IPSWICH
BOROUGH COUNCIL

2013 Air Quality Progress Report for *Ipswich Borough Council*

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

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Executive Summary

Diffusion tubes and Continuous Monitors located within the existing Air Quality Management Areas have shown exceedences of the nitrogen dioxide annual average objective level. Exceedences were also obtained at locations outside of the existing Air Quality Management Areas. The air quality in Ipswich has not changed significantly in the last year.

Two detailed assessments were undertaken in 2012 in the town centre, St Matthew's Street and St Helen's Street. The outcome of these assessments indicated that is it likely that the AQMA's in the town centre will be merged to form one large AQMA. The monitoring data obtained in 2012 support this conclusion.

The projects that have begun in recent years such as the Major Ipswich Scheme [Fit for the 21st Centruy] and the Urban Traffic Management Control scheme have not yet been completed and therefore it is not yet possible to assess their effectiveness. This will be considered in later reports.

The next stage will be to declare the town centre AQMA which is estimated to be completed in the Summer of 2014.

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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 area 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

This report fulfils the requirements of the Local Air Quality Management 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, 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 microgrammes 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 LAQM in England

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	5.00 µg/m^3	Annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m^3	Annual mean	31.12.2004
	0.25 µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m^3, not to	1-hour mean	31.12.2004

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
	be exceeded more than 24 times a year		
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/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 would 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 St, Norwich Road/Chevallier St junction and the Star Lane gyratory system/St Helen's St. 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 exceedence of the 40µg/m3 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 exceedence of the Air Quality Objectives as Air Quality Management Areas (AQMAs). Ipswich Borough Council declared three AQMAs on the 11th of April 2006:

- *Ipswich Air Quality Management Order No 1, 2006: Norwich Road, Chevallier St 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). 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 St, leading from the roundabout has terraced properties facing directly onto a pavement.

- *Ipswich Air Quality Management Order No 2, 2006: Junction of Crown St with Fonnereau Road and St Margaret's St 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). There are main traffic lights at the junction of St Margaret's St and St Margaret's Plain and pedestrian crossing lights just beyond the junction of Crown St and Fonnereau Road. The area along St Margaret's St is partially canyoned. St Margaret's St has historically been flanked by flats on one side, and a vacant building on the other. The vacant building has recently been demolished but historic 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 St/Grimwade St.*

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). 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, although slower in recent times. 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 Chevallier St Junction.

The Detailed Assessment, recommended in the USA, was completed in draft in December 2009 and finalised August 2010, and concluded that there were likely to be exceedences of the annual mean NO_2 objective at this location. It was unlikely that the hourly objective will be exceeded. The predicted exceedences of the annual mean objective can be attributed to slow moving vehicles, congestion and queuing traffic.

A new AQMA was declared in December 2010 and is shown on figure 1:

- *Ipswich Air Quality Management Order No. 4, 2010: Bramford Road/Yarmouth Road/Chevallier St junction.*

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 St junction and St Helens St, along with a Detailed Assessment of both NO_2 and PM_{10} at a Biomass Boiler on Nacton Road. The Detailed Assessment of NO_2 and PM_{10} at a Biomass Boiler on Nacton Road was completed in September 2011 and concluded that there was no need for any further assessments of this process. Further screening for NO_2 and PM_{10} at the Biomass boiler at the Reg Driver Centre, Christchurch Park was also required and was reported in the 2010 Progress Report which was completed in October 2010. It was found that the emissions rates from the Reg Driver Centre were well below those requiring further investigation or screening.

The 2011 Progress Report highlighted a small number of locations outside of the existing Air Quality Management Areas, all of which are under investigation as part of ongoing assessments or very close to an Air Quality Management Area boundary where they will be reviewed as part of a Further Assessment.

Particulate monitoring in the Borough showed no exceedences of the PM_{10} objectives over the course of 2010.

The detailed assessment of St Matthews Street round about area in 2010 indicated that concentrations of nitrogen dioxide are above air quality objective values along parts of St Matthews's Street either side of the Civic Drive Roundabout.

Based on this detailed assessment and review of the monitoring data within the areas under assessment it is concluded that specific areas along St Matthew's either side of the roundabout be declared as Air Quality Management Areas. Similarly, a detailed assessment undertaken in 2010 indicated that concentrations of nitrogen dioxide are above air quality objective values along parts of St Helen's Street and Woodbridge Road. Based on this detailed assessment and review of the monitoring data within the areas under assessment it is concluded that further areas along St Helen's Street and Woodbridge Road be declared as Air Quality Management Areas.

Summary

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

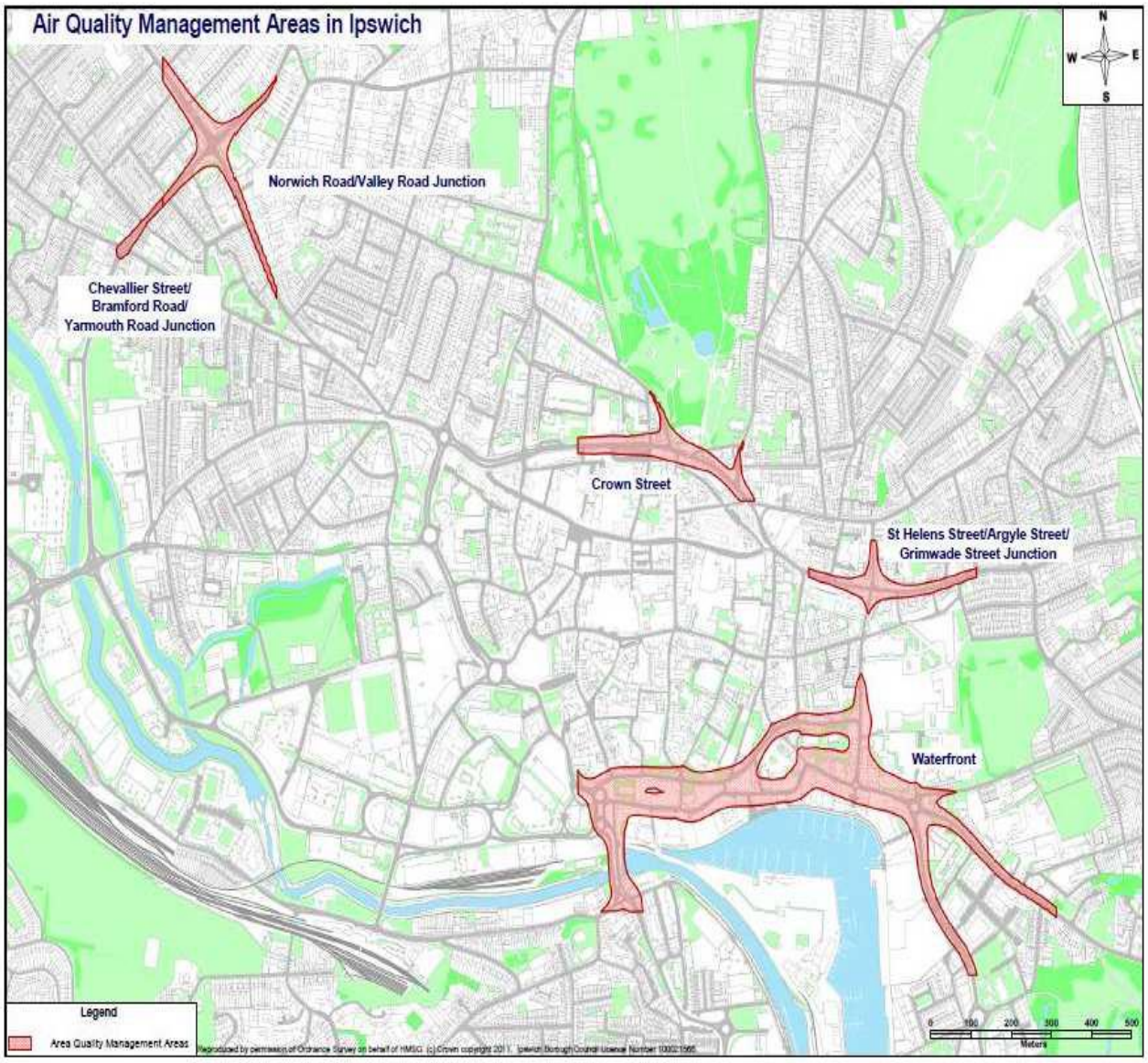
Table 1.2 Summary of previous review and assessments carried out by Ipswich Borough Council

Round	Date	Type of Assessment	Outcome/Conclusion
1	March 2001	Final assessment	Predicted that the Air Quality Objectives would be met. 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
	April 2006		Declaration of 3 Air Quality Management Areas.
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. 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 Chevallier St Junction.
	January 2008	Further Assessment	Data included in the 2009 Updating and Screening Report as requested by Defra
	September 2008	AQ Action Plan	
4	January 2010	Updating and Screening Assessment	Concluded that a Detailed Assessment for nitrogen dioxide is required at St-Matthew's St and St-Helen's St. A Detailed Assessment was 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.
	August 2010	Detailed Assessment - Yarmouth Road	Concluded that there were likely to be exceedences of the annual mean NO_2 objective at this location
	October 2010	Progress Report	Further investigation of emissions of particulate matter and nitrogen dioxide emissions from the Reg Driver Centre, Christchurch Park, Ipswich concluded that they are well below those requiring further investigation or screening. Particulate monitoring at one location within the borough shows no exceedences of the objective levels. Six new or previously unidentified local developments were acknowledged as requiring further investigation during the next USA, scheduled for 2012.
	December 2010		Declaration of AQMA – Bramford Road/Chevallier St junction
	January 2011	Progress Report	Small number of locations outside of the existing AQMA identified, all of which are under investigation as part of ongoing assessments or very close to an AQMA where they will be reviewed as part of a Further Assessment. Particulate monitoring in the Borough showed no exceedences of the PM_{10} objectives over the course of 2010.
	September 2011	Detailed Assessment	NO_2 and PM_{10} at a Biomass Boiler on Nacton Road – concluded no exceedences of objective levels.
	August 2012	Detailed Assessment -	It is concluded that specific areas along St Matthew's either side of the roundabout be

		St Matthews Street	declared as Air Quality Management Areas.
	August 2012	Detailed Assessment - St Helen's Street	It is concluded that specific areas along St Helen's St and Woodbridge Road be declared as Air Quality Management Areas.

Figure 1. Map(s) of AQMA Boundaries (if applicable)



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

The data considered in this Progress Report related to monitoring results obtained in for 2012. Results from previous years monitoring have been considered in the relevant Progress Report for that year.

2.1.1 Automatic Monitoring Sites

Ipswich Borough Council runs two Automatic Monitoring Stations which monitor Nitrogen Dioxide concentrations and are located within AQMAs.

Suffolk County Council also runs a continuous monitor in Star Lane (monitoring Nitrogen Dioxide) that is intended to support the proposed Urban Traffic Management Control System (UTMC). Ipswich Borough Council provides the support to the Suffolk County council machine on the routine calibration visits.

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

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	X OS GridRef	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Does this location represent worst-case exposure?
Chevallier St	Urban Roadside	615257	245349	NO2	Y	Y (next door residential properties equal distance from kerb, approx 2.5m	2.5m	yes
St. Margaret's St	Urban Roadside	616578	244759	NO2	Y	Y (sited immediately adjacent to residential property 3m)	3m	yes
Star Lane/opp St Peters St	Urban Roadside	616336	244133	NO2	Y	N (placed alongside proposed	2.5m	Yes. Located on footpath near

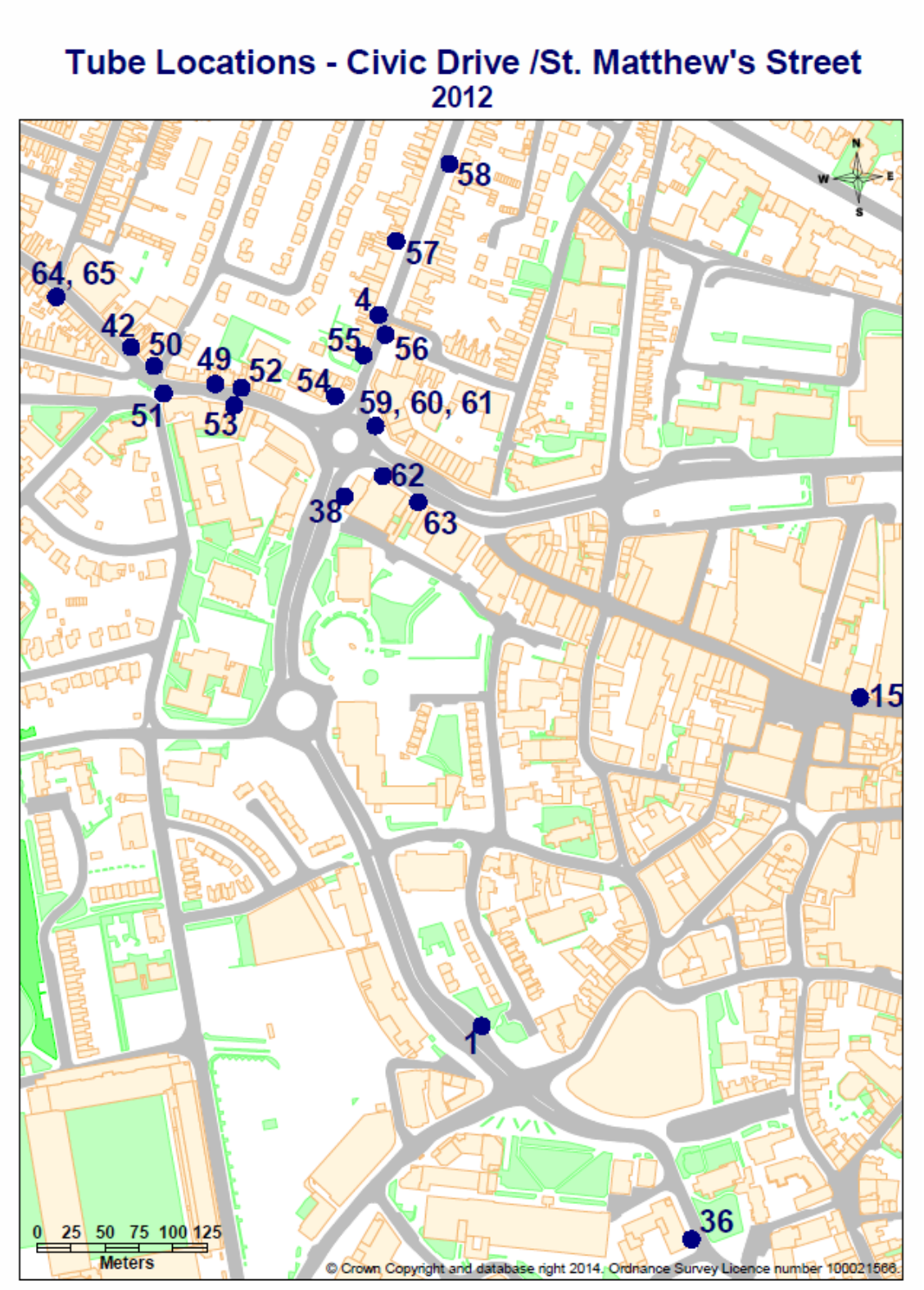
Site Name	Site Type	X OS GridRef	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Does this location represent worst-case exposure?
SCC						development areas within AQMA). Hotel across road.		heavily used road which has frequent congestion.

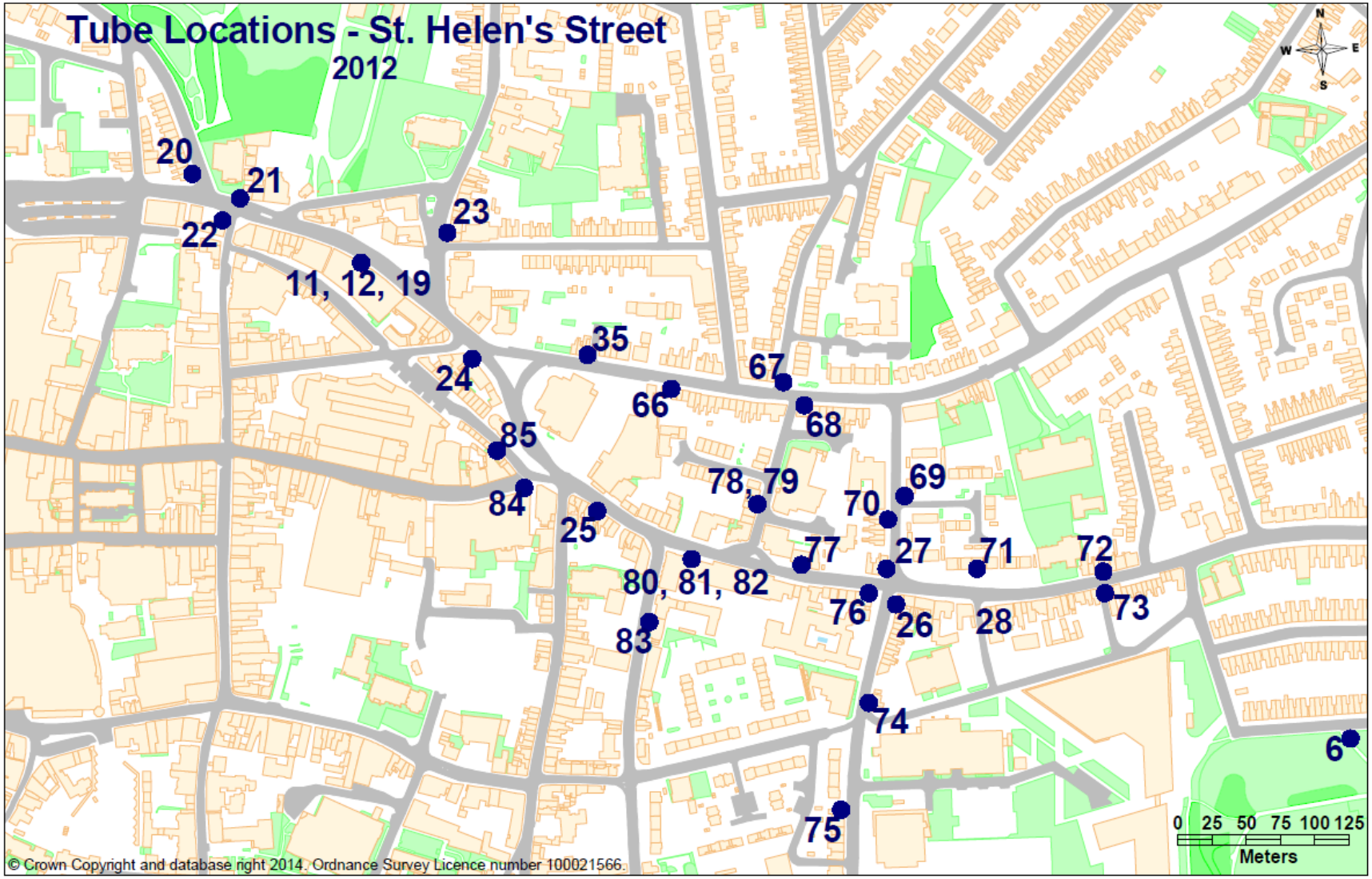
2.1.2 Non-Automatic Monitoring Sites

During 2012, Ipswich Borough Council carried out non-automatic monitoring of NO_2 using diffusion tubes located in 75 different sites in the borough. 85 diffusion tubes monitor kerbside and roadside concentrations of NO_2 and 2 diffusion tubes monitor background concentrations of NO_2.

During 2012 the tubes were supplied to Ipswich Borough Council from Environmental Scientifics Group. The preparation method was 50% TEA in Acetone. A summary of the QA/QC information is reported in Appendix A.

Figure 2. Map(s) of Non-Automatic Monitoring Sites (if applicable)




Tube Locations - St. Helen's Street
2012
20
21
22
23
11, 12, 19
24
35
67
66
68
85
78, 79
69
84
70
25
77
27
71
72
80, 81, 82
73
76
26
28
83
74
6
75
0 25 50 75 100 125
Meters
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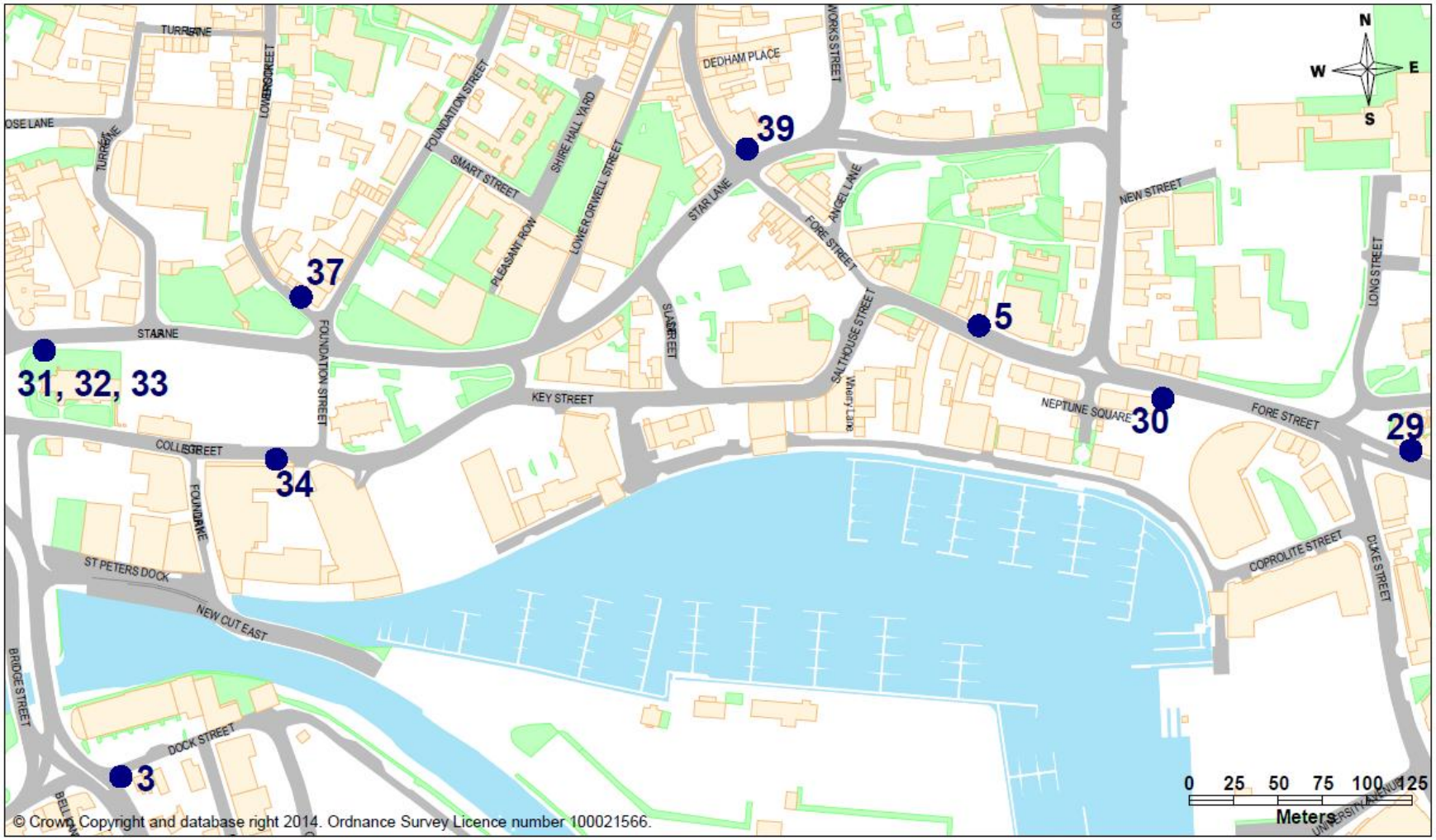
Tube Locations - Star Lane
2012



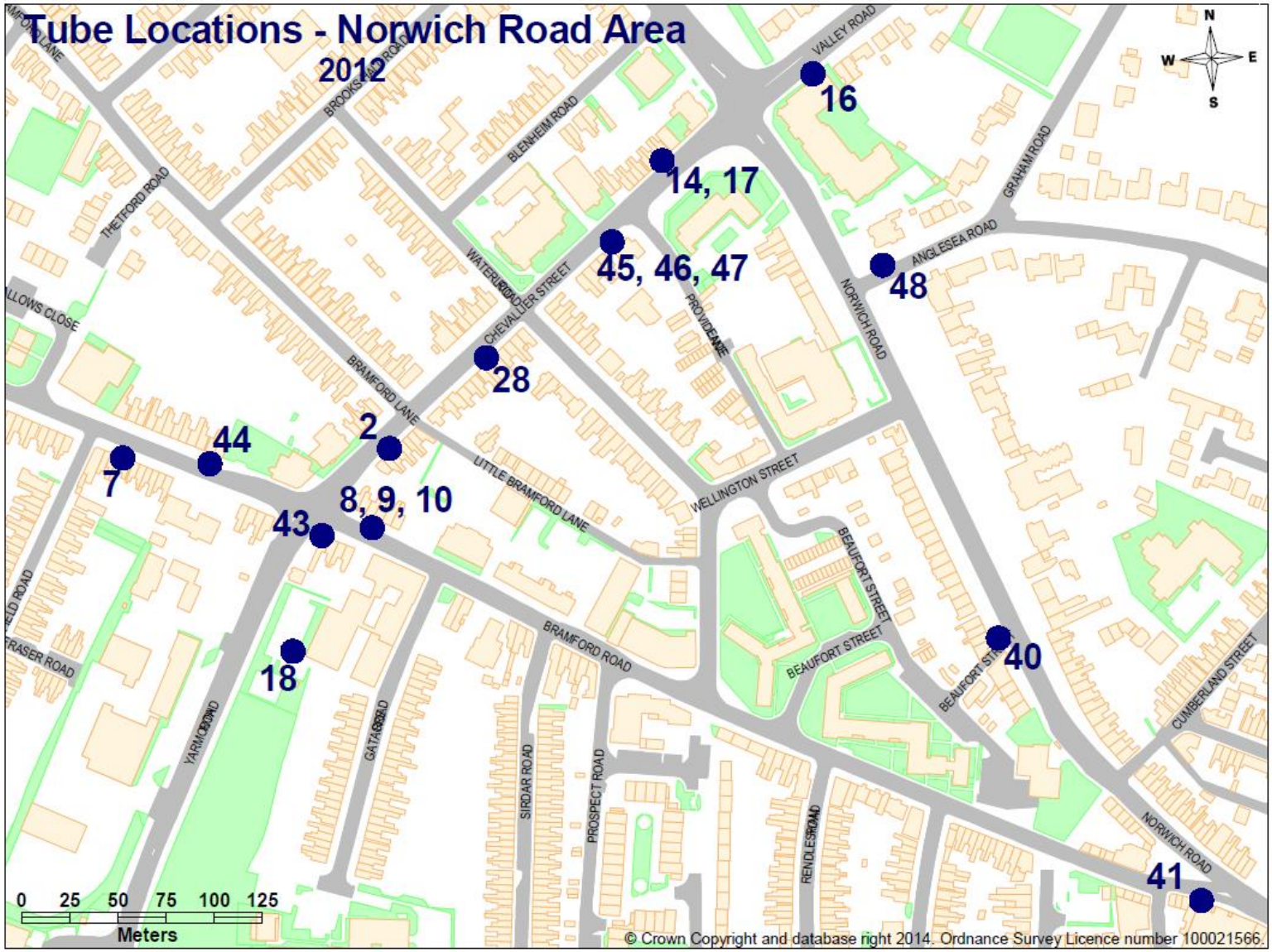

Tube Locations - Norwich Road Area
2012
16
14, 17
45, 46, 47
48
28
2
44
7
8, 9, 10
43
18
40
41
VALLEY ROAD
BLENHEIM ROAD
GRAHAM ROAD
ANGLESEA ROAD
THETFORD ROAD
CHEVALLIER STREET
PROVIDENCE
NORWICH ROAD
BRAMFORD LANE
LITTLE BRAMFORD LANE
WELLINGTON STREET
BEAUFORT STREET
BRAMFORD ROAD
CUMBERLAND STREET
SIRDAR ROAD
PROSPECT ROAD
RENDLESHAM
N
W
E
S
0 25 50 75 100 125
Meters
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Table 2.2 Details of Non- Automatic Monitoring Sites

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	DT1	Urban Roadside	615999/244399	NO_2	N	Yes. Residential properties located equal distance from kerb.	3.8m	Y
Chevallier St o/s no. 6&8	DT2	Urban Roadside	615142/245242	NO_2	Y	Yes. On façade of property	1.7m	Y
Dock St	DT3	Urban Roadside	616379/243894	NO_2	Y	Yes. Residential properties located approximately 4.6m from kerb.	2.8m	Y
Berners St o/s No.31	DT4	Urban Roadside	615923/244923	NO_2	N	Yes. Residential properties located 1.7m from kerb.	1.7m	Y
Fore St	DT5	Urban Roadside	616860/244147	NO_2	Y	No.	1.7m	Y
Kings Avenue	DT6	Urban Background	617299/244412	NO_2	N	Located in park as background reading.	14.6m	N/A
Bramford Rd	DT7	Urban Roadside	615004/245237	NO_2	N	Yes. Residential downpipe attached to no. 205	3m	Y
122 Bramford Rd	DT8	Urban Roadside	615133/245201	NO_2	N	Yes. Residential properties 3 m from kerb	1.5m	Y
122 Bramford Rd [Sept-Dec]	DT9	Urban Roadside	615133/245201	NO_2	N	Yes. Residential properties 3 m from kerb	1.5m	Y

122 Bramford Rd	DT10	Urban Roadside	615133/245201	NO_2	N	Yes. Residential properties 3 m from kerb	1.5m	Y
St Margaret's St, Pipers Court	DT11	Urban Roadside	616578/244759	NO_2	Y	Yes. Residential properties located approximately 2.2m from kerb.	2.2m	Y
St Margaret's St, Pipers Court co-location	DT12	Urban Roadside	616578/244759	NO_2	Y	Yes. Residential properties located approximately 2.2m from kerb.	2.2m	Y
Valley/Norwich Road	DT13	Urban Roadside	615361/245436	NO_2	Y	Yes. Residential approximately 5.5m from the kerb.	2.9m	Y
Chevallier St, outside number 63	DT14	Urban Roadside	615283/245391	NO_2	Y	Yes. Residential properties located approximately 2.6m from kerb.	2.6m	Y
Tavern St	DT15	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.	On pedestrianised street	N/A
Valley/Norwich Road	DT16	Urban Roadside	615361/245436	NO_2	Y	Yes. Residential properties located approximately 2.6m from the kerb.	2.9m	Y
Chevallier St, outside number 63	DT17	Urban Roadside	615283/245391	NO_2	Y	Yes. Residential properties located approximately 2.6m from kerb.	2.6m	Y
5 Yarmouth Rd	DT18	Urban Roadside	615092/245177	NO_2	N	Yes. Residential property located 2m from kerb.	2m	Y

St Margaret's St, Pipers Court co-location	DT19	Urban Roadside	616578/244759	NO_2	Y	Yes. Residential properties located approximately 2.2m from kerb.	2.2m	Y
St Margaret's Plain/Fonnereau Road	DT20	Urban Roadside	616455/244824	NO_2	Y	Yes. Flats and shops located approximately 2.2m from kerb.	2.2m	Y
St Margaret's Plain	DT21	Urban Roadside	616490/244806	NO_2	Y	Yes. Residential located approximately 1.7m from kerb, 9m down road from tube.	1.7m	Y
St Margaret's Plain/Northgate St	DT22	Urban Roadside	616477/244790	NO_2	Y	Yes. Public house located approximately 1.5m from kerb.	1.6m	Y
St Margaret's Green/ St Margaret's St	DT23	Urban Roadside	616641/244781	NO_2	Y	Yes. Residential properties located approximately 3m from kerb.	3m	Y
St Margaret's St	DT24	Urban Roadside	616659/244689	NO_2	Y	Yes. Residential properties located 3.2m from kerb o/s no.33	3.3m	Y
St Helen's St	DT25	Urban Roadside	616750/244578	NO_2	N	Yes. Flats located approximately 2.2m from kerb.	1.3m	Y
St Helen's St/Grimwade St	DT26	Urban Roadside	616968/244510	NO_2	Y	Yes. Residential properties located approximately 3.6m from kerb.	3.6m	Y
St Helen's St/Argyle St	DT27	Urban Roadside	616961/244536	NO_2	Y	Yes. Flats located approximately 1.7m from kerb.	1.5m	Y
32/34 Chevallier St [Sept-Dec]	DT28	Urban Roadside	615192/245289	NO_2	Y	Yes. Residential properties located approximately 3m from kerb	1.5m	

Fore Hamlet	DT29	Urban Roadside	617102/244077	NO_2	Y	Yes. Flats located approximately 2.2m from kerb.	2.2m	Y
Fore St	DT30	Urban Roadside	616963/244106	NO_2	Y	Yes. Flats located approximately 7.7m from kerb.	4m	Y
Star Lane (opp St Peters St)	DT31	Urban Roadside	616336/244133	NO_2	Y	No. Hotel located across road. Proposed development sites in area.	2.4m	N
Star Lane (opp St Peters St)	DT32	Urban Roadside	616336/244133	NO_2	Y	No. Hotel located across road. Proposed development sites in area.	2.4m	N
Star Lane (opp St Peters St)	DT33	Urban Roadside	616336/244133	NO_2	Y	No. Hotel located across road. Proposed development sites in area.	2.4m	N
College St	DT34	Urban Roadside	616466/244072	NO_2	Y	Yes. Residential properties located 1.7m from kerb.	1.7m	Y
Cobden Place	DT35	Urban Roadside	616743/244692	NO_2	Y	Yes. Residential properties located 1.1m from kerb.	5.5m	Y
Franciscan Way/Wolsey St	DT36	Urban Roadside	616153/244242	NO_2	N	Yes. Residential properties located 1.85m from kerb.	1.9m	Y
Lower Brook St	DT37	Urban Roadside	616480/244163	NO_2	Y	No. Offices located 3.5m from kerb.	2.8m	Y
Civic Drive opp no.1	DT38	Urban Roadside	615910/244822	NO_2	N	Road sign o/s drug rehab centre	1.5m	Y
Star Lane/Fore St	DT39	Urban Kerbside	616730/244246	NO_2	Y	No.	0.6m	Y
Norwich Road		Urban	615468/ 245151	NO_2	Y	Y	1m	Y

	DT40	Roadside				(on lamp post outside no. 131)		
Norwich Road	DT41	Urban Roadside	615584/ 245015	NO_2	Y	Y (outside no.69)	1m	Y
Norwich Road	DT42	Urban Roadside	615682/ 244952	NO_2	Y	Y (downpipe between no's.8&9)	0m	Y
Yarmouth Rd/Bramford Rd	DT43	Urban Roadside	615107/245197	NO_2	N	Yes. Residential properties located approximately 4.8m from kerb.	3.8m	Y
Bramford Road	DT44	Urban Roadside	615049/245234	NO_2	N	Yes. Residential properties located approximately 1.4m from kerb.	1.4m	Y
Chevallier St, Wellington Centre	DT45	Urban Roadside	615257/245349	NO_2	Y	Yes. Residential properties short distance along road 6.4m from kerb.	4.1m	Y
Chevallier St, Wellington Centre co-location	DT46	Urban Roadside	615257/245349	NO_2	Y	Yes. Residential properties short distance along road 6.4m from kerb	4.1m	Y
Chevallier St, Wellington Centre co-location	DT47	Urban Roadside	615257/245349	NO_2	Y	Yes. Residential properties short distance along road 6.4m from kerb.	4.1m	Y
Norwich Rd/Anglesea Road	DT48	Urban Roadside	615397/245337	NO_2	Y	Yes. Residential located approximately 1.8m from kerb.	1.8m	Y
St Matthews St	DT49	Urban Roadside	615803/244872	NO_2	N	Yes. Residential properties located approximately 1.9m from kerb.	1.8m	Y
		Urban		NO_2	N	Yes. Residential	7m	Y

Barrack Lane/St Matthews St	DT50	Roadside	615758/244885			above shops, on post 2m from receptor		
St Matthews St/Portman Rd	DT51	Urban Kerbside	615765/244865	NO_2	N	Yes. Residential Lamp post 650 located 5.4m from receptor	0.9m	Y
St Matthews St	DT52	Urban Roadside	615822/244869	NO_2	N	Yes. Residential above shops Downpipe o/s no.60 located 2.26m from receptor	2.14m	Y
St Matthews St	DT53	Urban Roadside	615817/244856	NO_2	N	Yes. Residential above shops Downpipe o/s no.67 Located 2.15m from receptor	2.15m	Y
St Matthews St/Berners St	DT54	Urban Roadside	615891/244863	NO_2	N	Yes. Residential above shops	8.95 m	Y
Berners St	DT55	Urban Roadside	615912/244893	NO_2	N	Yes. Residential Downpipe no.21 located 2.4m from receptor	2.25m	Y
Berners St	DT56	Urban Roadside	615928/244908	NO_2	N	No.Hotel 1.6m from receptor Downpipe no32 Grosvener	1.42m	Y
Berners St	DT57	Urban Roadside	615936/244977	NO_2	N	No. Hotel downpipe 41-43 Carlton	8m	Y
Berners St	DT58	Urban Roadside	615975/245034	NO_2	N	Yes. Residential Street lamp A779 o/s no.58 located 5m from receptor	4.1m	Y
St. Matthews St Roundabout	DT59	Urban Roadside	615921/244841	NO_2	N	No. Shop 12.7m to receptor Sign o/s no.26	2.8m	Y

St. Matthews St Roundabout	DT60	Urban Roadside	615921/244841	NO_2	N	No. Shop 12.7m to receptor Sign o/s no.26	2.8m	Y
St. Matthews St Roundabout	DT61	Urban Roadside	615921/244841	NO_2	N	No. Shop 12.7m to receptor Sign o/s no.26	2.8m	Y
St. Matthews St	DT62	Urban Roadside	615926/244804	NO_2	N	No.Offices above shop located 6.7m to receptor Signpost o/s Iceland	1.8m	Y
St Matthews St o/s no. 17	DT63	Urban Roadside	615955/244783	NO_2	N	No. Offices above shop located 3.4m to receptor Downpipe no.19	3.4m	Y
Norwich Road	DT64	Urban Kerbside	615675/ 244957	NO_2	N	Yes (on lamp post between no.'s 13&15	0.97m	Y
Norwich Road	DT65	Urban Kerbside	615675/ 244957	NO_2	N	Yes (on lamp post between no.'s 13&15	0.93m	Y
30 Woodbridge Rd	DT66	Urban Roadside	616804/244667	NO_2	N	Yes. Façade of residential property no.30A	3.5m	Y
Woodbridge Rd/Blanch St	DT67	Urban Roadside	616886/244672	NO_2	N	Yes. Residential lamp post 6.8m to receptor	1.3m	*Y*
62 Woodbridge Rd	DT68	Urban Roadside	616901/244655	NO_2	N	Yes. Residential above shop on downpipe at no.62	3.2m	Y
Argyle St	DT69	Urban Roadside	616974/244589	NO_2	Y	Yes. Residential on downpipe garage o/s Nos. 2-4	4.5m	Y
Argyle St	DT70	Urban Roadside	616962/244572	NO_2	Y	Yes. Residential Lamp post 716 o/s	1.2m	Y

						no.11		
St. Helens St	DT71	Urban Roadside	617027/244536	NO_2	Y	Yes. Downpipe attached to IBH Flat no.93	1.5m	Y
St. Helens St	DT72	Urban Roadside	617119/244534	NO_2	Y	Yes. Downpipe No.125	1.5m	Y
Regent St/St Helens St	DT73	Urban Roadside	617120/244518	NO_2	Y	Lamp post A3175	1m	Y
Grimwade St	DT74	Urban Roadside	616948/244438	NO_2	N	Yes.Downpipe o/s No. 25	3m	Y
Grimwade St	DT75	Urban Roadside	616928/244360	NO_2	N	Yes.Downpipe at façade of residential property	3.15m	Y
St Helen's St/Grimwade St	DT76	Urban Roadside	616948/244518	NO_2	Y	Downpipe o/s No.44	3m	Y
St Helen's St	DT77	Urban Roadside	616899/244539	NO_2	Y	Downpipe o/s No.41 Albury court	1.5m	Y
Orchard St	DT78	Urban Roadside	616867/244583	NO_2	Y	Yes. Lamp post o/s no.7	1.4m	Y
Orchard St	DT79	Urban Roadside	616867/244583	NO_2	Y	Yes. Lamp post o/s no.7	1.4m	Y
St Helen's St	DT80	Urban Roadside	616819/244543	NO_2	Y	No. Empty commercial property. Downpipe entrance county hall	2m	Y
St Helen's St	DT81	Urban Roadside	616819/244543	NO_2	Y	No. Empty commercial property. Downpipe entrance county hall	2m	Y
St Helen's St	DT82	Urban Roadside	616819/244543	NO_2	Y	No. Empty commercial property. Downpipe entrance county	2m	Y

						hall		
Bond St	DT83	Urban Roadside	616788/244497	NO_2	N	Yes. Road Sign no.345 o/s no.29	1.65m	Y
Carr St/Majors Corner	DT84	Urban Kerbside	616697/244595	NO_2	N	No. commercial	0.5m	Y
Old Foundry Rd	DT85	Urban Roadside	616677/244622	NO_2	N	Yes, Residential on Pole A1640 o/s no.5	1.4m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide (NO_2)

Automatic Monitoring Data

Table 2.3 summarises the results of the automatic monitoring of Nitrogen Dioxide within the Ipswich borough compared to the annual average objective.

Table 2.3 Results of Automatic Monitoring for NO_2: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2012 % [b]	Annual Mean Concentration (µg/m^3)				
					2008 [c]	2009 [c]	2010 [c]	2011 [c]	2012 [c]
Chevallier St	Urban Roadside	Y	53.0	53.0	31	32	34	21	34
St. Margaret's St	Urban Roadside	Y	97.7	97.7	**46**	**48**	**51**	**50**	**49**
Star Lane	Urban Roadside	Y	68.0	68.0	-	**41.6**	**51.3**	**48.6**	36.8

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

[c] Means should be "annualised" as in Box 3.2 of TG(09) (http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if valid data capture is less than 75%

Table 2.4 Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2012 % [b]	Number of Hourly Means > 200µg/m^3				
					2008[c]	2009 [c]	2010 [c]	2011 [c]	2012 [c]
Chevallier St	Urban Roadside	Y	53.0	53.0	0	3	0	1	3(134)
St. Margaret's St	Urban Roadside	Y	97.7	97.7	0	0	0	1	0
Star Lane	Urban Roadside	Y	68	68	0	1	0	0	0(116.5)

In bold, exceedence of the NO_2 hourly mean AQS objective (200µg/m^3 – not to be exceeded more than 18 times per year)

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

[c] If the data capture for full calendar year is less than 90%, include the 99.8th percentile of hourly means in brackets

Comment – Star Lane

- The monitored mean NO2 concentration for 2012 was 42.2µg/m3, after annualisation using data from nearby Automatic Urban and Rural Network [AURN] monitoring sites the estimated annual mean NO2 concentration was 36.8 µg/m3. This is below the annual mean objective for NO2.
- There were no monitored exceedences of the hourly mean NO2 standard of 200 µg/m3, and consequently the hourly mean NO2 objective (18 permitted exceedences per year) was achieved. This is consistent with previous monitoring at the site;
- The maximum hourly mean NO2 concentration was 184.3 µg/m3. The 99.8th percentile of hourly mean NO2 concentrations in 116.5 µg/m3. This is lower than the value recorded for 2011 (120.2 µg/m3);
- Poor data capture was achieved at Star Lane in 2012 (68.0%) due to a number of major technical problems with the analyser and associated infrastructure. Greater than 90% data capture was achieved in January to April and October to December. However, long periods of data loss were incurred from May through to September. The annual data capture rate was below the 90% threshold desirable for informing Local Air Quality Review and Assessment work.
- Despite the low data capture for 2012 the results of NO2 monitoring at Star Lane provide useful information on NO2 concentrations at the site. The latest results indicate that NO2 concentrations appear to be reducing over time on the basis of annual mean concentrations. Short-term NO2 concentrations also appear to be reducing slightly as indicated by the comparison of the 99.8th percentiles of hourly NO2 concentrations between 2009 and 2012.

Comment – St. Margarets Street/Pipers Court

- The monitored mean NO2 concentration for 2012 was 49µg/m3 which is above the annual mean objective for NO2.
- There were no monitored exceedences of the hourly mean NO2 standard of 200µg/m3, and consequently the hourly mean NO2 objective (18 permitted exceedences per year) was achieved. This is a reduction compared to the previous year.
- The maximum hourly mean NO2 concentration was 176µg/m3.

- The latest results indicate that NO2 concentrations appear to be reducing over time on the basis of annual mean concentrations.

Comment - Chevallier St

- The mean NO2 concentration for 2012 was 34µg/m3, after annualisation using data from nearby AURN monitoring sites. This is below the annual mean objective for NO2.
- There were 3 monitored exceedences of the hourly mean NO2 standard of 200µg/m3, although the hourly mean NO2 objective was achieved. This is inconsistent with previous monitoring at the site.
- The maximum hourly mean NO2 concentration was 283µg/m3. The 99.8th percentile of hourly mean NO2 concentrations was 134µg/m3. The annual data capture rate was below the 90% threshold desirable for informing Local Air Quality Review and Assessment work.
- HOWEVER, it is noted that there were significant problems with the continuous monitor in this location during 2012. This could account for the anomalies and will be discussed further in the next progress report.

Diffusion Tube Monitoring Data

Ipswich Borough Council only monitored levels of NO^2 in 2012, no other pollutants were considered.

As can be seen within table 2.5, the diffusion tube monitoring shows a number of exceedances of the annual average objective. Of the locations showing an exceedance, seven were outside of existing AQMAs in the 2012 period. However, all of these locations will be included in a town centre wide AQMA , if and when it is declared. This decision was made after two detailed assessments were undertaken in 2012. These reports have been submitted to DEFRA.

Table 2.5 Results of NO_2 Diffusion Tubes 2012

Tube No	Location	Site Type	In AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months or %) [a]	2012 Annual Mean Concentration ($\mu g/m^3$) – National Bias Adjustment factor = 0.79
DT1	Civic Drive	Urban Roadside	N	N	12	26.9
DT2	Chevallier St o/s no. 6&8	Urban Roadside	Y	N	12	38.2
DT3	Dock St	Urban Roadside	Y	N	12	30.3
DT4	Berners St o/s No.31	Urban Roadside	N	N	11	38.3
DT5	Fore St	Urban Roadside	Y	N	12	38.5
DT6	Kings Avenue	Urban Background	N	N	11	21.8
DT7	Bramford Rd	Urban Roadside	N	N	12	33.5
DT8	122 Bramford Rd	Urban Roadside	N	Y	12	33.9
DT9	122 Bramford Rd	Urban Roadside	N	Y	12	34.9

DT10	122 Bramford Rd	Urban Roadside	N	Y	12	32.4
DT11	**St Margaret's St, Pipers Court**	**Urban Roadside**	**Y**	**Y**	**9**	**43.2**
DT12	**St Margaret's St, Pipers Court co-location**	**Urban Roadside**	**Y**	**Y**	**9**	**44.8**
DT13	Valley/Norwich Road	Urban Roadside	Y	N	12	37.9
DT14	**Chevallier St, outside number 63**	**Urban Roadside**	**Y**	**Y**	**12**	**47.6**
DT15	Tavern St	Urban Centre background	N	N	12	29.3
DT16	Valley/Norwich Road	Urban Roadside	Y	N	12	35.2
DT17	**Chevallier St, outside number 63**	**Urban Roadside**	**Y**	**Y**	**12**	**49.4**
DT18	5 Yarmouth Rd]	Urban Roadside	N	N	12	31.6
DT19	**St Margaret's St, Pipers Court co-location**	**Urban Roadside**	**Y**	**Y**	**9**	**44.0**
DT20	St Margaret's Plain/Fonnereau Road	Urban Roadside	Y	N	12	29.9
DT21	St Margaret's Plain	Urban Roadside	Y	N	11	37.4
DT22	St Margaret's Plain/Northgate St	Urban Roadside	Y	N	11	36.6

DT23	St Margaret's Green/ St Margaret's St	Urban Roadside	Y	N	10	24.8
DT24	St Margaret's St	Urban Roadside	Y	N	12	39.1
DT25	**St Helen's St**	**Urban Roadside**	**N**	**N**	**12**	**43.0**
DT26	St Helen's St/Grimwade St	Urban Roadside	Y	N	12	31.7
DT27	St Helen's St/Argyle St	Urban Roadside	Y	N	12	**42.1**
DT28	32/34 Chevallier St	Urban Roadside	Y	N	12	38.5
DT29	Fore Hamlet	Urban Roadside	Y	N	12	32.4
DT30	Fore St	Urban Roadside	Y	N	12	30.5
DT31	Star Lane (opp St Peters St)	Urban Roadside	Y	Y	12	33.4
DT32	Star Lane (opp St Peters St)	Urban Roadside	Y	Y	12	35.6
DT33	Star Lane (opp St Peters St)	Urban Roadside	Y	Y	12	33.1
DT34	**College St**	**Urban Roadside**	**Y**	**N**	**12**	**42.1**
DT35	Cobden Place	Urban Roadside	Y	N	12	29.5

DT36	Franciscan Way/Wolsey St	Urban Roadside	N	N	12	31.0
DT37	Lower Brook St	Urban Roadside	Y	N	12	25.5
DT38	Civic Drive opp no.1	Urban Roadside	N	N	12	34.1
DT39	**Star Lane/Fore St**	**Urban Kerbside**	**Y**	**N**	**12**	**42.6**
DT40	Norwich Road	Urban Roadside	Y	N	12	28.9
DT41	Norwich Road	Urban Roadside	Y	N	12	36.8
DT42	Norwich Road	Urban Roadside	Y	N	12	36.9
DT43	Yarmouth Rd/Bramford Rd	Urban Roadside	N	N	11	39.9
DT44	Bramford Road	Urban Roadside	N	N	12	39.7
DT45	Chevallier St, Wellington Centre	Urban Roadside	Y	Y	12	31.3
DT46	Chevallier St, Wellington Centre co-location	Urban Roadside	Y	Y	12	30.2
DT47	Chevallier St, Wellington Centre co-location	Urban Roadside	Y	Y	12	30.4
DT48	Norwich Rd/Anglesea Road	Urban Roadside	Y	N	12	28.1

DT49	St Matthews St	Urban Roadside	N	N	12	38.3
DT50	Barrack Lane/St Matthews St	Urban Roadside	N	N	11	30.8
DT51	St Matthews St/Portman Rd	Urban Kerbside	N	N	12	33.5
DT52	**St Matthews St**	**Urban Roadside**	**N**	**N**	**12**	**46.7**
DT53	**St Matthews St**	**Urban Roadside**	**N**	**N**	**12**	**46.0**
DT54	St Matthews St/Berners St	Urban Roadside	N	N	12	34.6
DT55	Berners St	Urban Roadside	N	N	12	33.0
DT56	Berners St	Urban Roadside	N	N	12	32.3
DT57	Berners St	Urban Roadside	N	N	12	29.9
DT58	Berners St	Urban Roadside	N	N	11	27.7
DT59	St. Matthews St Roundabout	Urban Roadside	N	Y	12	35.8
DT60	St. Matthews St Roundabout	Urban Roadside	N	Y	12	35.8
DT61	St. Matthews St Roundabout	Urban Roadside	N	Y	12	35.7

DT62	St. Matthews St	Urban Roadside	N	N	12	38.5
DT63	St Matthews St o/s no. 17	Urban Roadside	N		12	39.2
DT64	**Norwich Road**	**Urban Kerbside**	**N**	**Y**	**12**	**58.8**
DT65	**Norwich Road**	**Urban Kerbside**	**N**	**Y**	**12**	**56.8**
DT66	**30 Woodbridge Rd**	**Urban Roadside**	**N**	**N**	**12**	**40.9**
DT67	Woodbridge Rd/Blanch St	Urban Roadside	N	N	12	29.2
DT68	**62 Woodbridge Rd**	**Urban Roadside**	**N**	**N**	**12**	**47.4**
DT69	Argyle St	Urban Roadside	Y	N	12	26.9
DT70	Argyle St	Urban Roadside	Y	N	12	38.3
DT71	St. Helens St	Urban Roadside	Y	N	12	30.0
DT72	**St. Helens St**	**Urban Roadside**	**Y**	**N**	**12**	**40.3**
DT73	Regent St/St Helens St	Urban Roadside	Y	N	12	27.2
DT74	Grimwade St	Urban Roadside	N	N	12	29.4
DT75	Grimwade St	Urban Roadside	N	N	12	26.8

DT76	St Helen's St/Grimwade St	Urban Roadside	Y	N	12	38.1
DT77	St Helen's St	Urban Roadside	Y	N	12	30.1
DT78	Orchard St	Urban Roadside	Y	Y	12	25.9
DT79	Orchard St	Urban Roadside	Y	Y	12	28.0
DT80	St Helen's St	Urban Roadside	Y	Y	12	38.2
DT81	**St Helen's St**	**Urban Roadside**	**Y**	**Y**	**12**	**40.3**
DT82	St Helen's St	Urban Roadside	Y	Y	12	39.5
DT83	Bond St	Urban Roadside	N	N	12	32.1
DT84	Carr St/Majors Corner	Urban Kerbside	N	N	11	30.6
DT85	Old Foundry Rd	Urban Roadside	N	N	12	33.6

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3 [a] Means should be "annualised" as in Box 3.2 of TG(09)(http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if full calendar year data capture is less than 75%

2.2.2 Summary of Compliance with AQS Objectives

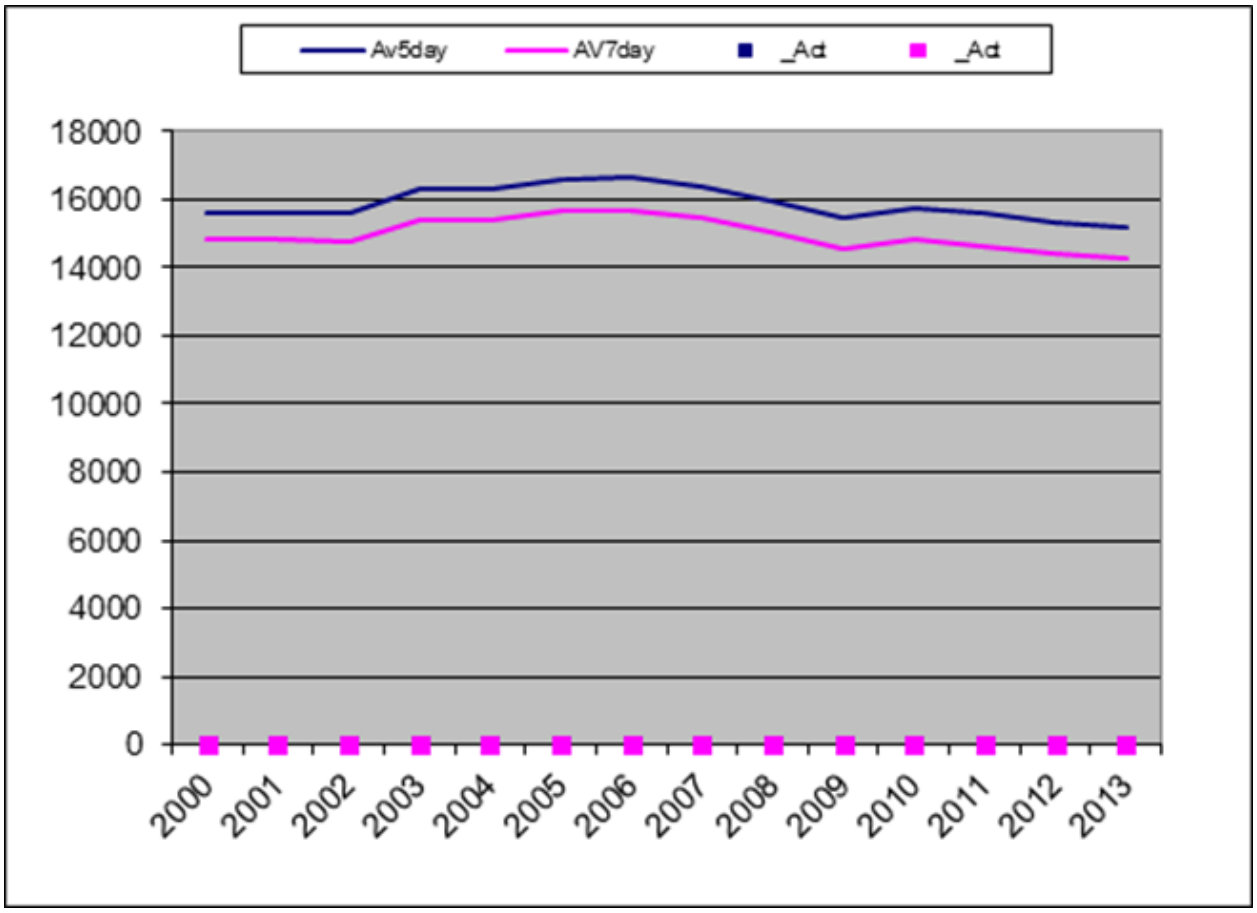
Ipswich Borough Council has examined the results from monitoring Nitrogen Dioxide in the borough. Concentrations outside of the current AQMAs are mainly below the objectives at relevant locations. Those few sites where the objectives have been breached are not currently within an AQMA but are very close to one. These locations have been considered in Detailed Assessments in 2012. The assessments concluded that the levels of NO^2 in these locations are such that they should be included in the AQMA's.

3 New Local Developments

3.1 Road Traffic Sources

Whilst there is no evidence to suggest that there has been a significant change to transport flows in the year 2012. Recent data from Suffolk County Council show that traffic levels in Ipswich have slightly reduced.

Figure 3 - Annual average daily traffic flows over 5 day and 7 days [SCC]



It is expected that the effects of the major transport scheme '*Ipswich – Fit For The 21st Century'* will start to become clear in 2014. This will be commented on in future reports.

3.2 Other Transport Sources

A new rail link is currently under construction which will allow trains from the Port of Felixstowe direct access to the Midlands without having to travel the Great Eastern

Mainline to London, or having to complete complex run-round manoeuvers near Ipswich Goods Yard. It is estimated that it will take 750,000 lorries off the roads in the next 16 years. The work is still in progress and is due to be completed in 2014. The Council has not received any dust complaints relating to the construction of the new railway known as Ipswich Chord.

Ipswich Borough 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. IBC has consulted with the EA on this matter.

IBC confirms that all the following have been considered:

- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

4 Planning Applications

4.1 Aside from the ongoing large developments which have already been considered in previous reports there has been an application submitted mention of the demolition of a local hospital to make way for 180 new dwellings. This is still in the early stages but will need to be considered should an application be submitted. There have been a few applications for the conversion of offices into residential properties under the Permitted Development Rights scheme. None of these applications are in areas of concern in relation to air quality although these types of development will generally be considered in future reports.

5 Air Quality Planning Policies

5.1 The Suffolk Air Quality Management Group, made up of all Suffolk local authorities, drafted a guide to air quality in planning. Its purpose is to help ensure consistency in the approach to planning and dealing with air quality within Suffolk and ensure that it is addressed at the earliest opportunity. The guidance will provide support to local authority air quality officers, planning officers and applicants/consultants, along with improving consistency.

6 Local Transport Plans and Strategies

The 2011-2039 Local Transport Plan sets out Suffolk County Council's long-term transport strategy for the next 20 years. The key focus of the plan is to support Suffolk's economy as it recovers from the recession and to support future sustainable economic growth. The Suffolk Local Transport Plan supports 'Transforming Suffolk: Suffolk's Sustainable Community Strategy'.

The headline themes of the community strategy are:

- creating a prosperous and vibrant economy
- improving learning and skills for the future
- creating the greenest county
- providing safe, healthy and inclusive communities.

A number of strategic transport improvements are planned for delivery in the short/medium term. These include the council's major transport scheme Ipswich – Transport fit for the 21st Century, the Government's trunk road schemes to complete the dualling of the A11 and improve the A14/A12 junction at Copdock, and the Ipswich Rail Chord. Longer term improvements could potentially involve the remodelling of the roads around the waterfront following a study by consultants Buchanan. In this proposal the connectivity between the town centre and the waterfront area would be improved by a reduction in the volume of traffic using the Star Lane gyratory with a consequent improvement in air quality. This scheme will be considered for implementation during the life of the plan.

Another long-term aspiration for Ipswich is a bridge to improve access to the Wet Dock Island alongside future development. The financial viability of development and the affordability of a bridge will be important considerations if this idea is to become a reality.

7 Implementation of Action Plans

Table 7.1 Action Plan Progress

No	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
1	Ipswich Major Scheme	Ensure AQ is fully considered within Major Scheme and Waterside/Gyratory road network alterations a) Princes Street roundabout alterations b) Bus Station Improvements c) Cycling and walking routes	Suffolk County Council	Detailed design during 2011	Construction during 2012 and 2013	Reduced Congestion and promotion of sustainable travel	>0.5ug/m^3	Funding confirmed by Dft in February 2011 Air quality assess-ments to be carried out for a) and b).	Design work is being carried out for the different components	May 2014	
2	Urban Traffic Manage-ment Control (UTMC)	Reduce congestion by use of UTMC which rationalises flows	Suffolk County Council	This is a major com-ponent of Ipswich Major Scheme	Construction during 2012 and 2013	Traffic would be controlled to reduce congestion and reduce idling.	0.5-1ug/m^3	Air Quality Assess-ments to be carried out for a) and b) above.	Design work has started. Air quality assessments to be carried out to support the design process and ensure optimisation.		
3	Idling Vehicles	Service of penalty notices on idling	Ipswich Borough			Raise awareness	<0.5ug/m^3	None	None		

No	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		vehicles	Council			of importance of car emissions to air quality.					
4	Roadside Emission Testing	General roadside and bus emission campaign to ensure minimum standards are adhered to.	Ipswich Borough Council			Raise awareness of importance of car emissions to air quality.	<0.5ug/m^3	None	None		
5	Employment Zoning	Identify where the HGVs are headed through the Norwich Road/Chevallier Street roundabout by camera surveys. Identify more appropriate less polluting routes	Ipswich Borough Council/ Suffolk County Council			Re-routing HGVs reduces the emissions at this junction.	>0.5ug/m^3	None	None		
6	Bramford Road/ Chev. Street pedestrian crossing review	Pedestrian crossing may be impacting on congestion in AQMA	Ipswich Borough Council			Should reduce congestion of traffic at lights.	<0.5ug/m^3	None	None		
7	St Margarets	Signals in St Margarets Street may be	Ipswich Borough			Reduce congestion	<1ug/m^3	Urban Traffic Control in place	Ongoing		Anticipated further

No	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
	Street Signal Review	impacting on congestion	Council			in AQMA					improvements as part of UTMC scheme.
8	Valley Road cycle Lane	Cycle lane leading into mini roundabout	Ipswich Borough Council			Encourage Cycling	<0.5ug/m^3	Completed			
9	Bus Stop Improvements	All buses used on local stage carriage works must be accessible	Suffolk County Council			Encourages bus use and reduces car use	<1ug/m^3	Ongoing			
10	Bus Timetable Improvements	To consolidate all timetables into one and real time information	Suffolk County Council			Encourages bus use and reduces car use by more customer friendly time-table information.	<0.5ug/m^3	Bus timetables and additional leaflets are available on http://www.suffolk.gov.uk/TransportAndStreets/PublicTransport together with other timetables such as rail. Leaflets have been made more widely available across the county.		On-going	There will be real time bus information at the station and at bus stops as part of Major Scheme.
11	Bishops Hill Bus	New bus lane to prioritise bus	Suffolk County			Will make bus journey	NEG-<0.5ug/m		Scheme completed		

No	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
	Lane	**movement into town centre**	**Council**			**faster and encourage bus use**	**^{3}**		**and opened to traffic on 1st August 2011**		
12	**Train Service Improvements**	**Signalling changes to improve Ipswich – Lowestoft service**	**Suffolk County Council/ Rail Companies**			**Prioritise train use therefore reducing car use**	**<0.5ug/m^{3}**		**Hourly service on Ipswich to Lowestfot line**	**complete**	
13	**Use of Bus Subsidies**	**Promotion of existing discounted multi-buy tickets. Concentrate spend on services in AQMAs.**	**Suffolk County Council/ Ipswich Borough Council**			**Promotes bus use therefore reducing car use.**	**<0.5ug/m^{3}**		**Information outstanding**		
14	**Quality Bus Partnership development**	**Bus Quality Partnerships to ensure new engines used.**	**Suffolk County Council/ Ipswich Borough Council**			**Would reduce emissions from buses**	**<1ug/m^{3}**	Progress to date has included baseline monitoring, design and first off fit for 31 vehicles to be upgraded. The full roll out programme will be ongoing thru March and April 2014. The upgrades include on board NOx emissions monitoring to enable on route emissions	**Ongoing**	**Dependent on Major Scheme**	The technology is designed to reduce exhaust particulates by over 95% and NOx levels by between 60 and 85% dependent on bus duty cycle and exhaust gas temperature.

No	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
								reduction to be quantified.			
15	**Healthy School Status**	**Each School in Suffolk develops plan to include sustainable travel such as walking bus by March 2009**	**Suffolk County Council**			**Reduced car use leading to reduced congestion.**	**<0.5ug/m^3**		**Completed for all state schools.**	**Completed**	
16	**Park and Ride x 2**	**Two new park and ride sites proposed around Ipswich**	**Suffolk County Council**	**To be deleted. Funding not available.**		**Reduces car trips through AQMAs.**	**NEGATIVE - <1ug/m^3**		**None**	**N/A. To be deleted. Funding not available.**	
17	**Raise awareness of all passenger transport**	**Include raising awareness of www.traveline.info www.transportdirect.info - to give advice re how to travel door to door sustainably**	**Suffolk County Council**			**Encourages reduced car usage and therefore reduces emissions**	**<0.5ug/m^3**		**Suffolk County Council has set up a dedicated web-site called "Get on board!" which can be found at: http://www.suffolkonboard.com/ where details of public transport arrangements can be found.**		

No	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
									A more general web-page is available at http://www.suffolk.gov.uk/TransportAndStreets/PublicTransport where Passenger Transport, Demand Responsive Transport Services, Community Transport, Education Transport, Tendering and Contract Information and Further Information is available.		
18	Green Travel Plans	Green Travel Plans to be encouraged and promoted in local businesses. IBC Development Control require these for new	Ipswich Borough Council – development			Encourages people to use other methods of travel therefore	<1ug/m^3		Ongoing	On-going	

No	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		developments.	control through Planning Suffolk County Council have 2 officers tasked with persuading businesses to have travel plans			reducing car use and congestion.					
19	Smarter Travel Plan Suffolk	Travel Plan throughout Suffolk encouraging people onto sustainable modes of transport in and out of Ipswich. To include one to one advice by a travel plan advisor.	Suffolk County Council			Encourages reduced car usage and therefore reduces emissions	<1ug/m^3	Travel smart is a project offering house-holds inform-ation and support to enable people to walk, cycle and use public transport more often. It started in Ipswich in 2010.	A total of 17,000 households in Ipswich were invited to take part since the project commenced in 2010. http://www.sustrans.org.uk/what-we-do/travelsmart/current-travelsmart-projects/travelsmart-in-ipswich		

No	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
20	Season tickets to students	University Campus Suffolk to offer free season tickets to students	University Campus Suffolk			Some extra use of bus.	<0.5ug/m^3	Students can purchase ticket for First Buses at child prices.	Students can purchase ticket for First Buses at child prices.	On-going	
21	Electric Charging Points	There is a shortage of electric vehicle charging points in Ipswich	Ipswich Borough Council – to be deleted. Evalu8 are delivering the 'plugged in project'			Will ensure that people using electric vehicles can easily recharge. May encourage use of electric vehicles locally.	<0.5ug/m^3	One location within Ipswich now with electric charging point – University College.	Ongoing progress of project by Evalu8.	2013	Two locations with charging points outside of Ipswich – Adastral Park, Martlesham and Harwich Port.
22	Public Air Quality Monitoring Information	Make the continuous NO2 monitoring results available to the public in real time via a website link.	Ipswich Borough Council			The continuous monitors are all situated in the AQMAs, enabling access to real-time monitoring may raise awareness of the poor air quality and	<0.5ug/m^3			To be reviewed due to resource implications	

No	Measure	Focus	Lead authority	Planning phase	Implemen-tation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estima ted comp-letion date	Comments relating to emission reductions
						contribute to behaviour changes.					
23	Air Quality Assess-ments	Developers required to assess the air quality impact of developments in and around the AQMAs.	Ipswich Borough Council/ Suffolk County Council			Developmen t detrimental to AQMAs controlled.	<1ug/m^3	Developers required to submit air quality assess-ments as approp-riate.	Air Quality and Planning Guidance Document developed and in final stages of consultation/ adoption.	On-going	

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

Ipswich Borough Council has monitored nitrogen dioxide within the borough. Concentrations of nitrogen dioxide were above the objective levels in several cases. Of the locations showing an exceedance, seven were outside of existing AQMAs in the 2012 period. However, all of these locations will be included in a town centre wide AQMA if and when it is declared. This decision was made after two detailed assessments were undertaken in 2012. These reports have been submitted to and approved by DEFRA.

8.2 Conclusions relating to New Local Developments

Whilst there has been mention of the redevelopment of a local hospital into 180 residential properties, an application has not been submitted at this stage. Should the development go ahead, it's impact will be considered in future reports.

8.3 Proposed Actions

The monitoring data of 2012 did not identify the need to undertake any further detailed assessments. The results obtained from the existing detailed assessments confirmed the need to consider the declaration of a new town centre wide AQMA.
The need for any additional monitoring is considered each year and adjustments made. Tube locations have been altered slightly for 2013.

The next course of action will be to declare the new AQMA which is expected to be completed in the Summer of 2014.

9 References

Air Quality Action Plan (2008)
Detailed Assessment (2010)
Bramford Road/Chevallier Street Detailed Assessment (2010)
Environment Act (1995)
National Atmospheric Emissions Inventory Database
Progress Report (2010)
Progress Report (2011)
USA 2012
Technical Guidance LAQM.TG (09)
The Air Quality (England) (Amendment) Regulations 2002 (SI 3043)
St Helens Street Detailed Assessment 2012
St Matthews Street Detailed Assessment 2012

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

The diffusion tubes were supplied to Ipswich Borough Council by Environmental Scientifics Group Ltd, Unit 12, Moorbrook, Southmead Industrial Estate, Didcot, Oxfordshire, OX11 7HP Scientifics and were 50% TEA: 50% Acetone. The samples were analysed in accordance with guidelines set out in Defras 'Diffusion Tubes for Ambient Nitrogen Dioxide monitoring: Practical Guidance'.

In the WASP inter-comparison scheme, Scientifics submitted 100% of results , all of which were determined to be satisfactory, based upon a z-score of < ± 2.

The bias adjustment figure used was 0.79 from spreadsheet 9/13.

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 twice a year by contractors.

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

The manufacture and analysis of NO_2 diffusion tubes is covered by Environmental Scientifics Group Ltd UKAS accreditation.

The method meets the requirements laid out in DEFRA's "Diffusion Tubes For Ambient NO2 Monitoring: A Practical Guidance."

In the WASP inter-comparison scheme, Scientifics submitted 100% of results , all of which were determined to be satisfactory, based upon a z-score of < ± 2.

Component part control: 20 tubes from each batch of newly manufactured tubes are measured to ensure the diffusion tube factor remains accurate. The internal diameter of both ends of the tube is measured to ensure the tube is square, as well as the tube length.