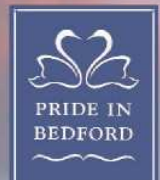




2012 Updating and Screening Assessment for Bedford Borough Council

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

April 2012



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Executive Summary

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 Updating and Screening Assessment has identified that from current data the annual mean objective is widely exceeded through the Borough but all within the Town Centre AQMA.

There are locations along Ampthill Road, outside the AQMA where it has been predicted by other assessments (air quality assessment as part of a planning application) that the annual mean objective is exceeding. Therefore the Council has started monitoring in this location to confirm the levels of NO₂ at relevant exposures. The results from this will determine whether or not the Council will proceed to a Detailed Assessment. The new monitoring data will also be used to assess the impact of the proposed development along Ampthill Road if the application is granted planning permission.

The Updating and Screening Assessment has identified no other areas for any of the other pollutants that are exceeding or are likely to exceed the air quality objective. Therefore the Council will undertake the following actions:

1. To maintain the monitoring throughout the Borough and maintain the Town Centre AQMA for NO₂.
2. Carryout a formal consultation on the Air Quality Action Plan and then once approved by Committee implement the plan throughout the town centre.
3. Maintain the new monitoring along Ampthill Road and proceed to a Detailed Assessment where required.
4. Prepare for the submission of its 2013 Progress Report.

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1 Introduction

1.1 Description of Local Authority Area

Bedford Borough Council was vested as a unitary authority on 1st April 2009. Bedford Borough Council includes the main town of Bedford, plus Kempston and 44 rural parishes. Bedford is a modern town, with an historic past, plus excellent rail links to London and the Midlands. 60% of the Borough's 6,359 hectares are Green Belt. The Borough has a population of approximately 154,900 (mid 2007). The town of Bedford has a population about 80,000, with Kempston about 20,000.

The busy A1 and A6 run through the Borough, with the M1 in easy reach. The main sources of air pollutants are busy and congested roads, with the main access to the Bedford town centre from the south constrained by the river Great Ouse and the three bridges that cross it near the town centre. Previously, the brickworks in Stewartby were a major source of air pollution, until brick making at the site ceased in November 2008. There are about 57 other minor industrial processes that are regulated by the Council, plus other processes regulated by the Environment Agency.

1.2 Purpose of 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.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report

should provide an update of any outstanding information requested previously in Review and Assessment reports.

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

1.4 Summary of Previous Review and Assessments

1. 4. 1 Air Quality Review & Assessment (2004-2005)

Two Detailed Assessments carried out as part of the second round of Review and Assessment confirmed that emissions of Nitrogen Dioxide from the traffic within three locations in Bedford (High Street, Prebend Street and the A421 running through the village of Great Barford) were such that the annual mean National Standard for Nitrogen Dioxide was likely to be exceeded by the objective date of 31st December 2005. In addition, it was concluded that the emissions from the Stewartby Brickworks were such that all three National Standards for Sulphur Dioxide were likely to be exceeded by their respective objective dates, the earliest being 31st of December 2004.

In 2005 the Borough Council declared four AQMA's and commenced two Further Assessments with which to inform the two Action Plans that will be needed to bring about the improvements in air quality necessary to ensure the National Standards are met. A Progress Report in 2005 provided further confirmation of the highlighted exceedences and also identified a need to expand the Nitrogen Dioxide passive air quality monitoring resources, particularly for those sites in London Road and Dame Alice Street. A commitment was also made to install new, more accurate, real time air quality monitoring stations in key locations to monitor both Sulphur Dioxide and Nitrogen Dioxide.

1. 4. 2 Air Quality Update and Screening Assessment (2006)

As part of its continuing obligations under the Environment Act 1995, Bedford Borough Council commenced the third round of Review and Assessment in 2006 with an Update and Screening Assessment. The purpose being to re-examine the local air quality within the whole Borough to establish if there had been any changes since the second round of Review and Assessment which could threaten air quality elsewhere in the Borough other than those areas where AQMA's had been previously declared. This report incorporated the results of the newly expanded passive air quality monitoring resources for Nitrogen Dioxide. It concluded that, as a consequence of emissions from traffic, there may be a need to expand the existing AQMA's on the High Street and Prebend Street, Bedford. In addition, concerns were raised over the air quality on part of Goldington Road and Ampthill Road Bedford where again, emissions from traffic could threaten achievement of the annual mean National Standard for Nitrogen Dioxide.

1. 4. 3 Air Quality Further Assessment (2006)

Bedford Borough Council completed two Further Assessments in respect of the air quality situation in the previously declared AQMA's. These in depth studies have been conducted to characterise the sources of pollution so as to enable effective targeting within the Action Plans. The Further Assessment for Nitrogen Dioxide has supplemented information the Borough already had on the need to either designate further AQMA's or expand those already existing. The Further Assessment has outlined areas outside of the AQMA's where the National Standards are being exceeded. Following completion of the Detailed Assessments, Bedford Borough Council will identify if an AQMA needs to be declared for the whole town Centre, or if expansion of the existing areas is adequate to encompass the areas where exceedences are identified. The Further Assessment for Sulphur Dioxide has shown that the National Standards are still being exceeded in and around the Stewartby area. The existing AQMA incorporates the area of exceedence which the Action Plan will work towards improving in the future.

1. 4. 4 Air Quality Action Plan (2007)

The AQAP drawn up by Bedford Borough Council details the measures that the Borough and its partners are taking to help improve the Air Quality of Bedford. The AQAP reflects the results of previously declared AQMA's by introducing schemes and measures to reduce the pollution emitted from vehicles and Stewartby Brickworks. The AQAP is a working document and will be continually reviewed and updated in order to achieve each new target set. The AQAP details the need of a multidisciplinary approach, involving all partners in order to improve Bedford Air Quality.

1. 4. 5 Air Quality Detailed Assessment 2007

Bedford Borough Council completed a Detailed Assessment as part of the next step of the Local Air Quality Management process. The Detailed Assessment was also required as a result of the findings of the Council's 2006 Updating and Screening Assessment. The earlier screening assessment identified other parts of the Council which may exceed the government's annual mean. The purpose of this report was therefore to provide an accurate assessment of the likelihood of the objective being exceeded at locations with relevant exposure. The Detailed Assessment has identified that further AQMA's for London Road, Goldington Road and Newnham Avenue need to be declared. The report also identified the need to continue monitoring on Ampthill Road.

1. 4. 6 Air Quality Progress Report 2008

The Air Quality Progress Report provides an annual update of recent air quality issues in Bedford as well as a focus on the Council's progress on reducing air pollution through its Air Quality Action Plan. The more up to date monitoring of nitrogen dioxide confirmed that the Government's air quality objectives were still being exceeded widely at locations near the Bedford town centre with relevant public exposure. The Council therefore maintained its AQMAs for this pollutant. As reported by the Council previously, the Stewartby Brickworks was the main source of emissions leading to the AQMA declaration, the Brickworks closed at the end of February 2008.

1. 4. 7 Updating and Screening Assessment 2009

The report re-examined pollution sources in the Borough to identify any relevant areas where it is considered that the Government's Air Quality objectives for the eight pollutants were being exceeded. The report identified that for the pollutants: carbon monoxide, benzene, 1,3 -butadiene, lead, sulphur dioxide and particulates PM10 there is not a significant risk of the objectives being exceeded in the Borough. For Nitrogen Dioxide the Council recently designated a town centre AQMA 5, the finding from the report confirmed that the annual mean nitrogen dioxide objective was widely exceeded within the new AQMA. The Council therefore continued to monitor within the AQMA. The report also provided data which enabled the Council to revoke AQMA 1 for sulphur dioxide (Stewartby) and AQMA 4 for Nitrogen Dioxide (Great Barford).

1. 4. 8 Air Quality and Action Plan Progress Report 2009/2010

The Air Quality Progress Report provides an annual update of recent air quality issues in Bedford as well as a focus on the Council's progress on reducing air pollution through its Air Quality Action Plan. The more up to date monitoring of nitrogen dioxide confirmed that the Government's air quality annual mean objective for NO₂ is still being exceeded widely at locations within the Town Centre AQMA. The Council will therefore maintain AQMA 5 for this pollutant.

1. 4. 9 Further Assessment 2010

With the declaration of AQMA 5 in November 2009, a Further Assessment was submitted in draft format to DEFRA in November 2010. This report focused on nitrogen dioxide only and followed previous Council air quality reports to aid the Local Air Quality Management (LAQM) process.

New modelling predictions were made for the areas within the Council's consolidated AQMA 5. The modelling incorporated a series of improvements over and above that undertaken previously (including revised emission factors). The report incorporated the results of further monitoring undertaken by the Council within each of the extended parts of the AQMA investigated. The revised modelling predictions confirmed earlier findings that the annual mean nitrogen dioxide objective is exceeded across the AQMA.

1. 4. 10 Air Quality Action Plan 2011

The Air Quality Action Plan has been produced and was submitted to DEFRA in September 2011 in draft format. The Action Plan is in the process of an internal consultation and will be submitted to Defra as a final report once it has been through Committee approval. The action plan details the measures the Council will take to improve air quality with the AQMA.

1. 4. 11 Air Quality and Action Plan Progress Report 2011

The Air Quality Progress Report provides an annual update of recent air quality issues in Bedford as well as a focus on the Council's progress on reducing air pollution through its Air Quality Action Plan. The more up to date monitoring of nitrogen dioxide confirmed that the Government's air quality annual mean objective for NO₂ is still being exceeded widely at locations within the Town Centre AQMA. The Council will therefore maintain AQMA 5 for this pollutant.

1. 4. 12 Additional Assessments

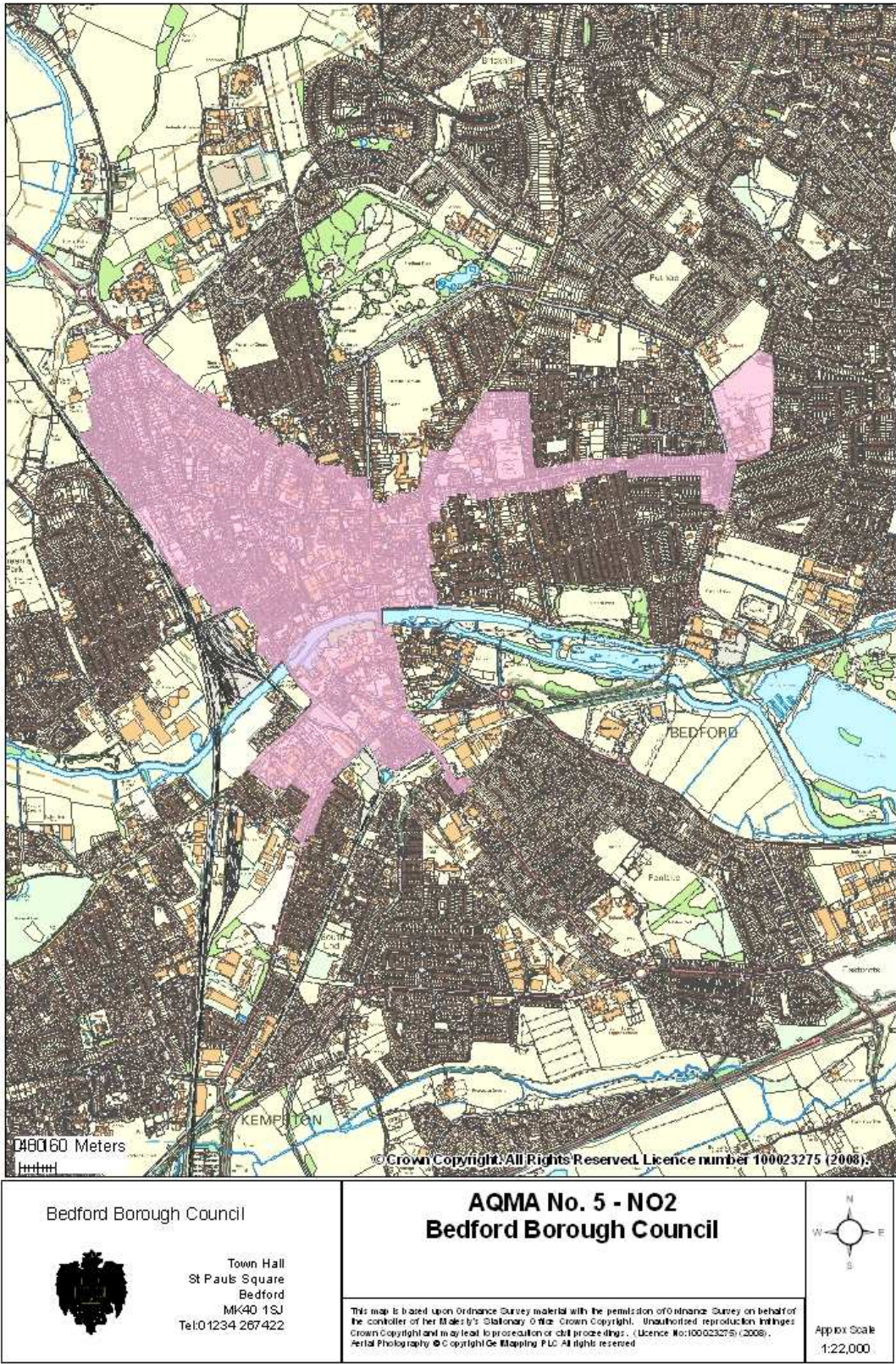
The Council has recently received an assessment as part of an Environmental Impact Assessment for a mixed use development along Ampthill Road comprising of, a large food retail store, petrol station and associated parking; with outline permission being sought for a DIY store/garden centre, a large goods store, a hotel, 140 dwellings and B1 commercial units. Ampthill Road is a truck road linking the south of Bedford to the Town Centre. At

present only part of the road is within the AQMA (Figure 1.2). The air quality assessment provided with the planning application predicts air quality concentration for 2012 (anticipated year of opening) using ADMS-Roads dispersion modelling. The model was run assuming no emission reductions, which is in line with the current guidance and sensitivity tests as brought up in the recent case against Sainsbury's in Sheffield. Areas along Ampthill Road, which represent relevant exposure and are outside of the AQMA, were found to breach the air quality annual mean objective for NO₂. This is a base line prediction without the development in place. The models also identified that the development will have an impact on the air quality and increase the concentration of NO₂ along Ampthill Road. At present the applicant is considering possible mitigation options, however, should the development go ahead it will impact on the air quality in the area. At present we do not have any current monitoring data for this part of Ampthill Road. So we became monitoring at the beginning of April 2012 to assess the likelihood of the air quality objective being breached both before and if the development goes ahead.

Table 1.2 Summary of previous review and assessment

1st Round Review and Assessment		
2000	USA	Pollution levels unlikely to exceed AQ objectives.
2nd Round of Review and Assessment		
2003	USA	Levels of NO ₂ and SO ₂ unlikely to meet annual mean objectives.
2004	DA	Confirmed levels of NO ₂ and SO ₂ were exceeding AQ objectives
2005	AQMA	Four AQMAs declared
2006	FA	Confirmed the extent of the AQMA characterised the source of pollution so as to enable effective targeting within the Action Plans.
2007	AQAP	Detailed actions the Council would take to improve air quality within the AQMAs.
3rd Round Review and Assessment		
2006	USA	Areas outside the AQMAs that were likely to exceed AQ objectives
2007	DA	Confirmed other areas within town centre and outside AQMAs that were exceeding AQ objectives.
2008		Consultation process begun on the decision to declare individual AQMAs or one town centre AQMA.
2009	AQMA	Town centre AQMA 5 declared.
2010	FA	Confirmed the extent of the AQMA characterised the source of pollution so as to enable effective targeting within the Action Plans.
2011	Draft AQAP	Submitted in draft format, currently going through consultation process.
4th Round Review and Assessment		
2009	USA	AQ objective widely exceeded but all within AQMA 5.
2010	Progress Report	Confirmed position so far.
2011	Progress Report	Confirmed position so far.

Figure 1.1 Map of AQMA 5



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

The Council undertakes continuous monitoring of NO₂ at two locations within the town centre of Bedford.

- Prebend Street, Bedford – a site located on one of the busiest streets within Bedford (operating since December 2008). The monitoring station is located at the northern end of Prebend Street (figure 2.1). The monitoring station is classified as a roadside site with the sample inlet located approximately 3.5m from the kerb and 2.0m high. It is also 1.5m further from the road of the nearest building facade (It is located at easting 504743 and northing 249880).
- Lurke Street, Bedford – Located on Lurke Street, east of High Street (Figure 2.1) within the town centre of Bedford (operating since May 2010). The monitoring station is 4m from the kerb, 2m high and 1m from the nearest façade. The monitoring station is classified as a roadside site with the sample inlet located approximately 4m from the kerb and 2.0m high. (It is located at easting 505041 and northing 249979).

The above sites are representative of relevant exposure. Both sites are part of the Hertfordshire & Bedfordshire Air Pollution Monitoring Network and therefore the standards of QA/QC are similar to those of the government's AURN sites. Regular calibrations are carried out, with subsequent data ratification undertaken by the ERG at King's College London. In all cases the data are fully ratified unless reported otherwise. Details of the sites can be found at: <http://www.hertsbedsair.net/>.

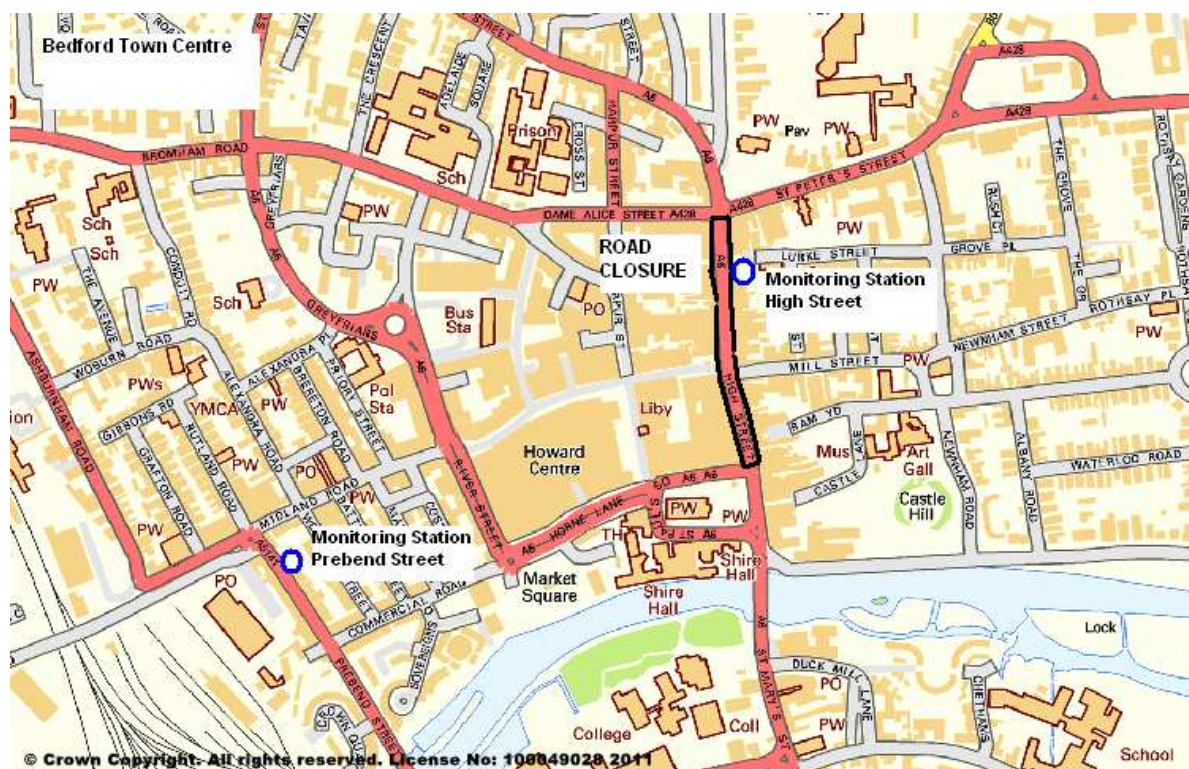


Figure 2.1 Map of Automatic Monitoring Sites for Nitrogen Dioxide

Two continuous monitoring stations for SO_2 at two fixed long-term site have now closed due to the closure of Stewartby Brickworks and the subsequent revocation of the AQMA for SO_2

The Council also undertakes non-continuous monitoring across its area.

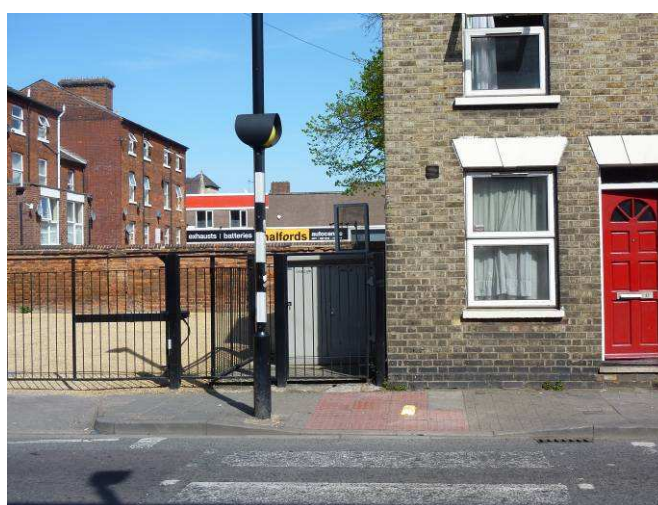


Figure 2.2 Prebend Street monitoring site in Bedford



Figure 2.3 Lurke Street monitoring site in Bedford

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	Monitoring Technique	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?
Prebend Street	Roadside	504494	249625	NO ₂	HBAPMN Standard	Y	Y(1m)	2m	Y
Lurke Street	Roadside	505026	250012	NO ₂	HBAPMN Standard	Y	Y(3m)	4m	N

2.1.2 Non-Automatic Monitoring Sites

The Council monitor using diffusion tubes at sites across the Borough. The diffusion tubes are currently exposed at 42 locations. The sites include roadside, background and rural sites (see Figure 2.2). The locations include sites within the new AQMA, as well outside of the AQMA. Twenty monitoring sites were started in 2004 and a further three were added in 2006. The three further sites were located close to the town centre. A further 19 sites were added in the newly revised AQMA 5. Most of the sites added since 2004 are located close to the façade of existing properties representing relevant exposure. The details of the nitrogen dioxide (NO₂) monitoring sites are provided in Table 2.2.

The diffusion tubes used are analysed by Gradko International using a preparation method of 20% TEA in water. In the most recent round of Annual Performance Criteria for NO₂ Diffusion Tubes used in LAQM the laboratory demonstrated good performance in a QA/QC scheme for analysis of NO₂ diffusion tubes. Gradko International participates in the Workplace Analysis Scheme for Proficiency (WASP), which is an independent analytical performance testing scheme. The scheme is an important QA/QC exercise for laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM). The Health and Safety Laboratory (HSL) operate the WASP scheme independently and the cost of operation is borne by the laboratories, which pay an annual fee to HSL.

Monitoring using diffusion tubes has advantages over continuous monitoring in that it is far cheaper and therefore more sites can be established and assessed. The main disadvantage is that the method is less precise and accurate than continuous monitoring. The recommended methods to reduce these errors include the use of good QA/QC practices and bias adjustment factors that are derived from co-location studies between continuous analysers and diffusion tubes.

The bias adjustment factors are specific to each year, analysing laboratory, method of analysis and location. The factors are therefore also limited to the data supplied. The Review and Assessment website advises that “in many cases, using an overall

correction factor derived from as many co-location studies as possible will provide the 'best estimate' of the 'true' annual mean concentration, it is important to recognise that there will still be uncertainty associated with this bias adjusted annual mean. One analysis has shown that the uncertainty for tubes bias adjusted in this way is $\pm 20\%$ (at 95% confidence level). This compares with a typical value of $\pm 10\%$ for chemiluminescence monitors subject to appropriate QA/QC procedures."

A local co-location study has been completed this year for 2011 with the monitoring station at Prebend Street (Appendix A). The bias adjustment factor for each of the other years reported has been obtained from the default bias adjustment factors (based on the March 2010 spreadsheet derived from the Government's Review and Assessment website). The default factors are based on statistical analyses of reported data provided by other local authorities. For the final year 2011 the Council have used a local bias adjustment factor calculated from the National Diffusion Tube Bias Adjustment Spreadsheet from Defra's LAQM helpdesk.

For 2011, 26 studies were available and the 2011 factor reported is the most recently available factor (0.89). This compared to the Council's local bias adjustment factor of 1.01.

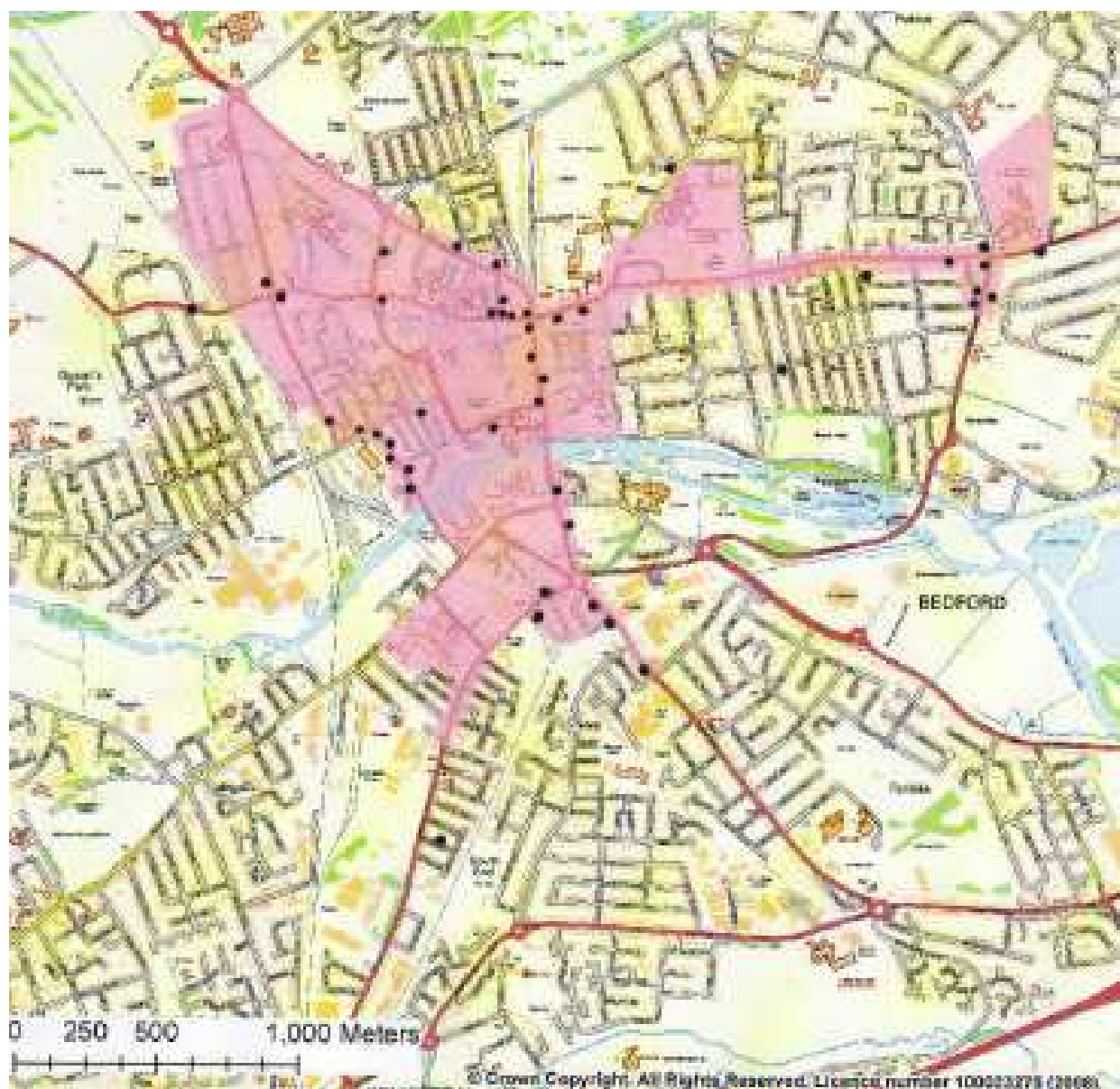
The default spreadsheet for calculating the local bias adjustment factor gave the overall survey good precision. The term "precision" indicates how well the diffusion tubes produce similar results from the duplicate and triplicate studies undertaken. The criterion is somewhat arbitrary and it reflects both the laboratory's performance in preparing and analysing the tubes, plus the handling of the tubes in the field.

YEAR	BIAS ADJUSTMENT FACTOR
2008	0.94
2009	0.98
2010	0.99
2011	0.89

Table 2.2 Bias Adjustment Factor

The factors (Table 2.2) indicate the diffusion tube measurements are under reading for all years compared to continuous measurements. The results presented in Table 2.3 are the bias adjusted results. It should be noted those in red exceed the AQS objective. The locations in italics are those that are sited within the AQMA.

Figure 2.2 Map of Non-Automatic Monitoring Sites



Note: Only town centre diffusion town that are within the AQMA (shaded in pink), are indicated on the map, displayed by •

Table 2.2 Details of Non-Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? (Y/N)	Is monitoring collocated with a Continuous Analyser (Y/N)	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?
5	R	503830	250070	NO ₂	N	N	N	1m	N
7	R/UB	503160	247690	NO ₂	N	N	Y (3m)	1m	Y
12	S	516320	256640	NO ₂	N	N	Y (6m)	2m	N
13	S	504790	248790	NO ₂	N	N	Y (4m)	2m	N
14	R	505606	248632	NO ₂	Y	N	N	1m	Y
15	R/UB	505840	249870	NO ₂	N	N	Y (3m)	1m	N
16	R	505590	250620	NO ₂	Y	N	Y (4m)	2m	N
17	R	504570	249510	NO ₂	Y	N	Y (4m)	1m	Y
19	R	505795	248855	NO ₂	Y	N	N	2m	N
20	K	505395	248613	NO ₂	Y	N	Y (1m)	1m	Y
21	R	516450	256630	NO ₂	N	N	N	1m	Y
25	R	505567	248723	NO ₂	Y	N	Y (3m)	2m	Y
27	R	505476	248768	NO ₂	Y	N	Y (1m)	1m	Y
28	R	503776	249930	NO ₂	Y	N	Y (1m)	1m	Y
29	R	506630	250281	NO ₂	Y	N	Y (3m)	2m	N

30	K	505643	248748	NO ₂	Y	N	Y (2m)	1m	Y
31	R	505490	248792	NO ₂	Y	N	Y (1m)	1m	Y
33	R	505380	248435	NO ₂	Y	N	Y (4m)	2m	Y
34	R	505537	248445	NO ₂	Y	N	Y (1m)	1m	Y
35	R	503794	249853	NO ₂	Y	N	Y (1m)	1m	Y
36	R	505362	248485	NO ₂	Y	N	Y (2m)	1m	Y
40	K	505679	248776	NO ₂	Y	N	Y (2m)	2m	N
42	R	505569	248329	NO ₂	Y	N	Y (4m)	2m	Y
43	R	505547	248743	NO ₂	Y	N	Y (2m)	1m	Y
44	R	505437	248644	NO ₂	Y	N	Y (1m)	1m	Y
46	R	505651	248729	NO ₂	Y	N	Y (2m)	1m	Y
47	K	505514	248739	NO ₂	Y	N	N	2m	Y
48	K	505541	248898	NO ₂	Y	N	Y (3m)	1m	Y
50	R	505771	248758	NO ₂	Y	N	Y (3m)	2m	Y
53	K	505539	248768	NO ₂	Y	N	Y (2m)	2m	Y
54	K	505376	248896	NO ₂	Y	N	Y (2m)	1m	Y
55	R	505344	248670	NO ₂	Y	N	Y (4m)	2m	Y
57	K	506664	250199	NO ₂	Y	N	Y (1m)	1m	Y
59	R	506683	250223	NO ₂	Y	N	Y (3m)	1m	Y
61	K	506542	250296	NO ₂	Y	N	Y (3m)	2m	N

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62	R	506655	250302	NO ₂	Y	N	Y (4m)	2m	N
65	R	505634	248634	NO ₂	Y	N	Y (3m)	2m	N
66	R	504496	249623	NO ₂	Y	Y	Y (1m)	3m	Y
67	R	504496	249623	NO ₂	Y	Y	Y (1m)	3m	Y
68	R	504496	249623	NO ₂	Y	Y	Y (1m)	3m	Y
69	R	504646	249602	NO ₂	Y	N	Y (2m)	2m	Y
70	R	504636	249570	NO ₂	Y	N	N	1m	Y

2.2 Comparison of Monitoring Results with AQ Objectives

QA/QC controls have been applied to both the automatic and non-automatic monitoring data to ensure confidence can be applied to the results. This is especially important to the non-automatic sites due to the inherent uncertainty of the diffusion tubes. These controls are displayed in Appendix A.

The measured concentrations have then been compared to the air quality objectives to assess the likelihood of the objectives being exceeded where relative exposure exists. The result of the air quality objective being breached will lead to the Council proceeding to a detailed Assessment.

2.2.1 Nitrogen Dioxide

Both the annual mean for NO₂ and the hourly mean objectives have been compared within this assessment. A town centre AQMA for NO₂ was declared in 2009 so the assessment focussed on those areas outside the AQMA where there may be exceedences and any location within the AQMA for exceeding the hourly mean or is likely to exceed the objectives where the annual mean is greater than 60 µg/m³ which is suggested for the short term objective.

Automatic Monitoring Data

Prebend Street and Lurke Street monitoring station provided very good data capture for 2011, with Prebend Street achieving 99.4% and Lurke Street achieving 98.9%, ensuring confidence in the data and in comparing to the air quality objectives.

The annual mean concentration for Prebend Street was 48 µg/m³ an increase from 2010 at 42µg/m³, and again breaching the annual mean objective. The maximum hourly mean concentration was 183µg/m³, so the hourly objective was not breached. The station does represent relevant exposure but is within the AQMA.

The annual mean concentration for Lurke Street was $33\mu\text{g}/\text{m}^3$ an increase from 2010 at $30\mu\text{g}/\text{m}^3$, but not breaching the annual mean objective. The maximum hourly mean concentration was $168\mu\text{g}/\text{m}^3$, so the hourly objective was also not breached. The station does not represent relevant exposure but is still within the AQMA. Although the monitoring station is located just off the High Street it does not represent the worst case exposure as the location is quite open, unlike the rest of the High Street where diffusion tubes have found exceedences with the Ait Quality Objective as the High street represents a narrow road and in some places concentrations will be subject to the canyon effect.

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

Site ID	Site Type	Within AQMA?	Valid Data Capture for 2010 %	Valid Data Capture 2011 %	Annual Mean Concentration $\mu\text{g}/\text{m}^3$	
					2010	2011
Prebend Street	Roadside	Y	97	99.4	42	48
Lurke Street	Roadside	Y	65.2	98.9	30	33

Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations measures at Automatic Monitoring Site Prebend Street

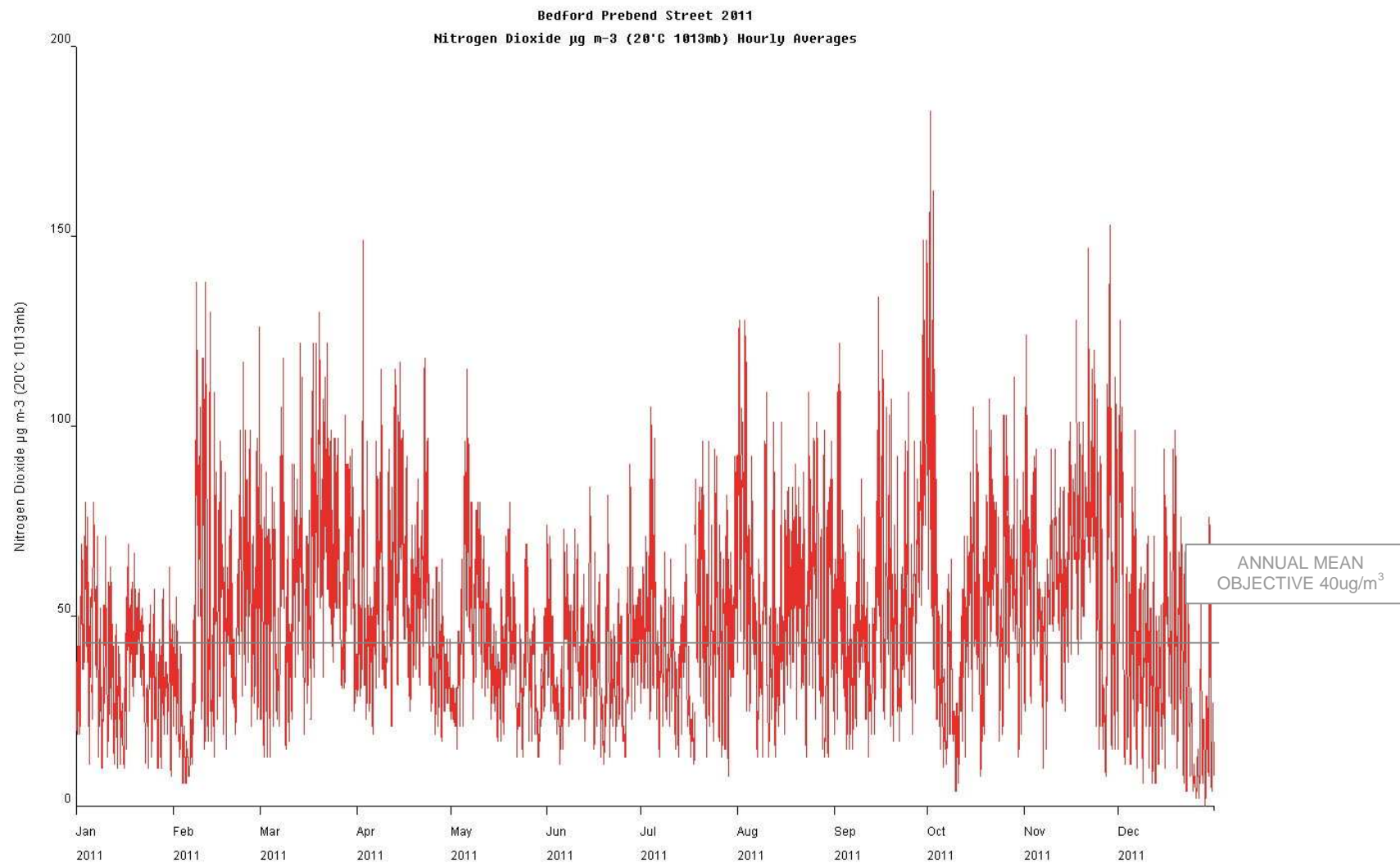


Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations measures at Automatic Monitoring Site Lurke Street

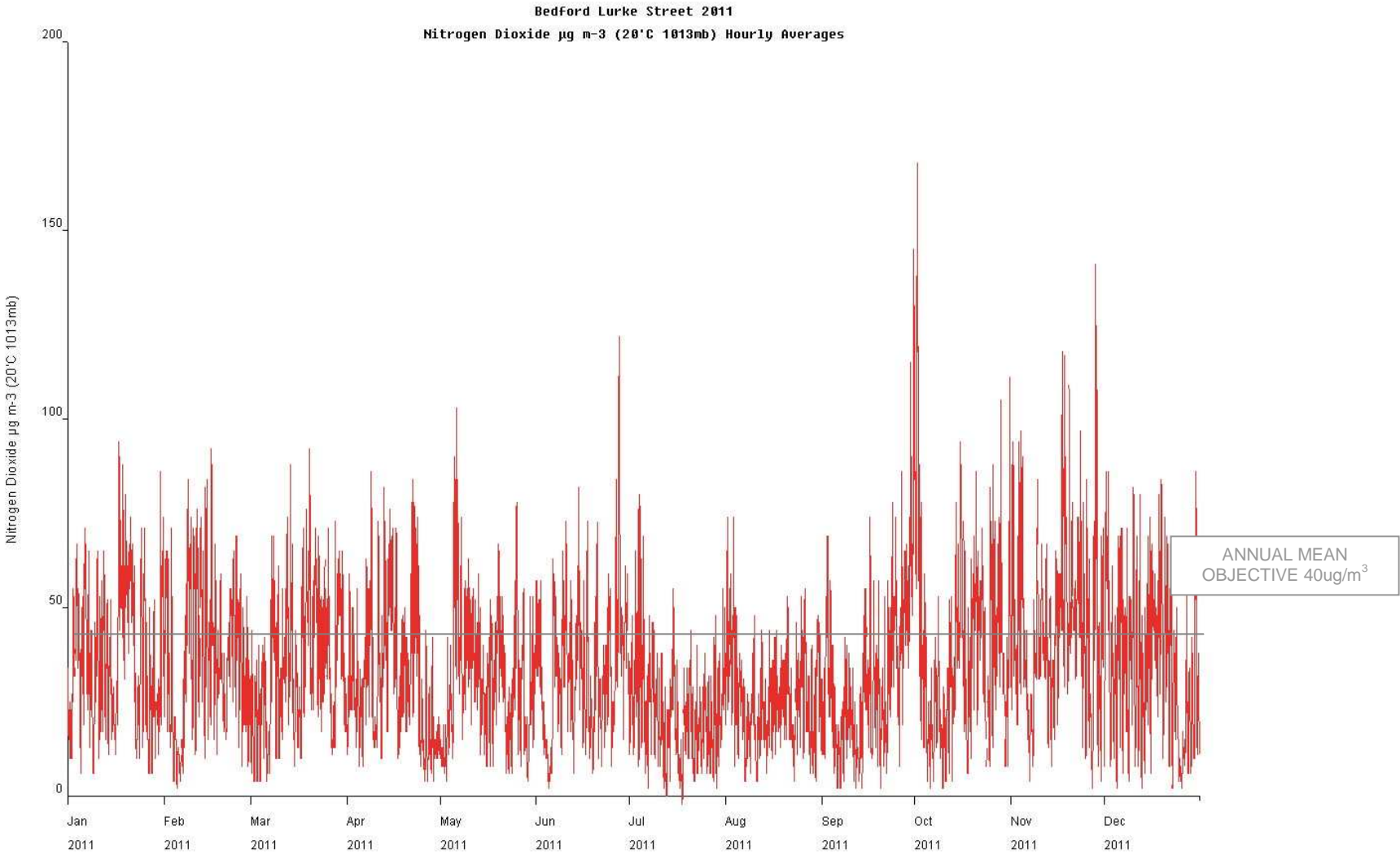


Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture 2010 %	Valid Data Capture 2011 %	Number of Exceedences of Hourly Mean (200 µg/m ³)	
					2010	2011
Prebend Street	Roadside	Y	97	99.4	143	183
Lurke Street	Roadside	Y	65.2	98.9	94	168

Diffusion Tube Monitoring Data

The diffusion tube data displayed in table 2.5 have all been bias adjusted using the national bias adjustment factor retrieved from the Defra Spreadsheet (Appendix A). Data has also been included from 2008 all of which has been bias adjusted. Although 5 years of data is usually considered the minimum necessary to identify any trends in the results, showing the 4 years worth of data as in table 2.5 will identify if any apparent trends are visible.

Those locations that are exceeding the annual mean objective are highlighted in red in the table. Tubes 66, 67 and 68 are being used to derive a local bias adjustment figure to go towards the national survey. Tubes 69 and 70 have only been in place for 1 year.

The rest of the data shows that there are many exceedences against the annual mean objective but these are all within the AQMA. The only tube outside the AQMA exceeding the annual mean objective is tube 21 which is located on the A1 and does not represent relevant exposure.

There are three diffusion tube locations where the annual mean is greater than $60\mu\text{g}/\text{m}^3$, at Site ID 20 – $62\mu\text{g}/\text{m}^3$, 27 – $60\mu\text{g}/\text{m}^3$ and 50 $\mu\text{g}/\text{m}^3$. However, all these locations are in close proximity to an automatic monitoring station which is below $60\mu\text{g}/\text{m}^3$, (figure 2.3). The locations are also all within the AQMA where an Air Quality Action Plan is in the process of being produced which will detail the ways in which measures will be brought in to improve air quality across the whole of the AQMA.

The diffusion tube data over the 4 years does, in the majority of cases, show an increase in concentration of NO_2 . 2010 appeared to reduce slightly in levels but the 2011 has increased a follows the trend from 2008 – 2009.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes from 2008 - 2011

Site ID	Location	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) $\mu\text{g}/\text{m}^3$			
				2008 (Bias Adjustment Factor = 0.94)	2009 (Bias Adjustment Factor = 0.98)	2010 (Bias Adjustment Factor = 0.99)	2011 (Bias Adjustment Factor = 0.89)
5	Bromham Road, Bedford	R	N	28	31	29	31
7	Bunyan Road, Kempston	R/UB	N	28	30	26	30
10	Kirkstall Close	S	N	25	26	23	28
12	The Lane, Wyboston	S	N	23	24	24	25
13	Gt Nth Road, Wyboston (A1) South	R	N	23	25	16	32
14	River Street	R/UB	Y	32	35	32	34
15	Woburn Road , Kempston	R	N	29	30	26	28
16	Kempston Road , Bedford	R	Y	29	30	31	34
17	Amphill Road , Bedford	R	Y	36	40	39	37
19	Kimbolton Road , Bedford	K	Y	31	31	30	33
20	Prebend Street , Bedford	R	Y	57	59	54	62
21	Gt Nth Road, Wyboston (A1) North	R	N	40	44	42	50
25	London Road crossroad	R	Y	45	47	43	43
27	High St ladbrooks	R	Y	54	58	48	60
28	Prebend St corner of commercial road	R	Y	39	43	41	39
29	Goldington Road opp uni	R	Y	41	43	39	42
30	High St collins jewellers	R	Y	49	50	46	52

31	High St luddingtons	R	Y	47	52	49	52
33	Shakespeare Road	R	Y	43	48	51	51
34	High St kings arms PH	R	Y	45	51	49	50
35	Prebend St new residential	K	Y	42	44	40	41
36	Ashburnham Road	R	Y	40	42	41	40
40	Tavistock St	R	Y	27	30	30	34
42	High St opp old BT building	R	Y	46	45	44	48
43	Dame Alice St	K	Y	43	44	44	46
44	Midland Road- outside No. 137,139A	K	Y	38	41	42	44
46	Midland Rd-outside Beegees opp Priory St	K	Y	39	42	40	44
47	On corner Harpur St – opp 51A	R	Y	31	33	34	33
48	Outside Sound & Vision – Tavistock St	K	Y	45	48	45	46
50	Outside Seven Oak – St Peters St	K	Y	47	50	48	64
53	Outside Longstaff Gentle & Co – Harpur St	R	Y	39	46	41	41
54	Outside 63 – Union St	K	Y	39	41	38	46
55	Opp urban & Rural on corner – Bromham Rd	R	Y	40	42	40	37
57	Outside 110 Newnham Av	K	Y	35	37	32	40
59	Warning Triangle outside 117 Newnham Av	R	Y	39	41	40	44
61	Outside 185 Goldington Rd	R	Y	32	35	33	45
62	Outside 139 Goldington Rd	R	Y	31	35	33	34

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65	Outside no. 43 London Rd	R	Y	33	35	34	40
66	Monitoring station	R	Y			38	42
67	Monitoring station	R	Y			39	41
68	Monitoring station	R	Y			37	43
69	River Street, opposite Chinese	R	Y				38
70	Outside bus station	R/UB	Y				38

Note: Those in red indicate a breach of the annual mean objective.

Figure 2.4 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites

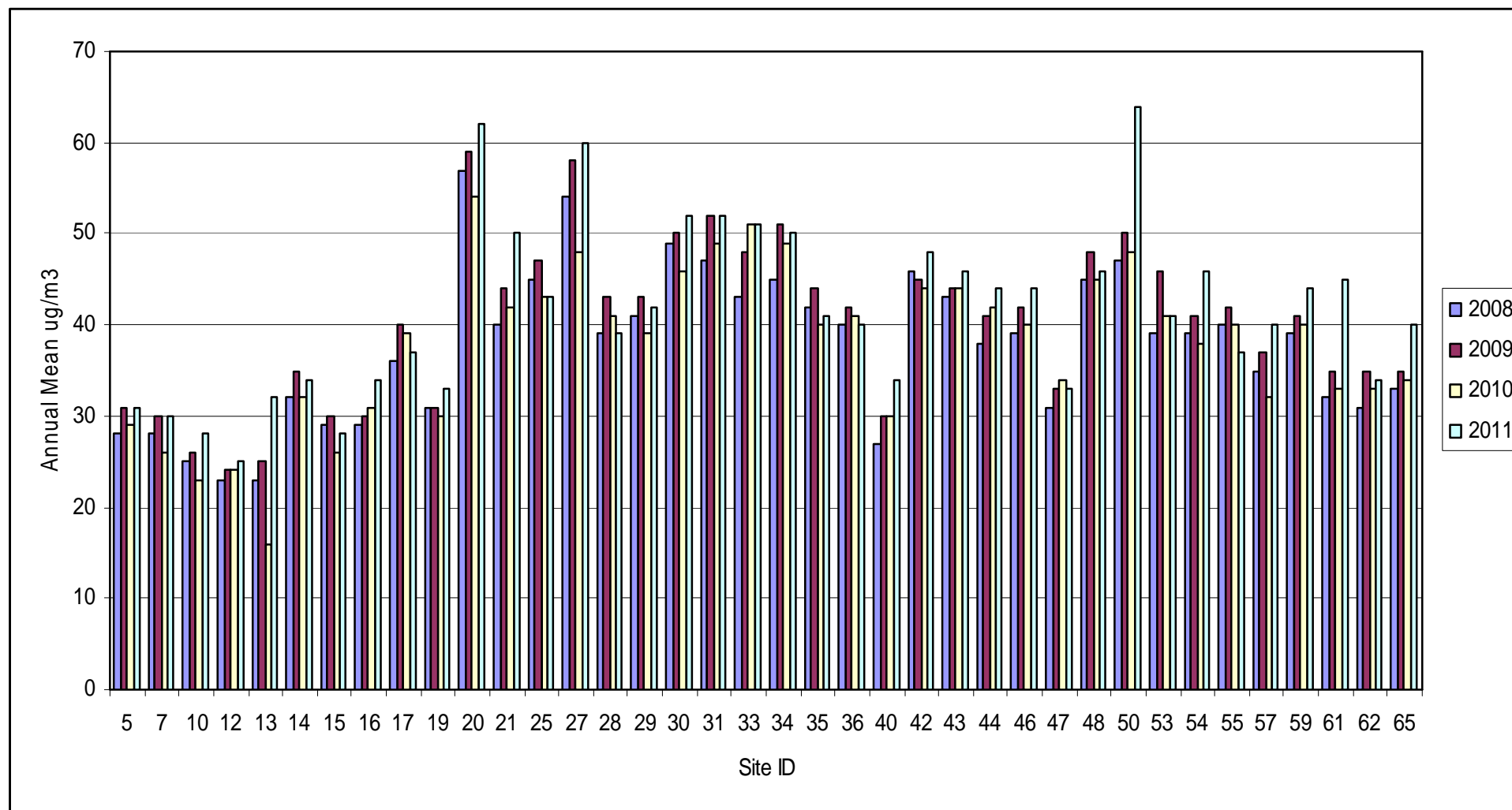


Figure 2.4 shows the trends in annual mean NO₂ concentrations measured at diffusion tube monitoring sites across the Borough. The graph shows that the highest concentrations were measured at Site 20 (Prebend Street), 27 (High Street) and 50 (St Peters Street).

The majority of the diffusion tube results show an upward trend in NO₂ concentrations from 2008 – 2011. Although 2010 showed slight decrease there is a noticeable rise in levels from 2008 to the current monitored levels of 2011.

This trend is mirrored in the automatic monitoring results, with both stations increasing in concentrations both the annual mean and maximum hourly mean from 2010 – 2011.

2.2.2 Summary of Compliance with AQS Objectives

The annual mean objective for NO₂ is widely exceeded within the borough but all of the exceedences are within AQMA 5 apart from one location, Site ID 21 (50ug/m³) which is located on the A1 and does not represent relevant exposure.

There are three diffusion tube locations where the annual mean is greater than 60ug/m³, at Site ID 20 – 62 ug/m³, 27 – 60 ug/m³ and 50ug/m³. However, all these locations are in close proximity to an automatic monitoring station which is below 60ug/m³, (figure 2.3). The locations are also all within the AQMA where an Air Quality Action Plan is in the process of being produced which will detail the ways in which measures will be brought in to improve air quality across the whole of the AQMA.

In the majority of locations there is evidence of an increase in concentrations of the annual mean, and in some locations the annual mean is greater than 60ug/m³. This will be closely monitoring to assess the likely hood of the hourly

mean being exceeded. However an AQMA covered all of these locations and an action plan is in the process of being revised to detail measures and actions which will be implemented to try and improve these levels.

Bedford Borough Council has examined the results from monitoring in the borough. Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment at this stage, however due to the modelling carried out within the air quality assessment for the planning application mentioned earlier, the Council will monitor to assess whether exceedences are likely along Ampthill Road at present and if the development goes ahead to monitor its impact.

After monitoring the Council will decide whether it is necessary to proceed to a detailed Assessment or not.

3 Road Traffic Sources

The Council has recently received an air quality assessment as part of an Environmental Impact Assessment for a mixed use development along Ampthill Road comprising of; a large food retail store, petrol station and associated parking; with outline permission being sought for a DIY store/garden centre, a large goods store, a hotel, 140 dwellings and B1 commercial units. Ampthill Road is a truck road linking the south of Bedford to the Town Centre. At present this part of Ampthill Road is not within the town centre AQMA (Figure 1.1) which was declared in 2009, as the last Updating and Screening Assessment identified that this location was not exceeding the 40 ug/m³ annual mean for relevant exposure to residents. However given the potential effect of this development on air quality concentrations at this location, it may be necessary to extend the AQMA. It has also been identified within the assessment that areas of Ampthill Road, outside the AQMA, may already be breaching the annual mean objective. To date we do not have any monitoring data to confirm this and diffusion tubes have now been located to assess the situation at present. The results from this coupled with if the development is likely to go ahead or not will determine whether or not the Council is to proceed to a Detailed Assessment.

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

As discussed above a planning application for a mixed use development along Ampthill Road has been submitted. Air quality has been assessed and they will be an impact on NO₂ concentrations as a result of the extra vehicles and signalised junctions as part of the proposed development. Although Ampthill Road does not form a typical narrow road, as there are only buildings on one side of the road, along some parts of the road, residential properties are close

to the kerb and the increase in vehicles on the road as a consequence to the development will impact on the concentration of NO₂.

Therefore Bedford Borough Council has identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, new or not adequately considered in previous rounds of Review and Assessment, and **will need to proceed to a Detailed Assessment if the proposed development along Ampthill Road is permitted**

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

Bedford Borough Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

Bedford Borough Council confirms that there are no new/newly identified roads with high flows of buses/HGVs.

3.4 Junctions

The proposed development discussed previously will create four new signalised junctions along Ampthill Road, as access routes for use of the site,

including the supermarket and petrol station. If the development is permitted NO₂ concentrations are predicted to increase along Ampthill Road in line with the modelling completed as part of the air quality assessment provided with the planning application. Therefore the Council will proceed to a Detailed Assessment if the development commences.

Bedford Borough Council has assessed new/newly identified junctions meeting the criteria in Section A.4 of Box 5.3 in TG(09), and concluded that **it will be necessary to proceed to a Detailed Assessment for NO₂ if the proposed development along Ampthill Road is permitted.**

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

Bedford's Western bypass opened in December 2009 linking the A412 to the A428. The second phase of the bypass linking the A421 to the A6 is due to commence. The purpose of the bypass will to ease traffic through the centre of Bedford. Further improvements have continued and the A421 has now been widened from Bedford up till Junction 13 of the M1. There have been no other new or proposed roads in the Borough where an air quality assessment was required.

Bedford Borough Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

The proposed development along Ampthill Road is predicted to bring about an increase of 21% in traffic volume over the first year, before the travel plan is

fully implemented. The air quality assessment predicted this to lead to an increase in levels of NO₂ along parts of Ampthill Road which represent relevant exposure. Therefore if permitted the Council will proceed to a Detailed Assessment.

Bedford Borough Council has assessed new/newly identified roads with significantly changed traffic flows, and concluded that **it will be necessary to proceed to a Detailed Assessment for NO₂ if the proposed development along Ampthill Road is permitted.**

3.7 Bus and Coach Stations

There is one bus station with the Borough and a diffusion tube has now been in place for a year. The annual mean was 38ug/m³, just below the annual mean objective for NO₂. However the site does not represent relevant exposure and the bus station is not enclosed. Therefore no further action is necessary.

Bedford Borough Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Bedford Borough Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Bedford Borough Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

4.2.2 Moving Trains

Bedford Borough Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.3 Ports (Shipping)

Bedford Borough Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

A large scale (600,000 tonnes per annum) waste incineration plant, Covanta has been approved by the Infrastructure Planning Commission. This is current under appeal to the Houses of Parliament and we await the final decision.

Bedford Borough Council has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

Bedford Borough Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Bedford Borough Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

The new Petrol Station proposed as part of the mixed use development along Ampthill Road will be fitted with Stage II vapour Recovery if the development is permitted so does not need to be considered.

Bedford Borough Council confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

Bedford Borough Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Bedford Borough Council confirms that there are no biomass combustion plant in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

Bedford Borough Council confirms that there are no biomass combustion plant in the Local Authority area.

6.3 Domestic Solid-Fuel Burning

Bedford Borough Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Bedford Borough Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

At the beginning of April 2012, new diffusion tubes were installed at relevant receptor locations to assess whether the annual mean objective is being or is likely to be breached. The tubes will also be used to assess the impact from the proposed development along Ampthill Road if the application is granted permission. The new data will also be used to assess whether or not the modelling completed as part of the Ampthill Road development is accurate.

New monitoring data from diffusion tubes 69 and 70 are just below the annual mean objective at 38ug/m³. We will continue to monitor these.

The annual mean for NO₂ is widely exceeded through the borough but all of the exceedences are within AQMA 5 apart from one location, Site ID 21 (50ug/m³) which is located on the A1 and does not represent relevant exposure.

There are three diffusion tube locations where the annual mean is greater than 60ug/m³, at Site ID 20 – 62 ug/m³, 27 – 60 ug/m³ and 50ug/m³. However, all these locations are in close proximity to an automatic monitoring station which is below 60ug/m³, (figure 2.3). The locations are also all within the AQMA where an Air Quality Action Plan is in the process of being produced which will detail the ways in which measures will be brought in to improve air quality across the whole of the AQMA.

In the majority of locations there is evidence of an increase in concentrations of the annual mean, and in some locations the annual mean is greater than 60ug/m³. This will be closely monitored to assess the likely hood of the hourly

mean being exceeded. However an AQMA covered all of these locations and an action plan is in the process of being revised to detail measures and actions which will be implemented to try and improve these levels.

8.2 Conclusions from Assessment of Sources

If the planning application for a mixed use development along Ampthill Road is permitted, then it is likely that it will lead to an increase in levels of NO₂ that would be outside the already existing AQMA. The air quality assessment (submitted as part of the planning application) identified that parts of Ampthill Road, outside of the AQMA, are currently exceeding the annual mean objective. However, we have no monitoring data in this area to confirm this. We have therefore installed diffusion tubes to identify the level of NO₂ at relevant exposures. We will continue to assess the levels at this location to determine whether or not the Council will need to proceed to a Detailed Assessment. If the development is permitted the Council will proceed to a Detailed Assessment anyway.

8.3 Proposed Actions

This Updating and Screening Assessment has identified that from current data the annual mean objective is widely exceeded through the Borough but all within the Town Centre AQMA.

There are locations along Ampthill Road, outside the AQMA where it has been predicted by other assessments (air quality assessment as part of a planning application) that the annual mean objective is exceeding. Therefore the Council has started monitoring in this location to confirm the levels of NO₂ at relevant exposures. The results from this will determine whether or not the

Council will proceed to a Detailed Assessment. The new monitoring data will also be used to assess the impact of the proposed development along Ampthill Road if the application is granted planning permission.

The Updating and Screening Assessment has identified no other areas for any of the other pollutants that are exceeding or are likely to exceed the air quality objective. Therefore the Council will undertake the following actions:

1. To maintain the monitoring throughout the Borough and maintain the Town Centre AQMA for NO₂.
2. Carryout a formal consultation on the Air Quality Action Plan and then once approved by Committee implement the plan throughout the town centre.
3. Maintain the new monitoring along Ampthill Road and proceed to a Detailed Assessment where required.
4. Prepare for the submission of its 2013 Progress Report.

9 References

1. Part IV of Environment Act 1995: Local Air Quality Management. Technical Guidance LAQM.TG (09). Defra, February 2009.
2. The Air Quality (England) Regulations 2000 (Statutory Instrument 2000 No. 928), March 2000.
3. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. July 2007. Volume 1 and 2, ISBN 978-0-171692-5
4. The Air Quality Amendment Regulations 2002, ISBN 0 11061468 2.

Appendix

Appendix A: QA:QC Data

Factor from Local Co-location Studies

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	01/01/2011	01/02/2011							
2	01/02/2011	01/03/2011	48						
3	01/03/2011	01/04/2011	38						
4	01/04/2011	01/05/2011	45	47	50	47	2.5	5	6.3
5	01/05/2011	01/06/2011	42	43	40	42	1.5	4	3.8
6	01/06/2011	01/07/2011	47	45	47	46	1.2	2	2.9
7	01/07/2011	01/08/2011	51	50	52	51	1.0	2	2.5
8	01/08/2011	01/09/2011	59	52	51	54	4.4	8	10.8
9	01/09/2011	01/10/2011	44	45	52	47	4.4	9	10.8
10	01/10/2011	01/11/2011	54	46	58	53	6.1	12	15.2
11	01/11/2011	01/12/2011	50	50		50	0.0	0	0.0
12	01/12/2011	01/01/2012	39	40	38	39	1.0	3	2.5

Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data Capture Check
36.9	98		Good
48.7	99.9		Good
59.9	99.2		Good
52.4	99.3	Good	Good
41.8	98.8	Good	Good
38.6	99.6	Good	Good
44.7	99.5	Good	Good
53.5	99.5	Good	Good
53.9	99.9	Good	Good
52.3	99.5	Good	Good
62.1	98.6	Good	Good
36.1	99.6	Good	Good
		Good precision	Good Overall DC

Accuracy				(with 95% confidence interval)
without periods with CV larger than 20%				
Bias calculated using 9 periods of data				
	Bias factor A	1.01 (0.92 - 1.13)		
	Bias B	-1% (-11% - 8%)		
	Diffusion Tubes Mean:	48	μgm^{-3}	
	Mean CV (Precision):	5		
	Automatic Mean:	48	μgm^{-3}	
		Data Capture for periods used:	99%	
	Adjusted Tubes Mean:	48 (44 - 54)		μgm^{-3}

Accuracy			(with 95% confidence interval)	
WITH ALL DATA				
Bias calculated using 9 periods of data				
	Bias factor A	1.01 (0.92 - 1.13)		
	Bias B	-1% (-11% - 8%)		
	Diffusion Tubes Mean:	48	µgm ⁻³	
	Mean CV (Precision):	5		
	Automatic Mean:	48	µgm ⁻³	
		Data Capture for periods used:	99%	
	Adjusted Tubes Mean:	48 (44 - 54)		µgm ⁻³

Diffusion Tube Bias Adjustment Factors

A local co-location study has been completed this year for 2011 with the monitoring station at Prebend Street. The bias adjustment factor for each of the other years reported has been obtained from the default bias adjustment factors (based on the March 2010 spreadsheet derived from the Government's Review and Assessment website). The default factors are based on statistical analyses of reported data provided by other local authorities. For the final year 2011 the Council have used a local bias adjustment factor calculated from the National Diffusion Tube Bias Adjustment Spreadsheet from Defra's LAQM helpdesk. For 2011, 26 studies were available and the 2011 factor reported is the most recently available factor (0.89). This compared to the Council's local bias adjustment factor of 1.01.

The default spreadsheet for calculating the local bias adjustment factor gave the overall survey good precision. The term “precision” indicates how well the diffusion tubes produce similar results from the duplicate and triplicate studies undertaken. The criterion is somewhat arbitrary and it reflects both the laboratory’s performance in preparing and analysing the tubes, plus the handling of the tubes in the field.

YEAR	BIAS ADJUSTMENT FACTOR
2008	0.94
2009	0.98
2010	0.99
2011	0.89

Discussion of Choice of Factor to Use

The national bias adjustment factor was used as it represents more studies as well as it is what has been used in previous years.

QA/QC of automatic monitoring

Bedford Borough Council has a service and maintenance contract for both monitoring stations with by Casella, which includes 2 scheduled on-site services per annum; they are also responsible for fortnightly calibrations. We also have a 48hour call out for any problems that may occur.

QA/QC of diffusion tube monitoring

The diffusion tubes used are analysed by Gradko International using a preparation method of 20% TEA in water. In the most recent round of Annual Performance Criteria for NO₂ Diffusion Tubes used in LAQM the laboratory demonstrated good performance in a QA/QC scheme for analysis of NO₂ diffusion tubes. Gradko International participates in the Workplace Analysis Scheme for Proficiency (WASP), which is an independent analytical performance testing scheme. The scheme is an important QA/QC exercise for laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM). The Health and Safety Laboratory (HSL) operate the WASP scheme independently and the cost of operation is borne by the laboratories, which pay an annual fee to HSL.