note 1)		**3.5**	metres
Step 2		**How far from the KERB is your receptor (in metres)?**	(Note 1)		**6.3**	metres
Step 3		**What is the local annual mean background NO_2 concentration (in $\mu g/m^3$)?**	(Note 2)		**16.9**	$\mu g/m^3$
Step 4		**What is your measured annual mean NO_2 concentration (in $\mu g/m^3$)?**	(Note 2)		**25.7**	$\mu g/m^3$
Result		**The predicted annual mean NO_2 concentration (in $\mu g/m^3$) at your receptor**	(Note 3)		**23.4**	$\mu g/m^3$

Station Road Sutton (Tube 22)

Step 1		**How far from the KERB was your measurement made (in metres)?**	(Note 1)		**2.4**	metres
Step 2		**How far from the KERB is your receptor (in metres)?**	(Note 1)		**10**	metres
Step 3		**What is the local annual mean background NO_2 concentration (in $\mu g/m^3$)?**	(Note 2)		**22.3**	$\mu g/m^3$
Step 4		**What is your measured annual mean NO_2 concentration (in $\mu g/m^3$)?**	(Note 2)		**34.7**	$\mu g/m^3$
Result		**The predicted annual mean NO_2 concentration (in $\mu g/m^3$) at your receptor**	(Note 3)		**30.4**	$\mu g/m^3$

Beardall Street (Tube 21)

Step 1		**How far from the KERB was your measurement made (in metres)?**	(Note 1)		**2**	metres
Step 2		**How far from the KERB is your receptor (in metres)?**	(Note 1)		**2.2**	metres
Step 3		**What is the local annual mean background NO_2 concentration (in µg/m^3)?**	(Note 2)		**18.6**	µg/m^3
Step 4		**What is your measured annual mean NO_2 concentration (in µg/m^3)?**	(Note 2)		**22.9**	µg/m^3
Result		**The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor**	(Note 3)		**22.8**	µg/m^3

High Street (Tube 22)

Step 1		**How far from the KERB was your measurement made (in metres)?**	(Note 1)		**2**	metres
Step 2		**How far from the KERB is your receptor (in metres)?**	(Note 1)		**5.3**	metres
Step 3		**What is the local annual mean background NO_2 concentration (in µg/m^3)?**	(Note 2)		**18.3**	µg/m^3
Step 4		**What is your measured annual mean NO_2 concentration (in µg/m^3)?**	(Note 2)		**35.6**	µg/m^3
Result		**The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor**	(Note 3)		**31.7**	µg/m^3

Stoneyford Court (Tubes 24, 25, and 26)

Step 1		**How far from the KERB was your measurement made (in metres)?**	(Note 1)		**3**	metres
Step 2		**How far from the KERB is your receptor (in metres)?**	(Note 1)		**7.75**	metres
Step 3		**What is the local annual mean background NO_2 concentration (in µg/m^3)?**	(Note 2)		**18.5**	µg/m^3
Step 4		**What is your measured annual mean NO_2 concentration (in µg/m^3)?**	(Note 2)		**31.6**	µg/m^3
Result		**The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor**	(Note 3)		**30.9**	µg/m^3