IPSWICH
BOROUGH COUNCIL

# 2010 Air Quality Progress Report for *Ipswich Borough Council*

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

October 2010

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# Executive Summary

Diffusion tubes and Continuous Monitors located within the three existing AQMAs have shown exceedences of the nitrogen dioxide annual average objective level. Exceedences were also obtained at St-Matthew's Street, an area outside of the existing AQMAs. This location is currently being monitored as part of a Detailed Assessment. The junction of Bramford Road/Chevalier Street/Yarmouth Road continues to show an exceedance of the annual average nitrogen dioxide objective. Whilst further monitoring will be undertaken in the area to determine the extent of the problem, an Air Quality Management Area is likely to be declared on the basis of previous modelling and monitoring results.

Particulates were monitored for a year (April 2009 – April 2010) and no exceedances of the $PM_{10}$ objectives were identified. This monitor is likely to be relocated to an area where complaints of dust have been received, upwind from a number of potential sources of particulates.

Ipswich Borough Council has identified the following new or previously unidentified local developments, which may impact on air quality in the Local Authority area:
Mixed Use Development, Grafton Way;
Ongoing Waterfront Development;
Closure of Rope Walk to through traffic;
Dunn Bros new waste storage facility;
Southern Cement relocation;
Ancient House Press expansion.
These will be taken into consideration in the next Updating and Screening Assessment, scheduled for 2012.

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# 1 Introduction

## 1.1 Description of Local Authority Area

Ipswich is the county town of Suffolk and the fastest growing regional centre in the East of England.

It is a multi-cultural centre for business, culture, entertainment and sport, with a population of more than 130,000 and is home to University Campus Suffolk and Suffolk New College.

The main routes into and out of Ipswich are congested during typical rush hour times. Travel across Ipswich is restricted to certain routes by the River Orwell.

Transport and traffic management are key strategic priorities for the town as the Waterfront and other areas of the town are undergoing significant redevelopment.

Continuing this economic prosperity is dependent on people being able to move around the town for work, shopping and leisure. At present a significant number of these journeys are made by car.

## 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 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 micrograms per cubic metre $\mu g/m^3$ (for carbon monoxide the units used are milligrammes per cubic metre, $mg/m^3$). 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.**

| 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

**Round 1**
The first round of air quality review and assessment was completed in March 2001 and consisted of three stages, each reported separately and progressively looking into more detailed analysis when required;

Stage 1 comprised of an initial study to identify which pollutants required further investigation;

Stage 2 required estimating, modelling or measuring pollutants where there was an indication that national objectives will not be achieved; and

Stage 3 involved using advanced modelling techniques and emissions inventories.

The final assessment (third stage report) concluded that the Air Quality Objectives would be met. There were, however, some areas of concern where levels of nitrogen dioxide from road traffic pollution were expected to be close to reaching the objective level and the need to keep these under review was recognised.

**Round 2**
In 2003, all local authorities were required to complete a second round of air quality reviews and assessments. The Government issued guidance to assist with this and to direct authorities on the methodology for completing the review. The first stage of the review was an Updating and Screening Assessment (USA). This was based on a checklist to identify those matters that had changed since the first review completed in 2001 and which required further assessment. The USA covered new monitoring data, new sources of pollution and other changes that affected air quality.

The Council's USA, completed in December 2003, concluded that further detailed assessments of nitrogen dioxide from road traffic sources and particulate matter from an industrial source were required to determine whether air quality objectives would be exceeded in 2005. In July 2005, further detailed assessments were completed in respect of the impact of road traffic on concentrations of nitrogen dioxide in St Margaret's Street, Norwich Road/Chevallier Street junction and the Star Lane gyratory system/St Helen's Street. The assessment was completed using a dispersion model, traffic and meteorological data and an ambient real time continuous monitor to produce concentration plots for 2005 and 2010.

The results of the detailed assessments for nitrogen dioxide indicated that the annual mean objective pollution level would be exceeded along most of the roads under study. In places, the exceedance of the 40µg/$m^3$ annual mean standard extended 50 metres from the kerb into residential areas.

Under Section 83(1) of the Environment Act 1995, local authorities have to designate areas with a predicted exceedance of the Air Quality Objectives as Air Quality Management Areas (AQMAs). Ipswich Borough Council declared three AQMAs on the 11$^{th}$ of April 2006:

- *Ipswich Air Quality Management Order No 1, 2006: Norwich Road, Chevallier Street and Valley Road*

  This junction is located on one of the main routes into Ipswich town centre with four roads leading into a double mini roundabout (a map of the AQMA is shown in Figure 1.1).

  Generally, the area around this junction is open with some green space and buildings set back from the road. However, there is a public house (with flat above) and some residential flats that are both located adjacent to the junction. In addition, one road, Chevallier Street, leading from the roundabout has terraced properties facing directly onto a pavement.

- *Ipswich Air Quality Management Order No 2, 2006: Junction of Crown Street with Fonnereau Road and St Margaret's Street and St Margaret's Plain*

  This AQMA includes four roads all leading off each other (a map of the AQMA is shown in Figure 1.1). There are main traffic lights at the junction of St Margaret's Street and St Margaret's Plain and pedestrian crossing lights just beyond the junction of Crown Street and Fonnereau Road. The area along St Margaret's Street is partially canyoned.

  St Margaret's Street is flanked by flats on one side, and a vacant building on the other. Permission has been given for this to be turned into residential dwellings. There are residential buildings on all roads within the AQMA.

- *Ipswich Air Quality Management Order No 3, 2006: Star Lane gyratory system and St Helen's Street/Grimwade Street*

  The gyratory system is a circular network of one-way roads located next to the docks (a map of the AQMA is shown in Figure 1.1). There are many residential dwellings (mainly high-rise flats) within these areas and some commercial and office buildings. Further development of the Gyratory system and Dockside is ongoing.

  Traffic flow through many of the areas of this AQMA can be congested.

The Department for Environment, Food and Rural Affairs (DEFRA) also requires that local authorities should submit annual air quality (Progress Reports) in between three yearly USAs. This is to provide a means of ensuring that air quality review is a continuous process and act as a timely indication of the need for measures to improve air quality, rather than delaying for three years until a full review is carried out. Ipswich Borough Council completed a Progress Report in September 2005.

**Round 3**

The third round of review and assessment commenced in 2006 to enable local authorities to determine whether Air Quality Objectives in their areas would be met by specific target dates by means of a USA review. Ipswich Borough Council completed its USA in January 2008. The USA concluded that four of the seven prescribed

pollutants were likely to meet their Air Quality Objectives and as such a Detailed Assessment was not required. However, it was found that further screening works for Benzene, Nitrogen Dioxide ($NO_2$) and particulates ($PM_{10}$) were required, as well as a Detailed Assessment of both $NO_2$ and $PM_{10}$ at the Yarmouth Road/ Bramford Road and Chevalier Street Junction.

The Detailed Assessment, recommended in the USA, was completed in draft in December 2009 and finalised August 2010, and concluded that there are likely to be exceedances of the annual mean $NO_2$ objective at this location. It is unlikely that the hourly objective will be exceeded. The predicted exceedances of the annual mean objective can be attributed to slow moving vehicles, congestion and queuing traffic. The boundaries for a new AQMA are being determined at the time of writing this report. For the pollutant $PM_{10}$, modelling indicated a very unlikely risk of exceeding the annual mean $PM_{10}$ objective in the base year and the future year of 2010.

The screening works resulting from the round 3 USA have been completed as part of round 4 USA. At the advice of DEFRA, the information usually included in a progress report has also been incorporated into the round 4 document.

**Round 4**

The fourth and current round of review and assessment began in 2009. The USA was completed in January 2010. The USA concluded that five of the seven prescribed pollutants were likely to meet the Air Quality Objectives. However, it was found that a Detailed Assessment for $NO_2$ was required for the Civic Drive/St Matthews Street junction and St Helens Street, along with a Detailed Assessment of both $NO_2$ and $PM_{10}$ at a Biomass Boiler on Nacton Road. Further screening for $NO_2$ and $PM_{10}$ at the Reg Driver Centre, Christchurch Park was also required and the results have been included in this progress report.

**Summary**

The various stages of the previous review and assessments are summarised in Table 1.2.

**Table 1.2 Summary of previous review and assessments carried out by Ipswich Borough Council**

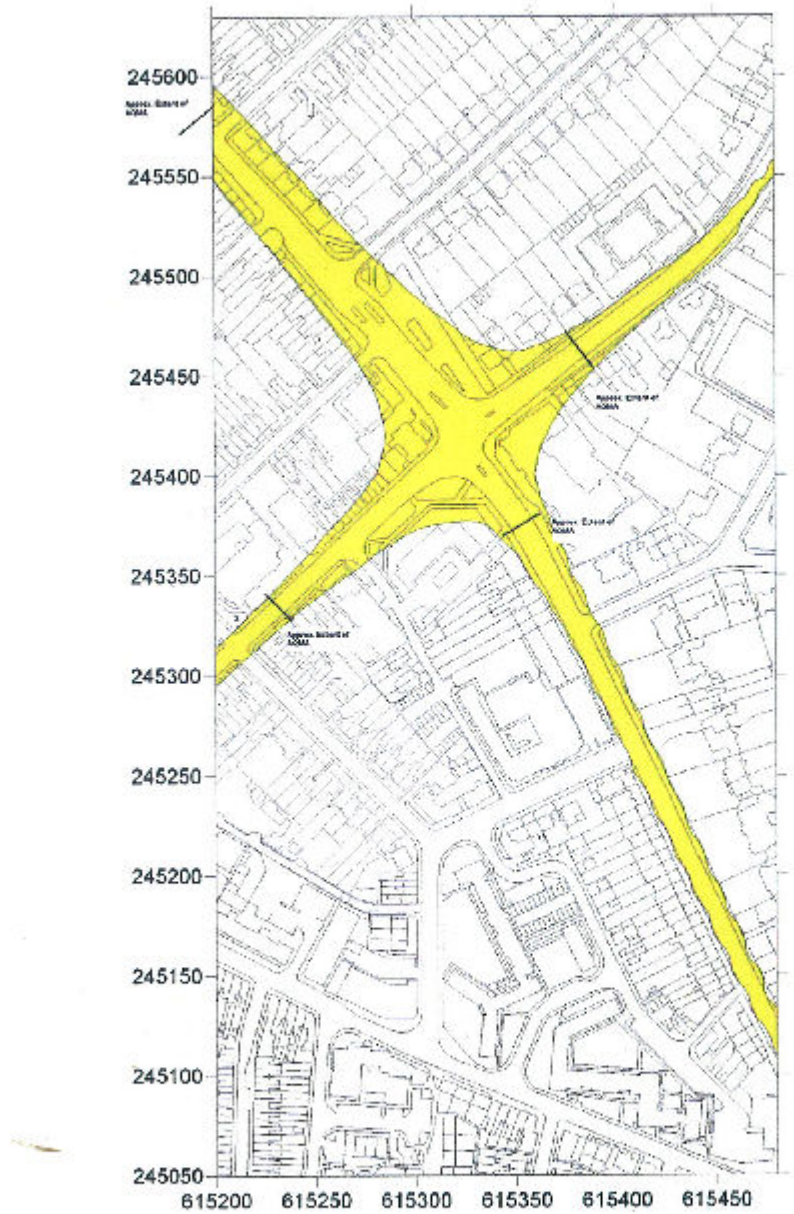
| Round | Date | Type of Assessment | Conclusion/Outcome |
|---|---|---|---|
| **1** | March 2001 | Final Assessment | Predicted that the Air Quality Objectives would be met<br><br>Areas of concern where levels of nitrogen dioxide from road traffic pollution were expected to be close to reaching the objective level were kept under review. |

| | | | |
|---|---|---|---|
| **2** | December 2003 | Updating and Screening Assessment | Concluded that further detailed assessments of nitrogen dioxide from road traffic sources and particulate matter from an industrial source was required to determine whether Air Quality Objectives would be exceeded in 2005. |
| | July 2005 | Detailed Assessment | Concluded that the annual mean objective pollution level would be exceeded along most of the roads under study. |
| | 11th of April 2006 | | Declaration of 3 AQMAs. |
| **3** | January 2008 | Updating and Screening Assessment | Concluded that four of the seven prescribed pollutants were likely to meet their Air Quality Objectives and as such a Detailed Assessment was not required.<br><br>Recommended further screening works for Benzene, Nitrogen Dioxide ($NO_2$) and particulates ($PM_{10}$) and a Detailed Assessment of both $NO_2$ and $PM_{10}$ at the Yarmouth Road/ Bramford Road and Chevalier Street Junction. |
| | January 2007 | Progress Report | Data included in the 2009 Updating and Screening Report as requested by Defra |
| | December 2009 | Detailed Assessment | Completed draft December 2009. Submitted December 2009. Finalised August 2010. Concluded that there are likely exceedances of the $NO_2$ annual mean objective at the Bramford Road/Yarmouth Road/Chevalier Street junction |
| **4** | January 2010 | Updating and Screening Assessment | Concluded that a Detailed Assessment for nitrogen dioxide is required at St-Matthew's Street and St-Helen's Street. A Detailed Assessment is also required for a 2.90MW biomass combustion plant on Nacton Road for particulate matter with consideration given to nitrogen dioxide. Particulate matter and nitrogen dioxide emissions from the Reg Driver Centre, Christchurch Park, Ipswich also required further screening work. |

**Figure 1.1 Maps of AQMA Boundaries**

AQMA1 – Norwich Road, Chevallier Street, Valley Road

Boundary of 40 µg/m$^3$ Annual Mean $NO_2$ Concentrations
at the Norwich Road/Valley Road Junction, Ipswich (2005)





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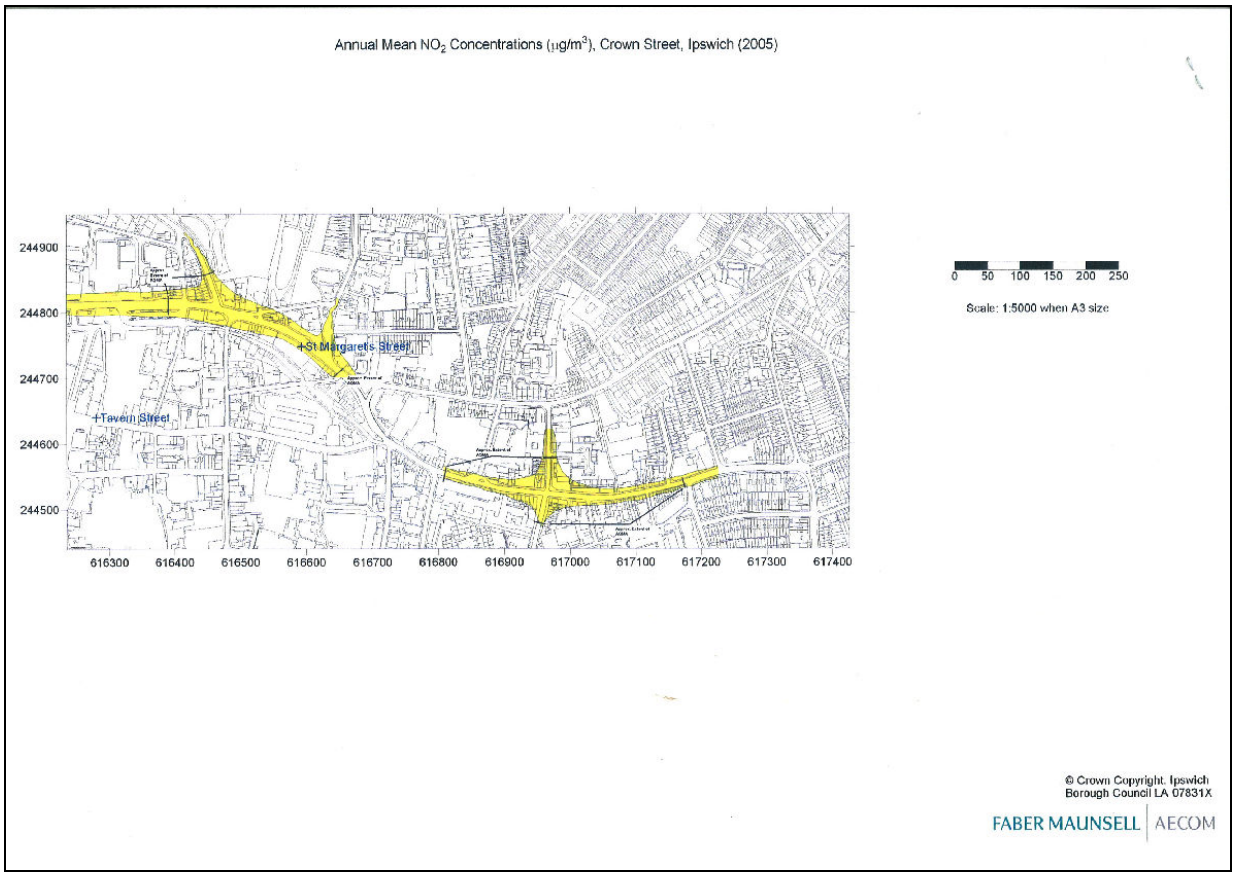
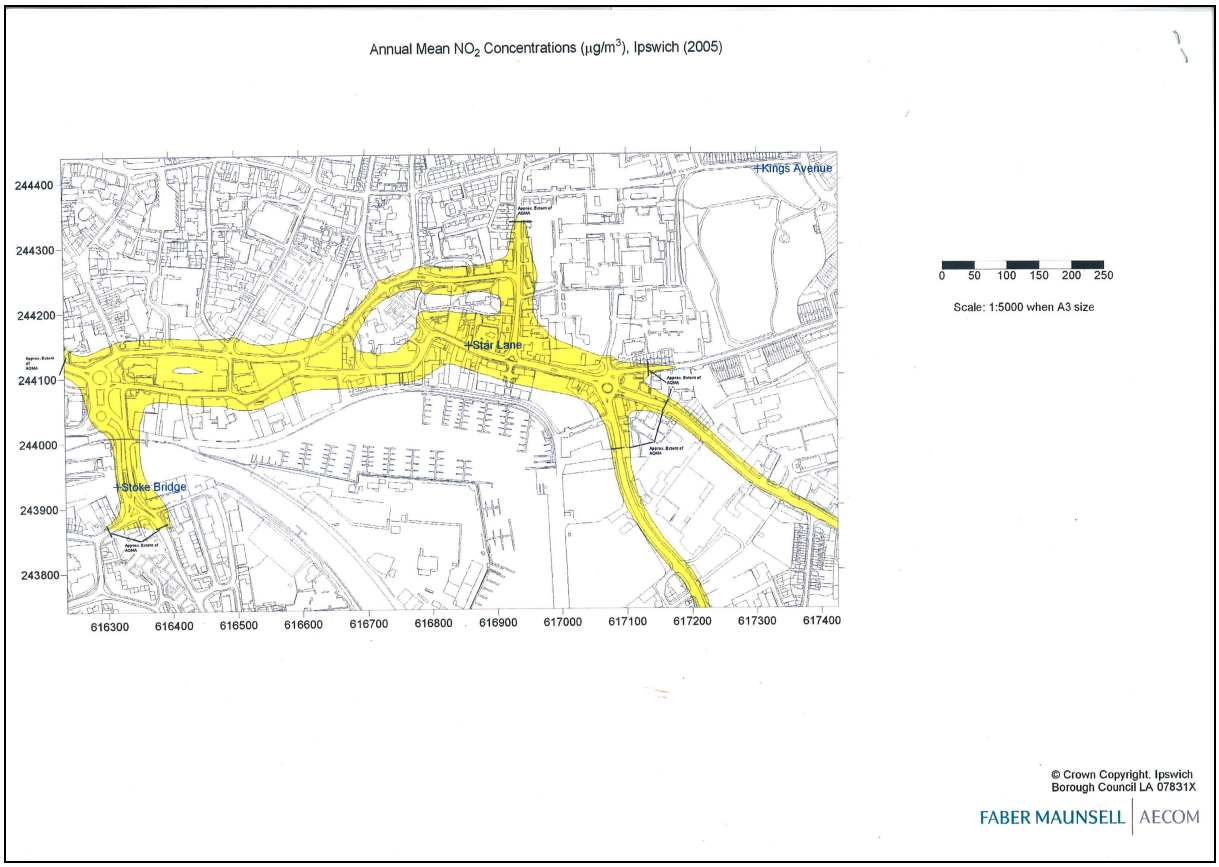
AQMA2 – Crown Street, Fonnereau Road/ St Margarets Street




AQMA3 – Star Lane, St Helens Street, Grimwade Street



# 2 New Monitoring Data

## 2.1 Summary of Monitoring Undertaken

### 2.1.1 Automatic Monitoring Sites

Ipswich Borough Council runs three Automatic Monitoring Stations. All three monitor Nitrogen Dioxide concentrations, and one particulates ($PM_{10}$). All three monitors are located within AQMA areas. Suffolk County Council also runs a continuous monitor (monitoring Nitrogen Dioxide) that is intended to support the proposed Urban Traffic Management Control system (UTMC). Ipswich Borough Council provides support to the SCC machine on the routine calibration visits.

The results for two of the monitors (St Margarets Street and Chevallier Street) will be reported within this progress report. The other two monitors (Star Lane) were sited part way through 2009 and the results will be reported in future documents.

Appendix A summarises frequency of calibrations, site audits and data validation and ratification procedures.

The locations of the monitors are shown below in figure 2.1.

Table 2.1 summarises the automatic monitor details.

**Figure 2.1 Map of Automatic Monitoring Sites**

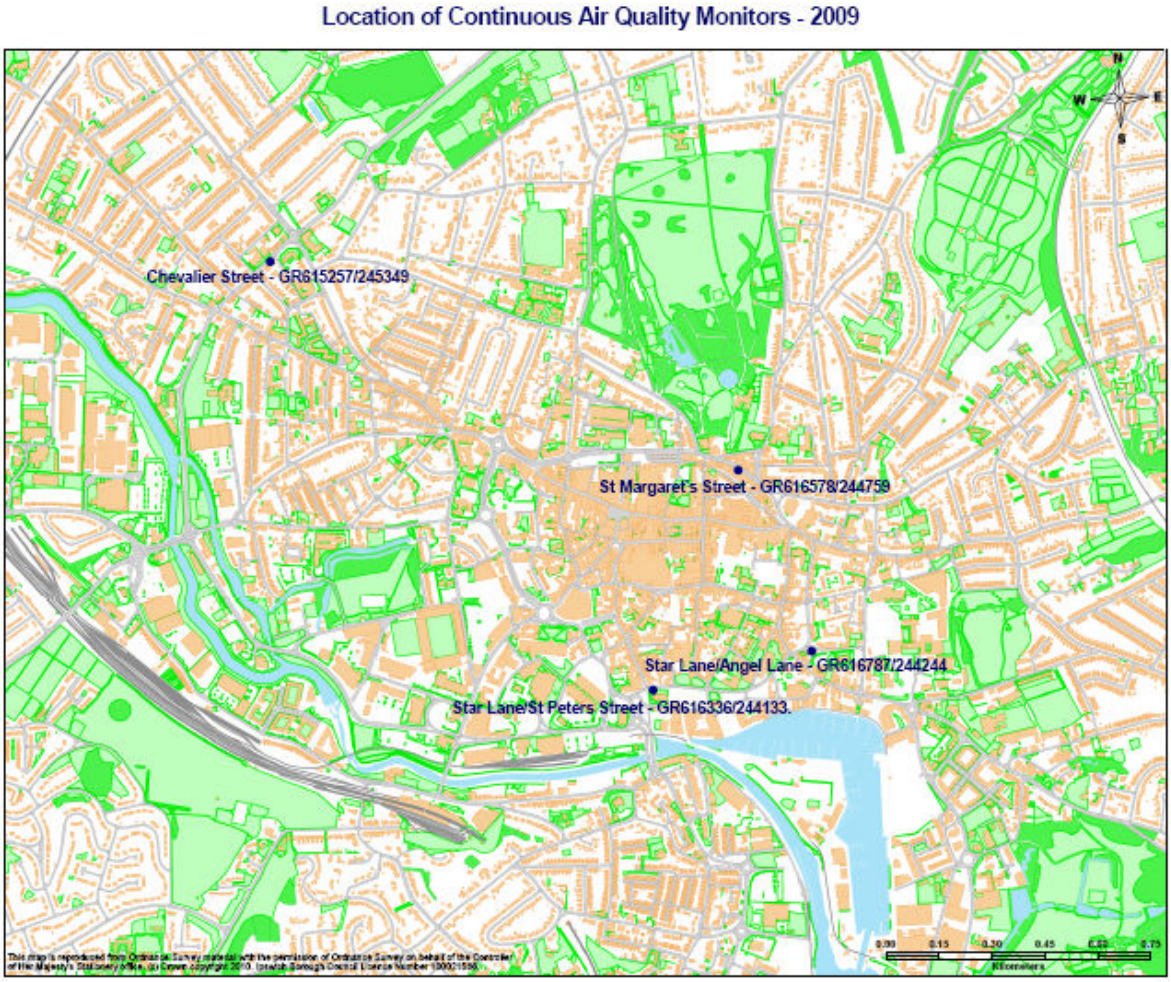


**Table 2.1 Details of Automatic Monitoring Sites 2009**

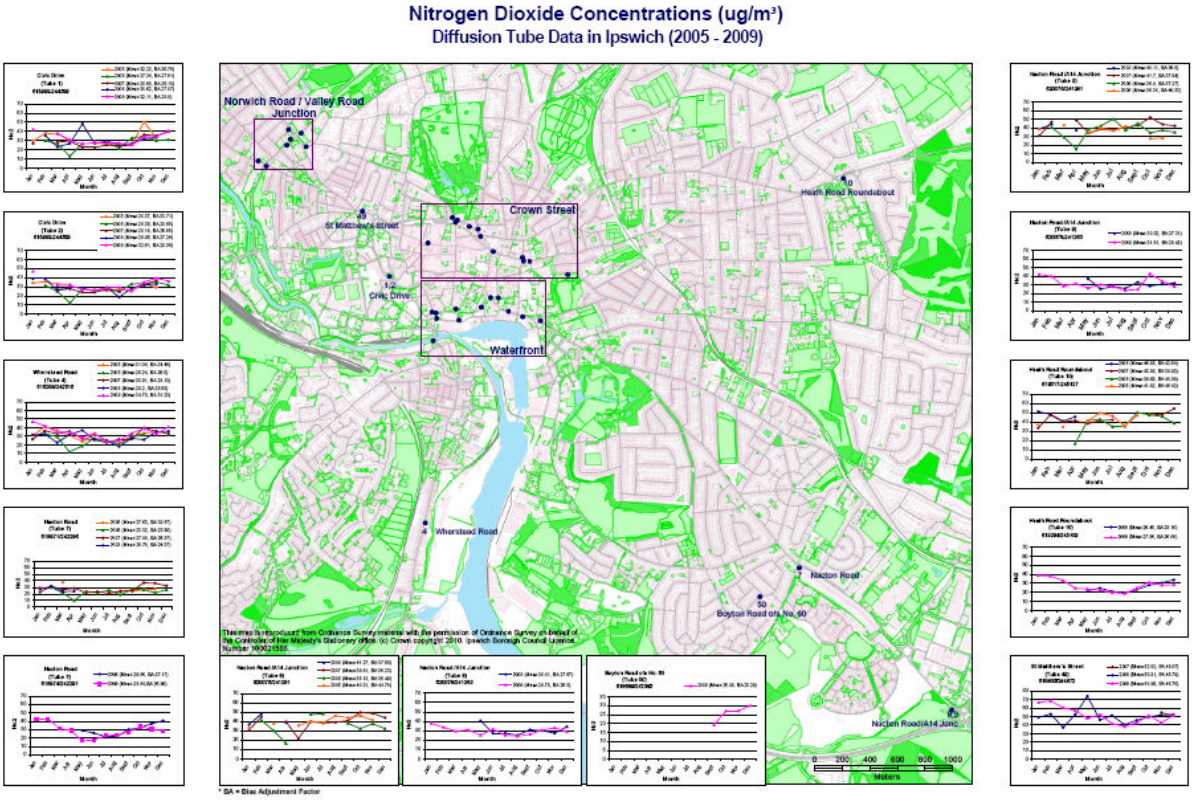
| Site Name | Site Type | OS Grid Ref | | Pollutants Monitored | Monitoring Technique | In AQMA? | Relevant Exposure? | Distance to kerb of nearest road (approx) | Does this location represent worst-case exposure? |
|---|---|---|---|---|---|---|---|---|---|
| Star Lane/Angel Lane | Urban Roadside | 616787 | 244244 | $NO_2$ and $PM_{10}$ | FDMS TEOM | Y | Y (across road, approx 20m) | 3 | No – relevant exposure across the road |
| Chevalier Street | Urban Roadside | 615257 | 245349 | $NO_2$ | | Y | Y (next door residential properties equal distance from kerb approx 2.5m) | 2.5 | Yes |
| St Margarets Street | Urban Roadside | 616578 | 244759 | $NO_2$ | | Y | Y (sited immediately adjacent to residential property 3m) | 3 | Yes |
| Star Lane/ opp St Peters Street | Urban Roadside | 616336 | 244133 | $NO_2$ | | Y | N (placed alongside proposed development areas within AQMA). Hotel across road. | 2.5m | No |

### 2.1.2 Non-Automatic Monitoring

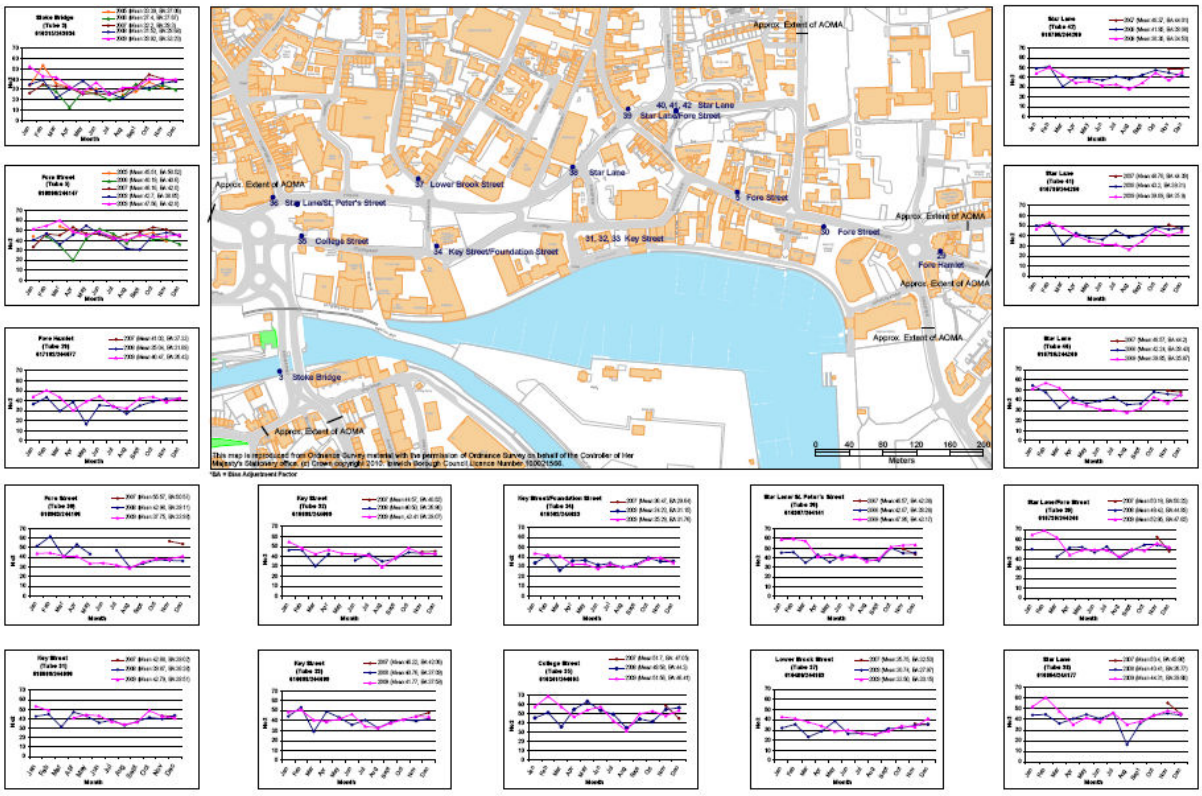
Ipswich Borough Council carries out non-automatic monitoring of $NO_2$ using diffusion tubes located in 37 different sites in the Borough. 47 diffusion tubes monitor kerbside and roadside concentrations of $NO_2$ and 2 diffusion tubes monitor background concentrations of $NO_2$. One other site has been added to the survey for a short term monitoring exercise starting September 2009. The results from this tube have not been included within this report due to the very short period of relevent monitoring. During 2009 the tubes were supplied to Ipswich Borough Council from Bereau Veritas. The laboratory used was Gradko International Ltd. The preparation Method was 20% TEA v/v in water. A summary of the QA/QC information is reported in Appendix A.

The bias adjustment figure applied to the diffusion tube results is 0.84 and is obtained through a local co-location study with the automatic continuous monitor based at Chevalier Street. The national bias correction figure from the Review and Assessment website has also been applied separately and is 0.9. A further Bias Correction factor provided from the tube supplier, Bereau Veritas, is the Intercomparison Trial figure of 13%, and reported in Appendix A of this document.

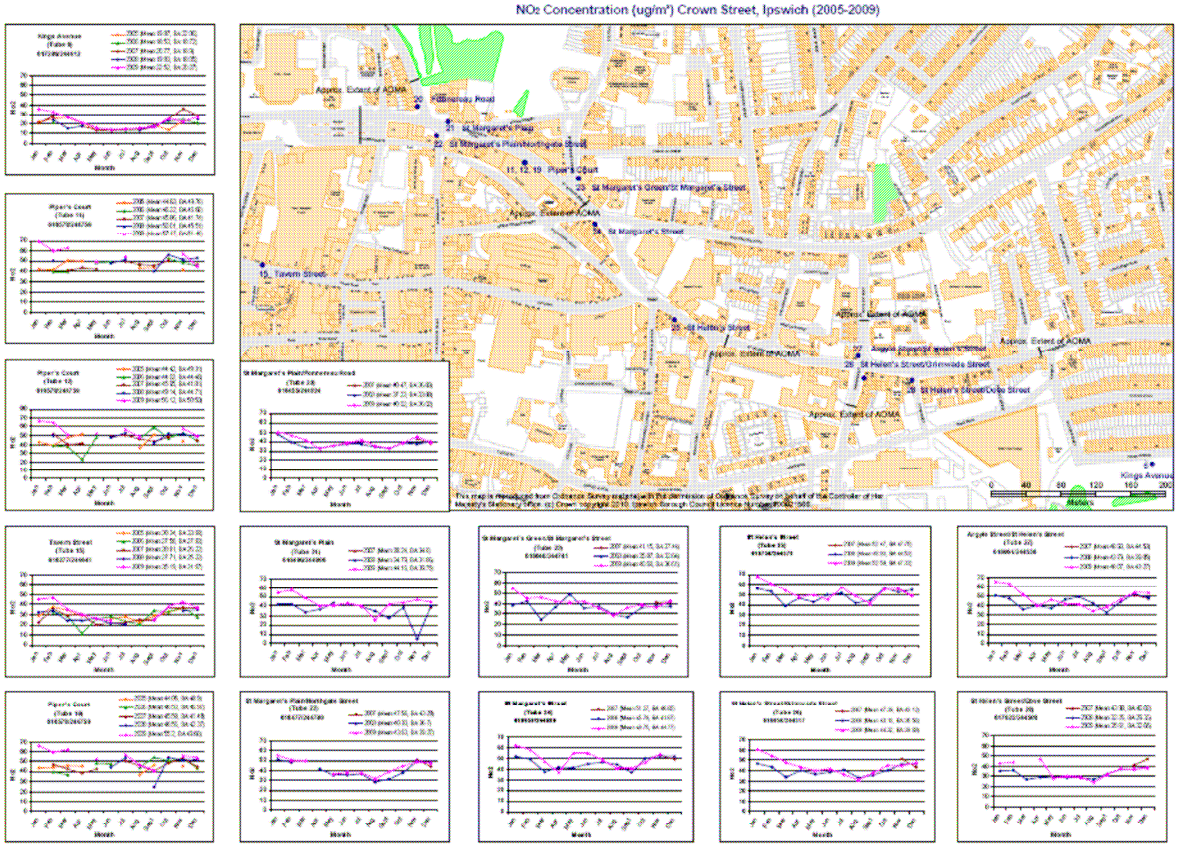
**Figure 2.2 Maps of Non-Automatic Monitoring Sites**



NO2 Concentration (ug/m³) at the Waterfront, Ipswich (2005-2009)




NO2 Concentration (ug/m³) Crown Street, Ipswich (2005-2009)



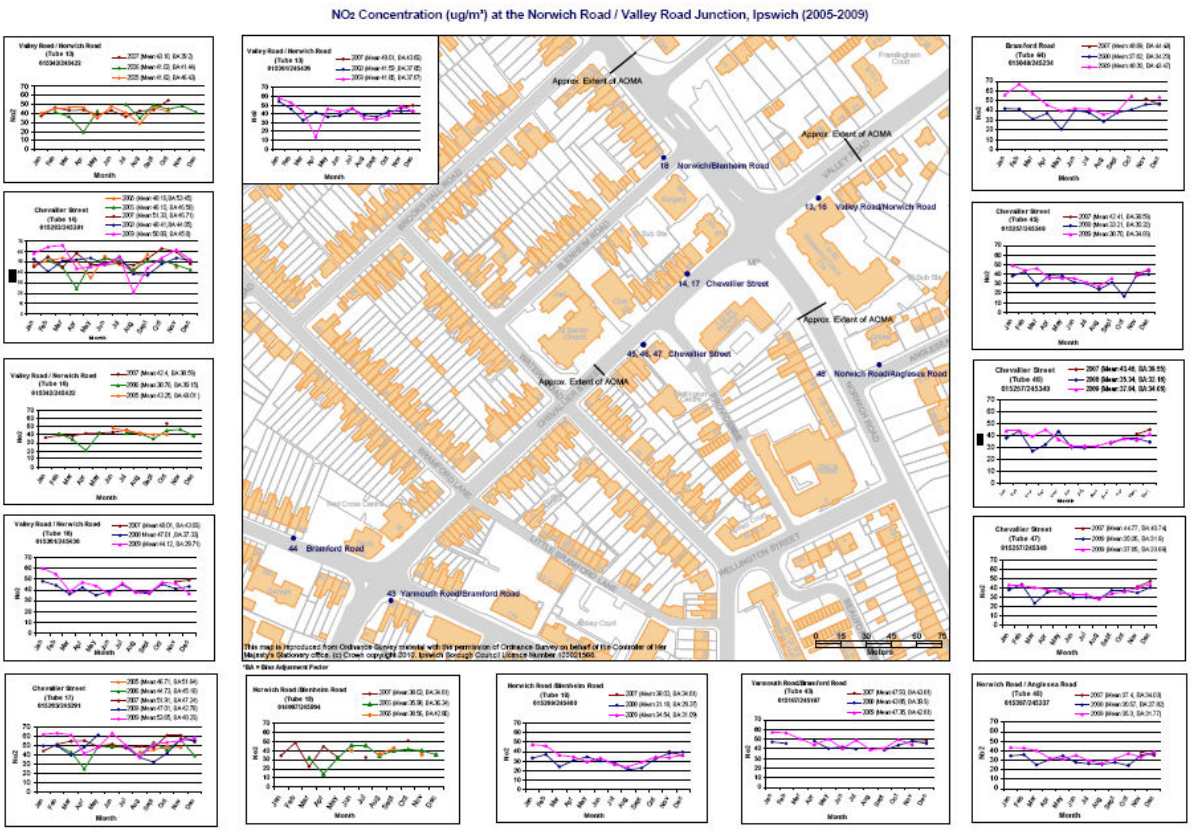

NO2 Concentration (ug/m³) at the Norwich Road / Valley Road Junction, Ipswich (2005-2009)
Approx. Extent of AQMA
18 Norwich/Blenheim Road
13, 16 Valley Road/Norwich Road
14, 17 Chevallier Street
45, 46, 47 Chevallier Street
48 Norwich Road/Anglesea Road
44 Bramford Road
43 Yarmouth Road/Bramford Road
Meters

**Table 2.2 Details of Non- Automatic Monitoring Sites 2009**

| Site Name | Tube No | Site Type | OS Grid Ref | Pollutants Monitored | In AQMA ? | Relevant Exposure? | Estimated distance of diffusion tube to kerb of nearest road | Worst-case Location? |
|---|---|---|---|---|---|---|---|---|
| Civic Drive | 1 | Urban roadside | 615999/244399 | $NO_2$ | N | Yes. Residential properties located approximately 3m from kerb. | 3m | Y |
| Civic Drive co-location | 2 | Urban roadside | 615999/244399 | $NO_2$ | N | Yes. Residential properties located approximately 3m from kerb. | 3m | Y |
| Stoke Bridge | 3 | Urban kerbside | 616315/243934 | $NO_2$ | Y | No – temporary site. | 0.5m | N |
| Wherstead Road | 4 | Urban roadside | 616258/242616 | $NO_2$ | N | Yes. Residential properties located approximately 2.5m from kerb. | 2.5m | Y |
| Fore Street | 5 | Urban kerbside | 616860/244147 | $NO_2$ | Y | Yes. Residential properties located approximately 1.15m from kerb. | 0.15m | Y |
| Kings Avenue | 6 | Urban background | 617299/244412 | $NO_2$ | N | Yes. Residential properties located approximately 15m from kerb. | 10m | Y |
| Nacton Road | 7 | Urban kerbside | 618974/242291 | $NO_2$ | N | Yes. Residential properties located approximately 5m from kerb. | 1.5m | Y |
| Nacton Rd/A14 junct | 8 | Urban roadside | 620078/241263 | $NO_2$ | N | Yes. Residential properties located approximately 9m from the kerb. | 6m | Y |
| Nacton Rd/A14 junct | 9 | Urban roadside | 620078/241263 | $NO_2$ | N | Yes. Residential properties located | 6m | Y |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | approximately 9m from the kerb. | | |
| Woodbridge Rd East | 10 | Urban roadside | 619294/245109 | $NO_2$ | N | Yes. Residential properties located approximately 8m from the kerb. | 4m | Y |
| St Margaret's Street, Pipers Court | 11 | Urban roadside | 616578/244759 | $NO_2$ | Y | Yes. Residential properties located approximately 3m from kerb. | 3m | Y |
| St Margaret's Street, Pipers Court co-location | 12 | Urban roadside | 616578/244759 | $NO_2$ | Y | Yes. Residential properties located approximately 3m from kerb. | 3m | Y |
| St Margaret's Street, Pipers Court co-location | 19 | Urban roadside | 616578/244759 | $NO_2$ | Y | Yes. Residential properties located approximately 3m from kerb. | 3m | Y |
| Valley/Norwich Road | 13 | Urban kerbside | 615361/245436 | $NO_2$ | Y | Yes. Residential approximately 5m from the kerb. | 2m | Y |
| Valley/Norwich Road | 16 | Urban roadside | 615361/245436 | $NO_2$ | Y | Yes. Residential properties located approximately 5m from the kerb. | 2m | Y |
| Tavern Street | 15 | Urban centre background | 616277/244641 | $NO_2$ | N | Yes (background). Shops located approximately 0.5m from kerb. Pedestrian-only road with limited traffic flow in the morning and evening for loading and unloading. | 0.5m | Y |
| Chevallier Street, outside number 63 | 14 | Urban kerbside | 615283/245391 | $NO_2$ | Y | Yes. Residential properties located approximately 1.25m from kerb. | 1.25m | Y |
| Chevallier Street, outside number 63 | 17 | Urban kerbside | 615283/245391 | $NO_2$ | Y | Yes. Residential properties located approximately 1.25m from kerb. | 1.25m | Y |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Norwich/Blenheim Road | 18 | Urban roadside | 615269/245460 | $NO_2$ | Y | Yes. Residential properties located approximately 6.5m from kerb. | 3m | Y |
| St Margaret's Plain/Fonnereau Road | 20 | Urban kerbside | 616455/244824 | $NO_2$ | Y | Yes. Flats and shops located approximately 1m from kerb. | 1m | Y |
| St Margaret's Plain | 21 | Urban kerbside | 616490/244806 | $NO_2$ | Y | Yes. Residential located approximately 1m from kerb, 9m down road from tube. | 1m | Y |
| St Margaret's Plain/Northgate St | 22 | Urban kerbside | 616477/244790 | $NO_2$ | Y | Yes. Public house located approximately 1m from kerb. | 1m | Y |
| St Margaret's Green/ St Margaret's Street | 23 | Urban roadside | 616640/244741 | $NO_2$ | Y | No. Offices located approximately 2m from kerb. | 1.5m | Y |
| St Margaret's Street | 24 | Urban roadside | 616659/244689 | $NO_2$ | Y | No. Placed to define boundary of AQMA | 2m | Y |
| St Helen's Street | 25 | Urban roadside | 616750/244578 | $NO_2$ | Y | Yes. Flats located approximately 2m from kerb. | 1.5m | Y |
| St Helen's St/Grimwade Street | 26 | Urban roadside | 616968/244510 | $NO_2$ | Y | Yes. Residential properties located approximately 3.5m from kerb. | 3.5m | Y |
| St Helen's St/Argyle Street | 27 | Urban kerbside | 616961/244536 | $NO_2$ | Y | Yes. Flats located approximately 4m from kerb. | 3.5m | Y |
| St Helen's St/Dove Street | 28 | Urban kerbside | 617023/244508 | $NO_2$ | Y | Yes. Public house and flats located approximately 1m from kerb. | 1m | Y |
| Fore Hamlet | 29 | Urban roadside | 617102/244077 | $NO_2$ | Y | Yes. Flats located approximately 2.15m from kerb. | 2m | Y |
| Fore Street | 30 | Urban roadside | 616963/244106 | $NO_2$ | Y | Yes. Flats located approximately 3m from kerb. | 3m | Y |
| Star Lane | | Urban | 616336/244133 | $NO_2$ | Y | No. Hotel located | 2.5m | N |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| (opp St Peters Street) | 31 | roadside | | | | across road. Proposed development sites in area. | | |
| Star Lane (opp St Peters Street) | 32 | Urban roadside | 616336/244133 | $NO_2$ | Y | No. Hotel located across road. Proposed development sites in area. | 2.5m | N |
| Star Lane (opp St Peters Street) | 33 | Urban roadside | 616336/244133 | $NO_2$ | Y | No. Hotel located across road. Proposed development sites in area. | 2.5m | N |
| Key Street/Foundation Street | 34 | Urban roadside | 616502/244083 | $NO_2$ | Y | No. Placed to define boundaries of AQMA. | 8m | Y |
| College Street | 35 | Urban roadside | 616341/244095 | $NO_2$ | Y | No. Placed to define boundaries of AQMA. | 2m | Y |
| Star Lane/St Peter's Street | 36 | Urban roadside | 616307/244141 | $NO_2$ | Y | No. Hotel located approximately 5m from kerb. | 3m | Y |
| Lower Brook Street | 37 | Urban roadside | 616480/244163 | $NO_2$ | Y | Yes. Flats located approximately 2.8m from kerb. | 2.5m | Y |
| Star Lane | 38 | Urban kerbside | 616664/244177 | $NO_2$ | Y | No. Offices located approximately 1.5m from kerb. | 0.5m | Y |
| Star Lane/Fore Street | 39 | Urban kerbside | 616730/244246 | $NO_2$ | Y | Yes. Flats located approximately 2m from kerb. | 0.5m | Y |
| Star Lane, Angel Lane | 40 | Urban roadside | 616787/244244 | $NO_2$ | Y | Yes. Residential properties located across road (20m), equal distance from kerb. | 3m | Y |
| Star Lane, Angel Lane co-location | 41 | Urban roadside | 616787/244244 | $NO_2$ | Y | Yes. Residential properties located across road (20m), equal distance from kerb. | 3m | Y |
| Star Lane, | | Urban | 616787/244244 | $NO_2$ | Y | Yes. Residential | 3m | Y |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Angel Lane co- location | 42 | roadside | | | | properties located across road (20m), equal distance from kerb. | | |
| Yarmouth Rd/Bramford Road | 43 | Urban roadside | 615107/245197 | $NO_2$ | N | Yes. Residential properties located approximately 3.5m from kerb. | 3m | Y |
| Bramford Road | 44 | Urban roadside | 615049/245234 | $NO_2$ | N | Yes. Residential properties located approximately 4m from kerb. | 1.5m | Y |
| Chevallier Street, Wellington Centre | 45 | Urban roadside | 615257/245349 | $NO_2$ | Y | Yes. Residential properties short distance along road 2.5m from kerb. | 2.5m | Y |
| Chevallier Street, Wellington Centre co-location | 46 | Urban roadside | 615257/245349 | $NO_2$ | Y | Yes. Residential properties short distance along road 2.5m from kerb | 2.5m | Y |
| Chevallier Street, Wellington Centre co-location | 47 | Urban roadside | 615257/245349 | $NO_2$ | Y | Yes. Residential properties short distance along road 2.5m from kerb. | 2.5m | Y |
| Norwich Road/Anglesea Road | 48 | Urban roadside | 615397/245337 | $NO_2$ | Y | Yes. Residential hotel located approximately 7m from kerb. | 1.5m | Y |
| St Matthews Street | 49 | Urban kerbside | 615803/244872 | $NO_2$ | N | Yes. Residential properties located approximately 1.15m from kerb. | 1m | Y |

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

### 2.2.1 Nitrogen Dioxide

**Automatic Monitoring Data**

Table 2.3a summarises the results of the automatic monitoring of Nitrogen Dioxide within the Ipswich borough compared to the annual average objective. Table 2.3b shows the same monitoring data, but compared to an hourly average objective.

**Table 2.3a Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with Annual Mean Objective**

| Location | Within AQMA? | Data Capture for monitoring period 2009 % | Data Capture for full calendar year 2009 [b] % | Annual mean concentrations (μg/m$^3$) | | |
|---|---|---|---|---|---|---|
| | | | | 2007 | 2008 | 2009 [1] |
| St Margarets Street | Y | N/A | 77.9 | **42** (81.9% data capture) | **46** (57.5% data capture) | **48** |
| Chevalier Street | Y | N/A | 98.9 | 31 (72.2% data capture) | 31 (93% data capture) | 32 |

The annual average objective is exceeded at one of the automatic monitoring locations, St Margarets Street.

**Table 2.3b Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective**

| Location | Within AQMA? | Data Capture for monitoring period [a] % | Data Capture for full calendar year 2009 [b] % | Number of Exceedences of hourly mean (200 μg/m$^3$) | | |
|---|---|---|---|---|---|---|
| | | | | 2007 [c] | 2008 [c] | 2009 |
| St Margarets Street | Y | N/A | 77.9 | 0 | 0 | 0 |
| Chevalier Street | Y | N/A | 98.9 | 0 | 0 | 3 |

**The results of the automatic monitoring of Nitrogen Dioxide do not show an exceedance of the 1 hour mean objective of 200 μg/m$^3$ not to be exceeded more than 18 times a year.**

### Diffusion Tube Monitoring Data

Table 2.4 summarises the results of the diffusion tube monitoring of Nitrogen Dioxide across the Ipswich borough.

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

| Site ID | Location | Within AQMA? | Data Capture for monitoring period 2009 % | Data Capture for full calendar year 2009 % | Annual mean concentrations (μg/m$^3$) | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 2007 | 2008 | 2009 | |
| 1 | Civic Drive | N | N/A | 92 | 26 | 28 | 27 | 29 |
| 2 | Civic Drive co-location | N | N/A | 92 | 26 | 27 | 27 | 29 |
| 3 | Stoke Bridge | Y | N/A | 100 | 29 | 29 | 31 | 33 |
| 4 | Wherstead Road | N | N/A | 100 | 28 | 27 | 29 | 31 |
| 5 | Fore Street | Y | N/A | 100 | **42** | 39 | **40** | **43** |
| 6 | Kings Avenue | N | N/A | 100 | 19 | 18 | 19 | 20 |
| 7 | Nacton Road | N | N/A | 100 | N/A | N/A | 24 | 26 |
| 8 | Nacton Rd/A14 junct | N | N/A | 100 | N/A | N/A | 25 | 27 |
| 9 | Nacton Rd/A14 junct | N | N/A | 100 | N/A | N/A | 27 | 28 |
| 10 | Woodbridge Rd East | N | N/A | 100 | N/A | N/A | 23 | 25 |
| 11 | St Margaret's Street, Pipers Court | Y | N/A | 58 | **42** | **46** | **48** | **51** |
| 12 | St Margaret's Street, Pipers Court co-location | Y | N/A | 67 | **42** | **45** | **47** | **50** |
| 19 | St Margaret's Street, Pipers Court co-location | Y | N/A | 75 | **41** | **42** | **46** | **50** |
| 13 | Valley/Norwich Road | Y | N/A | 100 | N/A | 38 | 35 | 38 |
| 16 | Valley/Norwich Road | Y | N/A | 100 | N/A | 37 | 37 | **40** |
| 15 | Tavern Street | N | N/A | 83 | 26 | 25 | 30 | 32 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 14 | Chevallier Street, outside number 63 | Y | N/A | 100 | **47** | **44** | **43** | **46** |
| 17 | Chevallier Street, outside number 63 | Y | N/A | 100 | **47** | **43** | **45** | **48** |
| 18 | Norwich/Blenheim Road | Y | N/A | 100 | N/A | 28 | 29 | 32 |
| 20 | St Margaret's Plain/Fonnereau Road | Y | N/A | 100 | N/A | 34 | 34 | 36 |
| 21 | St Margaret's Plain | Y | N/A | 100 | N/A | 32 | 37 | **40** |
| 22 | St Margaret's Plain/Northgate St | Y | N/A | 92 | N/A | 37 | 37 | 39 |
| 23 | St Margaret's Green/ St Margaret's Street | Y | N/A | 100 | N/A | 33 | 34 | 37 |
| 24 | St Margaret's Street | Y | N/A | 92 | N/A | **42** | **42** | **45** |
| 25 | St Helen's Street | Y | N/A | 100 | N/A | **45** | **44** | **47** |
| 26 | St Helen's St/Grimwade Street | Y | N/A | 100 | N/A | N/A | 37 | **40** |
| 27 | St Helen's St/Argyle Street | Y | N/A | 100 | N/A | **40** | **40** | **43** |
| 28 | St Helen's St/Dove Street | Y | N/A | 92 | N/A | 29 | 30 | 32 |
| 29 | Fore Hamlet | Y | N/A | 100 | N/A | 32 | 34 | 36 |
| 30 | Fore Street | Y | N/A | 100 | N/A | 39 | 32 | 34 |
| 31 | Star Lane (opp St Peters Street) | Y | N/A | 92 | N/A | N/A | 36 | 39 |
| 32 | Star Lane (opp St Peters Street) | Y | N/A | 100 | N/A | N/A | 36 | 39 |
| 33 | Star Lane (opp St Peters Street) | Y | N/A | 100 | N/A | N/A | 35 | 38 |
| 34 | Key Street/Foundation Street | Y | N/A | 100 | N/A | 31 | 30 | 32 |
| 35 | College Street | Y | N/A | 100 | N/A | **44** | **43** | **46** |
| 36 | Star Lane/St Peter's Street | Y | N/A | 100 | N/A | 38 | **40** | **43** |
| 37 | Lower Brook Street | Y | N/A | 100 | N/A | 28 | 28 | 30 |
| 38 | Star Lane | Y | N/A | 100 | N/A | 37 | 37 | **40** |
| 39 | Star Lane/Fore Street | Y | N/A | 100 | N/A | **45** | **44** | **48** |
| 40 | Star Lane, Angel Lane | Y | N/A | 100 | N/A | N/A | 33 | 36 |
| 41 | Star Lane, Angel Lane co-location | Y | N/A | 100 | N/A | N/A | 34 | 36 |
| 42 | Star Lane, Angel Lane co- location | Y | N/A | 100 | N/A | N/A | 32 | 35 |
| 43 | Yarmouth Rd/Bramford Road | N | N/A | 92 | N/A | **40** | **40** | **43** |
| 44 | Bramford Road | N | N/A | 92 | N/A | 34 (see note) | **41** | **43** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 45 | Chevallier Street, Wellington Centre | Y | N/A | 92 | N/A | 30 | 33 | 35 |
| 46 | Chevallier Street, Wellington Centre co-location | Y | N/A | 100 | N/A | 32 | 32 | 34 |
| 47 | Chevallier Street, Wellington Centre co-location | Y | N/A | 100 | N/A | 32 | 32 | 34 |
| 48 | Norwich Road/Anglesea Road | Y | N/A | 100 | N/A | 28 | 30 | 32 |
| 49 | St Matthews Street | N | N/A | 100 | N/A | **46** | **44** | **47** |

1 Local Bias Correction Factor applied 0.84 / National Bias Correction Factor applied 0.9.

note – this figure is influenced by one very low result for one month.

As can be seen within table 2.4, the diffusion tube monitoring shows a number of exceedances of the annual average objective. Of the locations showing an exceedance of the objective, just three are outside of existing AQMAs. Two of these, Yarmouth Road/Bramford Road and Bramford Road, are within the area being defined for a new AQMA. The other one, St Matthews Street, is within an area undergoing a Detailed Assessment as a result of the 2009 USA report.

Fall off with distance calculations have been applied to a number of the results as shown in table 2.5. However these results should be treated with caution as distances have been estimated and tube and receptor locations are all within 3m of each other. Tube locations have been adjusted for 2010 in an attempt to get more relevant directly measured data to enable existing AQMA boundaries to be reviewed.

**Table 2.5 Results with distance fall off applied as relevant**

| **Tube ID and Location** | **Measured Result ug/m$^3$** | **Result with fall off for Distance ug/m$^3$ (1)** |
|---|---|---|
| 5 Fore Street | 40/43 | 34/36 |
| 16 Valley/Norwich Road | 37/40 | 33/36 |
| 25 St Helens St | 44/47 | **43/45** |
| 27 St Helens St/Argyle St | 40/43 | 39/**42** |
| 36 Star Lane/ St Peters St | 40/43 | 37/**40** |
| 38 Star Lane | 37/40 | 34/36 |
| 39 Star Lane/Fore St | 44/48 | 38/**41** |
| 43 Yarmouth Rd/Bramford Rd | 40/43 | 39/**42** |
| 44 Bramford Road | 41/43 | 37/38 |
| 49 St Matthews Street | 44/47 | **43/46** |

(1) Local Bias Correction Factor applied / National Bias Correction Factor applied.

### 2.2.2 $PM_{10}$

Ipswich Borough Council has one automatic monitor that monitors concentrations of $PM_{10}$ along with $NO_2$. Due to the short duration of monitoring using this monitor, results have not been included in the $NO_2$ results section of this report. However, it has been decided to include the results in the particulates section due to a lack of other monitoring locations.

This monitor is a TEOM FDMS with a type C drier. It has been operational since April 2009. Whilst it is located in an open space beside a busy urban road, it is of approximately equal distance from the kerbside as the kerbside is to relevant receptor locations on the opposite side of the road and so is considered representative.

**Table 2.6a Results of $PM_{10}$ Automatic Monitoring: Comparison with Annual Mean Objective**

| Location | Within AQMA? | Data Capture for monitoring period % | Data Capture for full calendar year 2009 % | Annual mean concentrations ($\mu g/m^3$) | | |
|---|---|---|---|---|---|---|
| | | | | 2007 | 2008 | 2009 |
| Star Lane | Y | 91.4 | 70 | N/A | N/A | 23 |

**Table 2.6b Results of $PM_{10}$ Automatic Monitoring: Comparison with 24-hour Mean Objective**

| Location | Within AQMA? | Data Capture for monitoring period % | Data Capture 2009 % | Number of Exceedences of daily mean objective (50 $\mu g/m^3$) | | |
|---|---|---|---|---|---|---|
| | | | | 2007 | 2008 | 2009 |
| Star Lane | Y | 91.4 | 70 | N/A | N/A | 6 |

This monitor has only been operational for 8 months and it has not been possible to estimate the annual mean from this short term monitoring due to the lack of suitable national network, background continuous monitors within a 50 mile radius. The 90$^{th}$ percentile for $PM_{10}$ based on the daily mean data set for 2009 is 33. This suggests that PM10 concentrations for 2009 were unlikely to exceeded 50ug/m3 on 35 occasions across 2009. In addition, the annual average result for April 2009 – April 2010 is 25$\mu g/m^3$ with just 16 exceedances of the daily average.

In conclusion, there is no indication of a likely exceedance of the annual mean objective of 40$\mu g/m^3$ , there are less than 35 exceedances of the daily average objective, and the 90$^{th}$ percentile of the daily mean does not exceed 50 ug/m3. It can therefore be concluded that at this location within the borough there are no predicted exceedances of the national objectives for particulates.

This monitor is likely to be relocated to an area where complaints of dust have been received, upwind from a number of potential sources of particulates.

### 2.2.3 Sulphur Dioxide

Ipswich Borough Council has not carried out any monitoring of Sulphur Dioxide.

### 2.2.4 Benzene

Ipswich Borough Council has not carried out any Benzene monitoring.

### 2.2.5 Other pollutants monitored

Ipswich Borough Council has not carried out monitoring for any other pollutants.

### 2.2.6 Summary of Compliance with AQS Objectives

Ipswich Borough Council has examined the results from monitoring Particulates ($PM_{10}$s) in the borough. Concentrations are all below the objective levels and there is no need to proceed to a Detailed Assessment.

Ipswich Borough Council has measured concentrations of Nitrogen Dioxide above the annual mean objective at a relevant location outside of the AQMA, and **will need to proceed to a Detailed Assessment** for the St Mathews Street/Berners Street junction. The need for this Detailed Assessments was highlighted in the 2009 Updating and Screening Assessment and the work is ongoing. Work is also progressing to define the boundaries of a new AQMA within the Bramford Road/Chevallier Street area where monitoring and modelling exceedances have been identified.

# 3 New Local Developments

There have been no new industrial installations with the potential to impact on air quality within the Ipswich Borough during 2009.

There are no known development control permissions for new Biomass Boilers during 2009. It has however, become apparent that applications for Biomass Boilers are often 'hidden' within the detail of a much larger application. Whilst the boiler is considered as part of the statutory consultation process, it is not listed on the summary records and therefore it is impossible to obtain a list for the purposes of this report. A new method of recording the information is being considered for reporting purposes.

A new Mixed use development comprising retail food store (class A1), further retail/restaurant & cafe units (class A1/A3), 2 hotels (class C1), leisure (class D2) & 112 residential units (class C3) and parking, has been given permission for Grafton Way, in an area just outside of town centre. Air Quality was considered as part of the application and contributions to sustainable travel and traffic management were made. The town centre location should help enable and promote sustainable travel or short journeys for the occupiers of the new residential developments within the area.

There have been a number of small and large scale applications/permissions for development around the riverside area of Ipswich. This area has been undergoing considerable regeneration into a residential and commercial extension to the centre of Ipswich over a number of years alongside the development of the student quarters around the university. Air Quality is considered for each application with both the effect of the air quality on the new relevant receptors, and the effect of the development on the air quality of the area being assessed.

There are no new landfill sites or quarries within the Ipswich area, or immediately adjacent to it, that would affect air quality.

## 3.1 Road Traffic Sources

Ipswich Borough Council transport policy section confirm that the only significant change to transport flows during 2009 which may impact on air quality is the closing of Rope Walk to through traffic. This is likely to result in a slight increase in traffic flow on St Helens Street and Back Hamlet.

The impact of this closure on Back Hamlet will be considered during the next review and assessment of air quality. St Helens Street is partially already within an AQMA, or included within an ongoing Detailed Assessment. The impact of increased traffic within this area will therefore be considered automatically as these assessments take place.

## 3.2 Other Transport Sources

There are no other transport sources, as described within the guidance, likely to impact significantly on the air quality of Ipswich.

Following the submission of the Ipswich Borough Council Updating and Screening Assessment 2009, the review and assessment appraisal report requested confirmation of airports within the borough. There are no airports within, or adjacent to, the Ipswich Borough Council boundary.

## 3.3 Industrial Sources

Dunn Bros, West Bank Terminal, Wherstead Road is a new waste storage facility and is permitted by the Environment Agency.

Southern Cement is relocating its operation further away from town centre. The new site is not yet fully operational at the time of writing this report.

Ancient House Press has substantially changed its operation with the installation of a fourth press.

These will all be considered within the next round of review and assessment.

## 3.4 Commercial and Domestic Sources

There are no known new biomass boilers of greater than 50kW. Unfortunately the record of planning applications/consultations does not allow a search for Biomass boiler applications. A new way of recording this information is being implemented to enable this information to be found in the future.

The 2009 Updating and Screening Assessment identified a need for further screening of the Biomass boiler at the Reg Driver Centre, Christchurch Park. Details of the boiler have now been obtained and it is listed on the Defra list of compliant boilers for smoke control areas. Actual emission rates are not available and so further screening has been carried out using estimates of emissions from the EMEP/EEA guidebook and the guidance within LAQM.TG(09). Background adjusted emission rates of $PM_{10}$ are 2.99 $^{-4}$ g/s and for NOx are 6.2 $^{-4}$ g/s. Stack diameter is 30cm, and stack height is 5.5m (with no need to calculate effective stack height). Using nomograms 5.19 and 5.20, the emission rates are well below those requiring further investigation or screening.

There has been no obvious increase in areas of small individual biomass combustion within the borough. The advice on the faq on the Defra website suggests that for Ipswich there would need to be a minimum of 200 households in a 500x500m area burning biomass in a fireplace/woodburner as a principle source of heat to lead to an exceedance of the UK objectives for $PM_{10}$. It is considered unlikely that this figure is achieved, with no evidence of large amounts of small biomass burning being present. However, this will be further investigated within the next round of review and assessment.

## 3.5 New Developments with Fugitive or Uncontrolled Sources

Planning permission has been given for a new waste transfer station at Bluestem Road, Ipswich. Dust suppression has been conditioned into the permission, which, along with the fact that the transfer station is sited a significant distance away from houses, is expected to significantly reduce any impact on local air quality. It is therefore concluded that there will be no requirement to assess the impact of this source during the next round of review and assessment.

Ipswich Borough Council has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area:

Mixed Use Development, Grafton Way;
Ongoing Waterfront Development;
Closure of Rope Walk to through traffic;
Dunn Bros new waste storage facility;
Southern Cement relocation;
Ancient House Press expansion.

These will be taken into consideration in the next Updating and Screening Assessment, scheduled for 2012.

# 4 Air Quality Planning Policies

The Suffolk Local Authority Air Quality group has written draft guidance on planning and air quality. This is currently undergoing final consultation with all the local authority planning policy officers, before progressing to full consultation. It is hoped that all the Suffolk authorities will adopt the guidance. The aim of the guidance is to provide support to local authority air quality officers, planning officers and applicants/consultants, along with improving consistency.

# 5 Local Transport Plans and Strategies

The Local Transport Plan, prepared in 2005 by Suffolk County Council, to run from 2006 to 2011 is a county wide document for the purposes of stating transport policy: Suffolk County Council Local Transport Plan.

The Local Transport Plan contains information on the four shared priorities : accessibility, safety, congestion and air quality. It contains a chapter dedicated to Air Quality, (Ch 8) with the two main objectives stated as being:

- to comply with the requirements of the National Air Quality Strategy

- to seek to maintain and, where possible, improve air quality in Suffolk

An LTP2 Progress Report was prepared in the summer of 2008: LTP2 Progress Report . This document also included a dedicated chapter to air quality within Suffolk.

The Ipswich Borough Council Environment Strategy has considerable information on the role of the council in local transport strategy. The following extract is taken from the Environment Strategy and summarises ongoing work on sustainable travel:

***'Ipswich's Role in Transport Strategy.***
*As the Passenger Transport Authority and the Highway Authority, Suffolk County Council (SCC) is the statutory body responsible for determining transport policy in Ipswich. However, Ipswich does have significant powers provided through its Highway Agency agreement with SCC. This means that Ipswich can undertake works within the highway without having to obtain permission, for example, making improvements to sustainable transport provision such as cycle and pedestrian routes.*
*Ipswich uses its discretionary powers to support public transport such as grants to support bus routes that are not commercially viable but socially desirable, the provision of bus shelters and highway infrastructure work to aid access.*
*The primary drivers for transport strategy are the Ipswich Transport Strategy (ITS) and the Council's Local Transport Plan (LTP). The strategic objectives are to contain the growth in traffic and congestion by improving flow at key junctions whilst discouraging single occupancy car use in favour of walking, cycling and public transport (modal shift). These aims are pulled together through the Ipswich Major Scheme 'Ipswich – Transport Fit for the 21st Century'. The scheme contains a package of sustainable transport measures covering the full range of travel patterns – in and around the town centre, between the town centre and the suburbs, and to and from the rural hinterland and towns. It comprises landmark changes to the town centre bus interchanges: expansion and improvement of other bus facilities; an Urban Traffic Management and Control system; Real Time Passenger information system and a detailed programme of improvements to the walk/cycle routes and crossings. The scheme aim is to achieve a 15% modal shift.*
*In support of this there are two schemes to promote modal shift that will be underway in 2010, Travel Smart and Ipswich Smiles.*
*TravelSmart funded by Defra Greener Living Fund and Suffolk County Council with*

*input from IBC; offers individualised travel marketing and planning to 17,000 households in Ipswich. Delivered by the sustainable transport charity Sustrans, the project encourages modal shift to cycling, walking and public transport. Focussed on two sectors, the inner ring around the town centre and a second area that adjoins specific bus routes; the project covers the following wards: Castle Hill, Rushmere, St Margarets, Westgate, Gipping, Alexandra, Bridge, Sprites and Stoke Park. The programme aims to achieve modal shift of up to 15% in the target areas. Launching in Spring 2010 a final report will be made in Spring 2011.*
*IpswichSmiles is a pilot scheme that is principally funded by ERDF & SCC with further financial contributions from public transport providers, Business Improvement District and business networks. The aim of the scheme is to encourage modal shift by supporting small to medium sized local businesses (SMEs) in establishing travel plans in the organisation. The package will include technological innovations to make public transport more attractive, such as ticketing and timetabling by mobile phone, and a set of incentives and rewards for those travelling sustainably. The programme will also include exploration of how businesses might be able to use salary sacrifice to support the purchase of bus passes through the payroll. The scheme aims are to achieve a 15% reduction in carbon emissions arising from travel & congestion and encourage modal shift of up to 15%.*

*Both scheme are exploring ways of delivering multi operator and journey ticketing. The vision is to create simple and equitable schemes that encourage greater travel by passenger transport and promote accessibility to key services through provision of affordable travel. Multi operator ticketing schemes are considered particularly beneficial for Ipswich, where two major operators provide commercial services.*
*The Council is able to offer its own Green Travel Plan for staff travel as an exemplar of travel planning. Supported by charges for staff parking, the Plan offers discounted commuting on public transport and encourages walking, cycling and car sharing. Staff surveys indicate that the scheme is now achieving a level of 50% of staff travelling sustainably by bus, walking, cycling, rail or carsharing.'*

# 6 Climate Change Strategies

Ipswich Borough Council has not yet published a Climate Change Strategy. However, a comprehensive Environment Strategy has been adopted by the Council and is in the process of being updated.

The Environment Strategy is an overarching document, which explains how other strategies policies, and plans contribute to the councils environmental objectives. Included within the document is a brief summary of air quality work and the links to climate change. The main link between the air quality work and the climate change work within Ipswich is on transport and the need to move to sustainable travel and reduce emissions to air. The Ipswich AQMAs exist because of congestion and high levels of vehicle useage. Further detail on the Environment Strategy is given in chapter 5 of this report.

# 7 Conclusions and Proposed Actions

## 7.1 Conclusions from New Monitoring Data

Nitrogen Dioxide monitoring data from 2009 confirms that the existing AQMAs continue to be relevant, but that it will be necessary to review boundaries after another years worth of data has been obtained. In addition, it supports the declaration of a fourth AQMA around the Bramford Road/Chevallier Street junction, and the Detailed Assessments at St Helens Street and the junction of St Mathews Street/Berners Street. At many, but not all, of the monitoring locations there does appear to be an upward trend in nitrogen dioxide levels. This will be considered further at later reviews as more data becomes available.

Particulate monitoring in a town centre location on a busy highway concludes that there are no expected exceedances of the objective for $PM_{10}$.

## 7.2 Conclusions relating to New Local Developments

Ipswich Borough Council has identified the following new or previously unidentified local developments, which may impact on air quality in the Local Authority area:

Mixed Use Development, Grafton Way;
Ongoing Waterfront Development;
Closure of Rope Walk to through traffic;
Dunn Bros new waste storage facility;
Southern Cement relocation;
Ancient House Press expansion.

These will all require consideration at the next Updating and Screening Assessment. At this stage, none require a Detailed Assessment.

## 7.3 Other Conclusions

A progress report of the Air Quality Management Area Action Plans will be submitted as a separate report.

The draft Air Quality Planning Guidance developed by the Suffolk local authorities is undergoing final approval before full consultation.

## 7.4 Proposed Actions

The next course of action for Ipswich Borough Council is to:

- Declare a new AQMA for the Bramford Road/Chevallier Street junction (followed by a Further Assessment within 12 months of declaration). Once the

declaration and Further Assessment are completed, an AQMA action plan will be required.

- A Detailed Assessment is to be carried out for a Biomass Boiler on Nacton Road for both particulates and nitrogen dioxide. The need for this assessment was identified in the 2009 Updating and Screening Assessment and will be carried out by dispersion modelling.

- A Detailed Assessment for nitrogen dioxide is required at St-Matthew's Street and St-Helen's Street with a view to determining whether or not to declare new AQMAs. The monitoring location showing the exceedance on St Helens Street is located in between the St-Margaret's AQMA and the Star Lane Gyratory AQMA. The findings of the Detailed Assessment should determine whether the two AQMA boundaries should be merged, thereby increasing its area. A new AQMA order may then be necessary. The Detailed Assessments are to be carried out using diffusion tube monitoring. The monitoring is underway and will be completed during 2011.

- Submit a progress report on the Air Quality Management Area Action Plans.

- Progress Report 2011.

# 8 References

Air Quality Action Plan (2008)
Air Quality (England) Regulations 2000 (SI 928)
Air Quality Daughter Directive
Defra website http://smokecontrol.defra.gov.uk/appliances.php
Detailed Assessment (April 2005)
Bramford Road/Chevallier Street Detailed Assessment (2010)
Environment Act (1995)
Further Assessment Report (August 2008)
Ipswich Air Quality Management Order No 1, 2006
Ipswich Air Quality Management Order No 2, 2006
Ipswich Air Quality Management Order No 3, 2006
National Atmospheric Emissions Inventory Database
Progress Report (2005)
Technical Guidance LAQM.TG (09)
The Air Quality (England) (Amendment) Regulations 2002 (SI 3043)
Updating and Screening Assessment (2003)
Updating and Screening Assessment (2008)
Updating and Screening Assessment (2009)

# Appendices

## Appendix A: Summary of Bias Adjustment and QA:QC Data

### Diffusion Tube Bias Adjustment Factors

Diffusion tubes in 2009 were prepared and analysed by Gradko International Limited. The tube preparation method is 20% TEA in water. In February 2008, practical guidance was issued by Defra and the Devolved Administrations to harmonise the different steps in UK diffusion tube methodology. The current tube preparation methodology used by Gradko is included within the guidance and no subsequent change was required.

### Discussion of Choice of Bias Adjustment Factor to Use

Both the national and locally calculated tube bias adjustment factors have been given in this report.

### QA/QC of automatic monitoring

The automatic monitors are routinely calibrated once every 2 weeks by an Ipswich Borough Council Environmental Protection Officer and serviced once a year by the manufacturers.

All data collected from the automatic monitors is managed by external consultants (AEA) to quality procedures developed under the UK National Network. The data management processes represent best practice and fully meet the requirements set out in LAQM TG(09).

All data are screened and scaled (on the basis of site calibrations) and the final data sets presented within this report have benefited from a full process of data ratification, including thorough additional data quality checks that include site UKAS quality control audits and a final data ratification process that corrects data for instrument sensitivity drift between routine calibrations.

### QA/QC of diffusion tube monitoring

Gradko International Ltd currently holds UKAS accreditation and participates in the Workplace Analysis Scheme for Proficiency (WASP) for $NO_2$ diffusion tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring $NO_2$ concentrations reported are of a high calibre. In 2009 the AEA Intercomparison rating for Gradko was “Good”. The following table shows the laboratory performance against the Intercomparison Criteria.

Gradko Performance 20% TEA v/v Water.

| Annual Mean Bias | | Precision | |
|---|---|---|---|
| AEA Performance Target | Gradko Annual Mean Bias | AEA Performance Target | Gradko Precision |
| **±25%** | **-13 %** | **10%** | **4%** |

The WASP scheme during 2009 – 2010 scored laboratories on a rolling index of z-scores. The z-scores rate laboratories as “satisfactory”, “adequate” or “unsatisfactory”. For the rounds that occurred during 2009 Gradko was deemed satisfactory.