



# 2011 Air Quality Progress Report for *Antrim Borough Council*

In fulfillment of the Environment (Northern Ireland) Order  
2002 - Local Air Quality Management

July 2011



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## Executive Summary

Part III of the Environment (NI) Order 2002 requires each district council to periodically review air quality in its area and the Air Quality Regulations (NI) 2003 prescribe the air quality objectives to be achieved. The process of reviewing and assessing air quality represents a cornerstone in the system of local air quality management (LAQM).

The first round of review and assessment for Antrim Borough Council was completed in April 2004. This concluded that, based on available data, the risk of the air quality objectives in respect of carbon monoxide; benzene; 1,3-butadiene; lead; nitrogen dioxide and fine particulates (PM<sub>10</sub>) not being met within the prescribed timescales was negligible.

The review and assessment predicted that the objectives for sulphur dioxide would be exceeded in parts of Antrim town as the result of domestic solid fuel burning, and consequently the Council declared an Air Quality Management Area (AQMA) in October 2004. Subsequently, in July 2007, the Council produced an Air Quality Action Plan (AQAP), which set out the measures to be introduced in pursuit of the air quality objectives within the AQMA.

A second round of review and assessment commenced with the submission of an Updating and Screening Assessment in 2006 and ended with a Progress Report in 2008. The second round confirmed that the conclusions of the first round were still valid.

In 2009, Antrim Borough Council submitted an Updating and Screening Assessment which concluded that there was no need to proceed to Detailed Assessment for any of the regulated pollutants.

In 2010 a Progress Report was submitted. Progress Reports are intended to maintain continuity in the LAQM process, and fill in the gaps between the three-yearly cycle of Review and Assessment. Progress reports are required in all years when not completing an Updating and Screening Assessment.

The main conclusions of the 2010 Progress Report were:

- Nitrogen dioxide concentrations at six out of eight sites were high enough to require continued monitoring. The other two sites will be closed down and the diffusion tubes relocated to monitor other road junctions.
- Data from the Council's real time sulphur dioxide monitoring station showed continuing compliance with the air quality objectives. It was concluded that there was no reason for retention of the site.
- All the measures in Antrim Borough Council's Action Plan had been fully implemented and Antrim Borough Council was in a position to revoke its AQMA.

As the 2010 report did not identify a need to carry out any detailed assessments, this report is a further Progress Report. It has been compiled in accordance with

Technical Guidance LAQM.TG(09), using the recommended proforma. The report considers new monitoring results from the Council's nitrogen dioxide diffusion tube network, new local developments and recent planning permissions that might affect local air quality.

The main findings of the report are:

- Air Quality Objectives were being met at all nitrogen dioxide diffusion tube sites.
- There are no new local development likely to have an adverse effect on local air quality
- There are a number of planning permissions granted that have the potential to impact on local air quality. These will be assessed as they come on stream.

The next report for Antrim Borough Council will be another Progress Report which is due by the end of April 2012.

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# 1 Introduction

## 1.1 Description of Local Authority Area

Situated about 19 miles (31 km) north-west of Belfast, Antrim Borough Council takes in an area of 220 square miles (570 km<sup>2</sup>) - approximately 4.1% of the total area of Northern Ireland, with a population of 53,200 (2008). Antrim borders the north and east shores of Lough Neagh, the largest fresh water lake in the UK, and includes the towns of Antrim, Toomebridge, Crumlin, Randalstown, Parkgate and Templepatrick. The council headquarters are located on the outskirts of Antrim town.

Originally predominantly rural in nature, new industry, with associated expansion and development, has made the Borough much more urban with the town of Antrim now the main populated centre. The Borough has a strong and diverse industrial base, employment levels are among the best in the Province and the infrastructure already in place will complement economic development throughout the 21<sup>st</sup> century. Today's economic drivers revolve around construction, distribution, retailing, transport and hospitality. The area's principal strength literally revolves around a superbly developed transport infrastructure that provides easy access to all the main external gateways for Northern Ireland, as well as easy access to all parts of the Province. Antrim town lies on two of the main transport corridors, the Belfast – Derry corridor and the Southern corridor. Although the borough is not within the Belfast Metropolitan Area, it houses the city's international airport which is located 4 miles from the historic town of Antrim. The importance and benefit of the Borough's central geographical location is emphasised by the strong interest shown by potential investors. Due to its location, businesses are able to access skilled labour from both inside and outside the Borough.

**Figure 1.1 Map of Antrim Borough.**



## 1.2 Purpose of Progress Report

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

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

## 1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in **Northern Ireland** are set out in the Air Quality Regulations (Northern Ireland) 2003, Statutory Rules of Northern Ireland 2003, no. 342, 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,  $\text{mg}/\text{m}^3$  for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

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

<b>Pollutant</b>	<b>Concentration</b>	<b>Measured as</b>	<b>Date to be achieved by</b>
<b>Benzene</b>	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	3.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2010
<b>1,3-Butadiene</b>	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
<b>Carbon monoxide</b>	10.0 $\text{mg}/\text{m}^3$	Maximum daily running 8-hour mean	31.12.2003
<b>Lead</b>	0.5 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
<b>Nitrogen dioxide</b>	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
<b>Particles (PM<sub>10</sub>) (gravimetric)</b>	50 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
<b>Sulphur dioxide</b>	350 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## 1.4 Summary of Previous Review and Assessments

The cornerstone of the LAQM process is the review and assessment of air quality. This is a statutorily required process whereby local air quality monitoring and modelling results are compared to the national air quality standards and objectives. Where objectives are breached or are predicted to be breached, an Air Quality Management Area (AQMA) is declared. An Action Plan must then be produced stating how the district council will drive air quality towards the objective.

The first round of review and assessment which was completed in 2004 concluded that:

1. The risk of the objectives for the following pollutants being exceeded was negligible:

Carbon Monoxide, Benzene, 1,3 butadiene, Lead, Nitrogen Dioxide, PM10

2. As the result of the prevalence of the use of solid fuel for domestic heating, the 15 minute mean objective for sulphur dioxide is likely to be breached in the Greystone and Ballycraig housing estates.

The first round of the Review and Assessment process resulted in the following measures:

1. The declaration of an AQMA
2. The installation of a continuous real-time sulphur dioxide analyser within the AQMA.

In October 2004 Antrim Borough Council declared an AQMA which took in the Greystone and Ballycraig housing estates in their entirety. The boundary of the AQMA is shown in Figure 1.1, below.

The second round of air quality review and assessment commenced with the USA which was completed in June 2006. This updated the review and assessments previously undertaken for all the pollutants identified in the Air Quality Regulations. The USA concluded that, other than within the Air Quality Management Area declared after the first round of review and assessment, there is no risk of exceeding any of the air quality objectives and that a detailed assessment is not required for the current round of review and assessment.

The following actions were recommended:

1. The production of an action plan for the AQMA setting out the measures to be introduced in pursuit of the air quality objectives.
2. Continued monitoring of the road networks for nitrogen dioxide with passive diffusion tubes.

3. Monitoring with diffusion tubes within the vicinity of Belfast International Airport to assess the contribution of air traffic to ambient nitrogen dioxide concentrations.

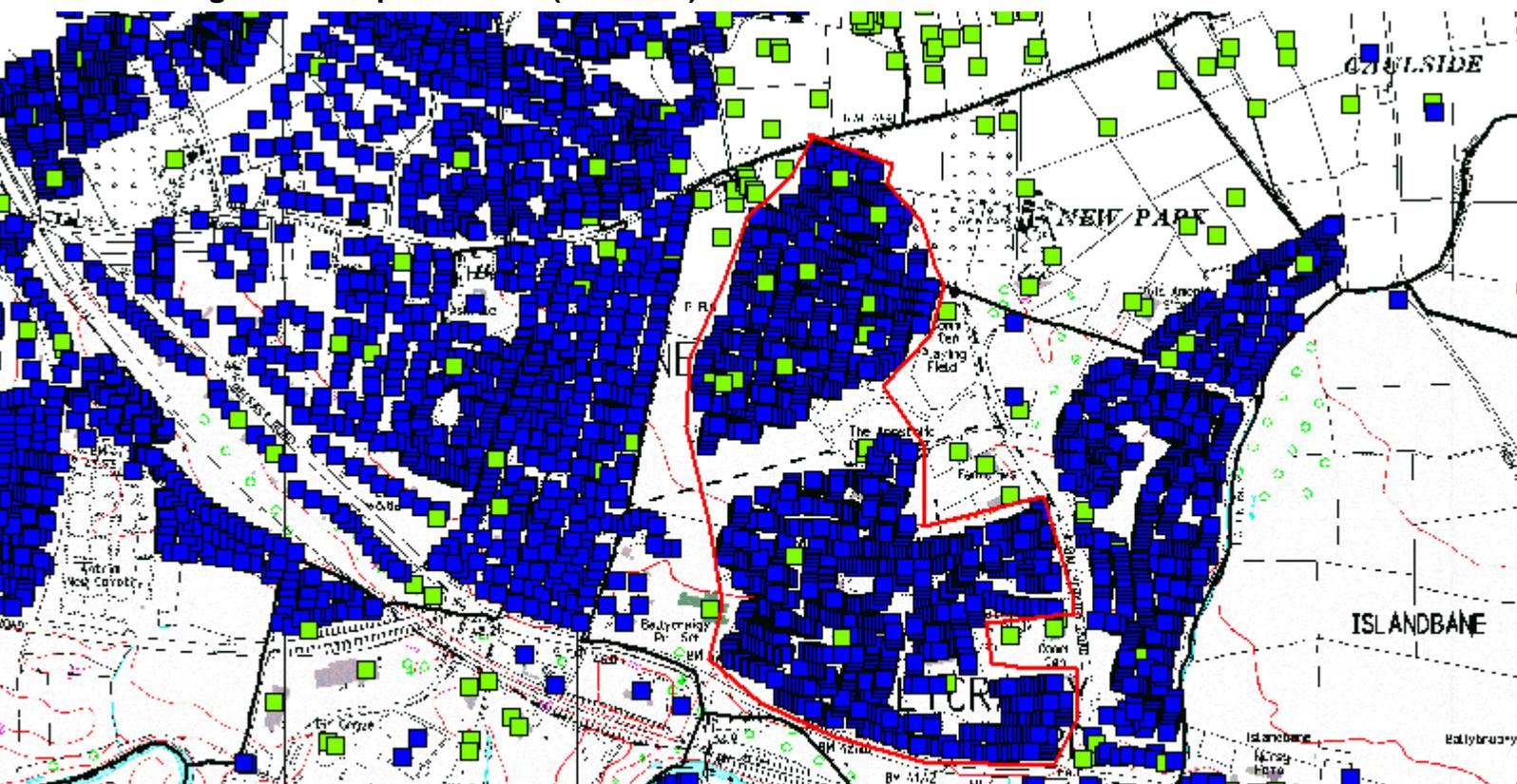
In 2007 and 2008 Progress Reports were submitted which concluded that there had not been any significant changes in local circumstances to indicate possible exceedences of the air quality objectives and that the conclusions of the 2006 USA were still valid.

In 2009 Antrim Borough Council submitted its Updating and Screening Assessment which covered all regulated pollutants, and considered monitoring data, road traffic sources, other transport sources, industrial sources, commercial and domestic sources, fugitive or uncontrolled sources and concluded that there was no requirement to a detailed assessment for any of the pollutants.

In 2010 Antrim Borough Council produced a Progress Report which incorporated a report on the implementation of the council's action plan for the AQMA. The main conclusions of the report were:

- Air Quality Objectives were being met at all nitrogen dioxide diffusion tube sites.
- Nitrogen dioxide concentrations at six out of eight sites were high enough to require continued monitoring. The other two sites will be closed down and the diffusion tubes relocated to monitor other road junctions.
- Data from the Council's real time sulphur dioxide monitoring station showed continuing compliance with the air quality objectives. The data did not make a case for retention of this site and it would be closed down.
- No new local developments likely to have an impact on air quality were identified.
- All the measures in Antrim Borough Council's Action Plan had been fully implemented and Antrim Borough Council was in a position to revoke its AQMA.

**Figure 1.2 Map of AQMA (Revoked)**



## 2 New Monitoring Data

### 2.1 Summary of Monitoring Undertaken

#### 2.1.1 Automatic Monitoring Sites

Antrim Borough Council monitored sulphur dioxide on an automatic continuous basis at a site within its AQMA from November 2001 until the beginning of 2010 when the site was closed down and decommissioned. The equipment employed used UV fluorescence for measurement of SO<sub>2</sub> and was located in the back yard of a dwelling house within the Greystone housing estate occupied by Greystone Community Group. Figure 2.1 shows the location of the monitoring station.

The site was initially set up to provide local data within the AQMA which could be used to adjust dispersion modelling carried out as part of the third stage review and assessment process.

In our 2010 Progress Report we reported that all the measures set out in our Action Plan for the AQMA had been implemented and that the air quality objectives for sulphur dioxide were being met within the AQMA. Consequently, we were in a position to revoke the AQMA. As the primary reason for operating the monitoring site had gone it was decided that there was no compelling reason for continuing operations and the site was closed down.

**Figure 2.1 Map of Discontinued Automatic Monitoring Site**



**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?
		X	Y						
Example 1	Urban backgrd.	X111222	Y222111	PM <sub>10</sub>	FDMS	Y	Y (1m)	3m	Y

### 2.1.2 Non-Automatic Monitoring Sites

Antrim Borough Council currently monitors nitrogen dioxide at 8 sites around the district using passive diffusion tubes. The diffusion tube are supplied and analysed by Environmental Scientifics Group (EGS), formerly Bureau Veritas.

Diffusion tubes represent a simple and cost-effective method of monitoring air quality in an area, to give a good general indication of average pollution concentrations. They are particularly useful for assessment against annual mean objectives.

#### QA/QC

The diffusion tubes used are supplied, prepared and analysed by EGS. The preparation method used from 1<sup>st</sup> January is 20% TEA in Water. This preparation was changed from 10% TEA at the beginning of 2011 to coincide with the harmonisation method set out in DEFRA's Harmonisation Practical Guidance.

EGS has a defined quality system, which forms part of the UKAS accreditation that the laboratory holds. All accredited methods are fully documented. UKAS assessors visit on an annual basis and review all aspects of the analysis, from sample handling to analysis and reporting. As a condition of accreditation, the laboratory is required to participate in any suitable proficiency schemes in operation. EGS participates in the WASP scheme organised by the Health and Safety Laboratory. EGS is currently ranked as a Category Good laboratory.

#### Tube Preparation and Analysis

The NO<sub>2</sub> tubes are prepared and analysed in a separate, designated part of the laboratory. Ambient nitrogen dioxide concentrations within the laboratory are monitored routinely. Blanks from each batch of tubes prepared in the laboratory are retained for verification. Tubes are prepared by spiking water:triethanolamine (80:20) onto the grids prior to the tubes being assembled.

Samples are analysed in accordance with ESG's standard operating procedure AQ02 issue 7 which meets the guidelines set out in DEFRA's " Diffusion Tubes For Ambient NO<sub>2</sub> Monitoring: Practical Guidance"

The tubes are desorbed with distilled water and the extract analysed on a Discrete Analyser using a calorimetric method. Incoming samples are stored in a fridge used solely for this purpose. Calibration standards, QC solutions and other reagents are stored in a separate fridge.

#### Antrim Borough Council's QA/QC.

Our QA/QC procedure is to ensure that diffusion tubes are handled and stored in accordance with the manufacturer's instructions. When a tube batch is received they are immediately placed in a refrigerator in the bag in which they are received. So far as is possible the Council conforms to the calendar of exposure periods supplied by the EGS. On the day of sampling they are removed from the fridge and installed.

Laboratory blanks are retained in the fridge and are taken out only when the exposed tubes are being returned to the laboratory.

When tubes are collected from sampling sites they are immediately packaged and sent to the laboratory for analysis.

### Selection of Monitoring Sites

Monitoring sites are chosen to provide data on locations that appear to be representative of likely residential exposure and, where possible, are close to the nearest receptor to the busy road or road junction of interest. Where sites do not represent actual relevant public exposure they are located closer to the source than the nearest receptor. The sites are subject to periodic review and where sufficient data has been gathered, some of the diffusion tubes are relocated to new locations.

### Data Adjustment

Results obtained from diffusion tubes need to be corrected for possible over or under reading. Deriving a correction factor by comparing the diffusion tube results with those obtained from a continuous real time analyser can do this. The Council does not operate a continuous analyser and therefore a co-location study has not been undertaken to determine a specific local bias adjustment factor. However, bias adjustment factors for various labs are available on the review and assessment website (Spreadsheet Version 04/1), and this gives a correction factor of 0.84 for the year 2010, based on 10 studies. This value has been used in this report.

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

The monitoring sites referred to in this report are shown in the following maps. All maps are subject to Ordnance Survey copyright.

### Fountain Street Site



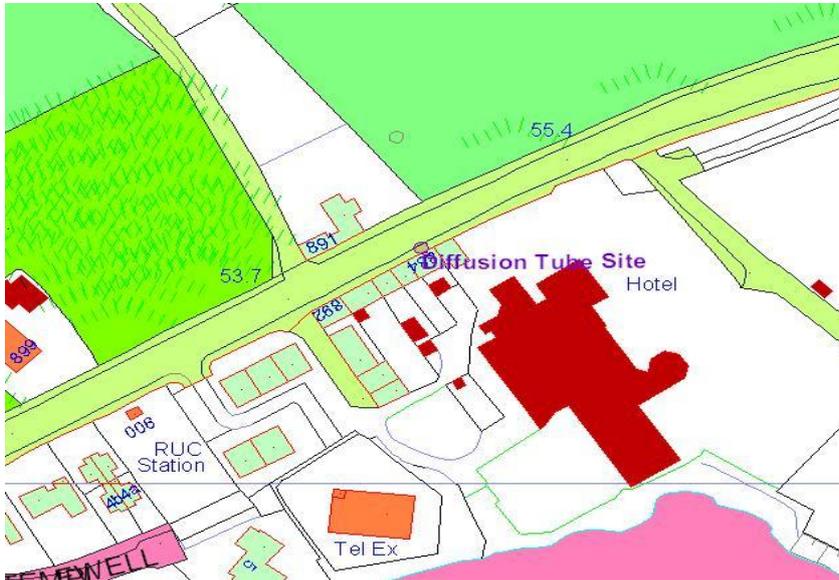
Fountain Street is the main traffic route through Antrim town and has fairly high traffic flows. The site monitors the nearest dwelling to traffic lights.

### A26 Lisnevenagh Road Site



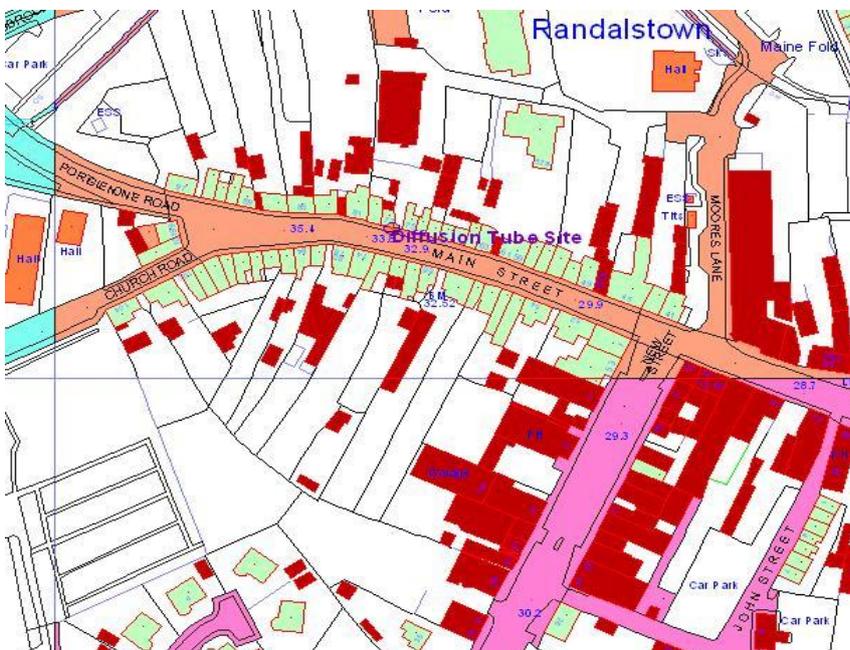
The Lisnevenagh Road is to the North of the Dunsilly roundabout and is a dual carriageway connecting Antrim with Ballymena. This site was set up to monitor concentrations close to the nearest dwelling to this busy road after Design Manual for Roads and Bridges (DMBR) modelling carried out for the Second Stage Review and Assessment predicted an exceedance of the objective at this property. (AADT) (7day) on this section of road is 30,640 (2009).

### Templepatrick Site



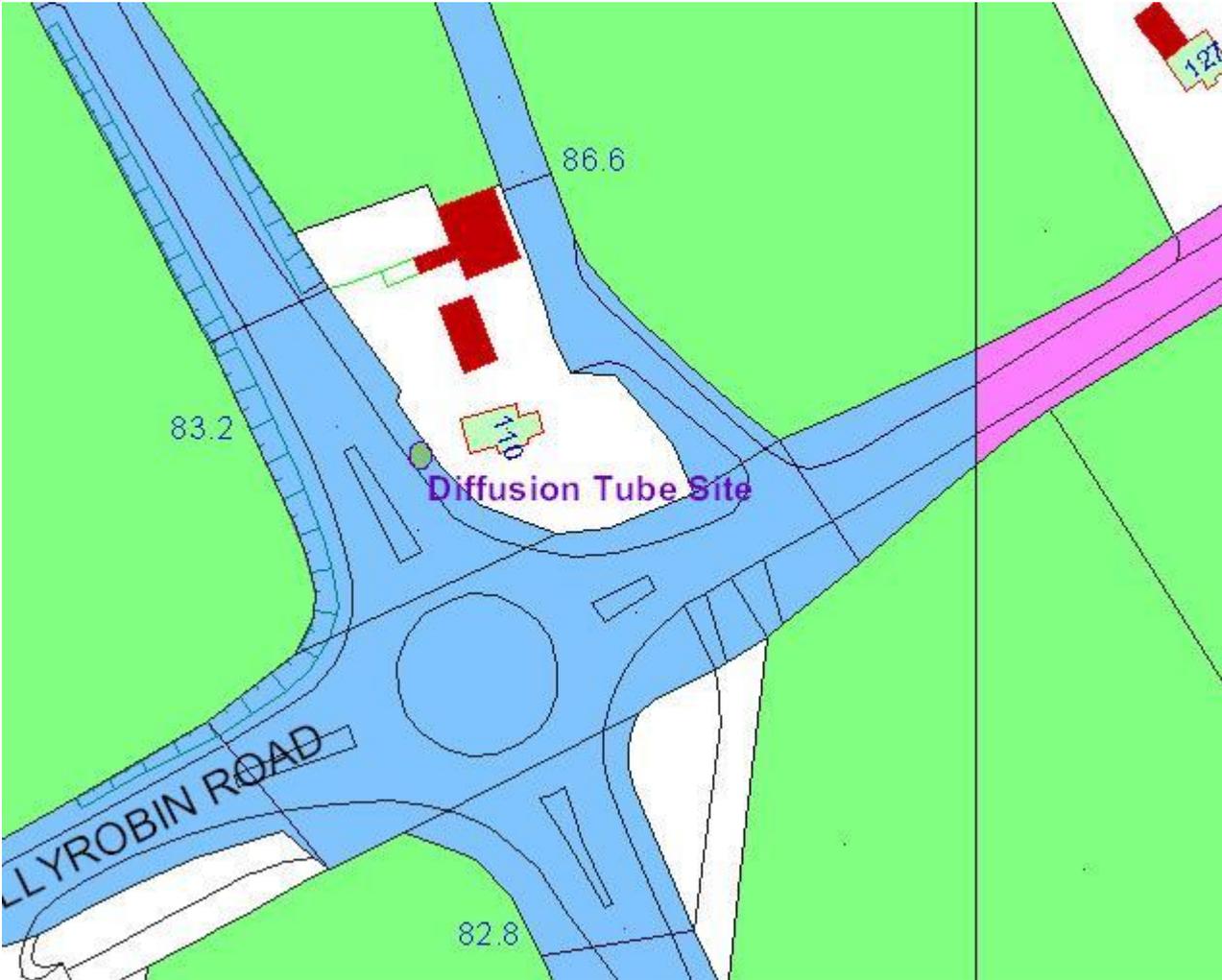
The site in Templepatrick is located on a lamppost in front of the Templeton Hotel. The site is very close to the facade of a residential property. Templepatrick is on the main route between the M2 motorway and Belfast International Airport and experiences high traffic flows. This site has been in operation for 8 years. 7 day AADT here is 16,240(2009).

### Randalstown Site



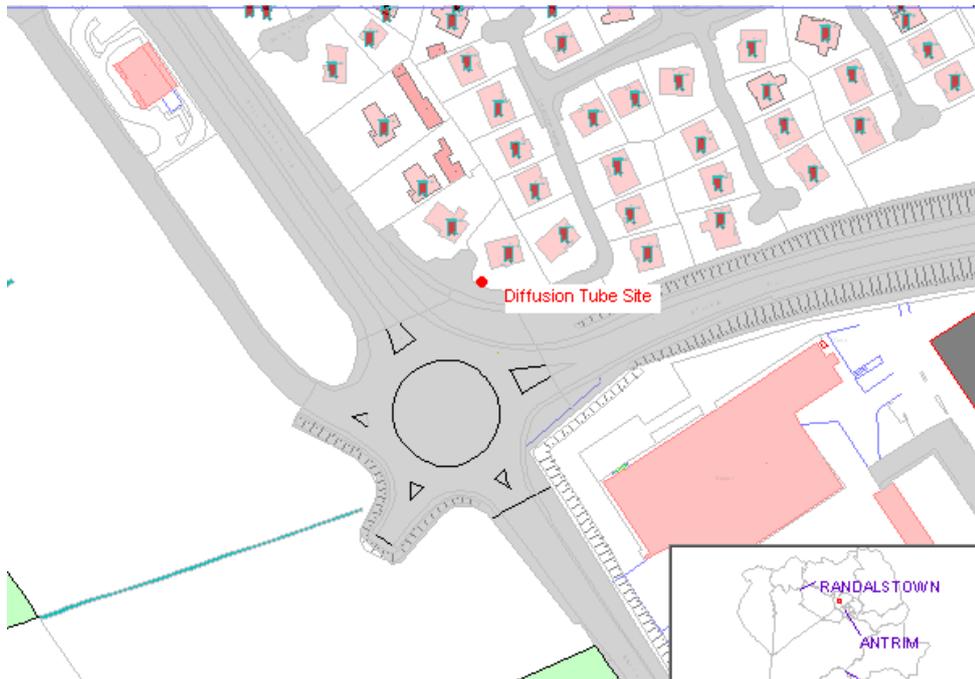
This site is located in front of a residential property on Main Street. The street is narrow at this location and traffic can be slow moving during periods of the day. This site has been operational for 7 years. The narrow street and high buildings here could give rise to raised concentrations because of the canyon effect.

**Oldstone Road / Ballyrobin Road Site**



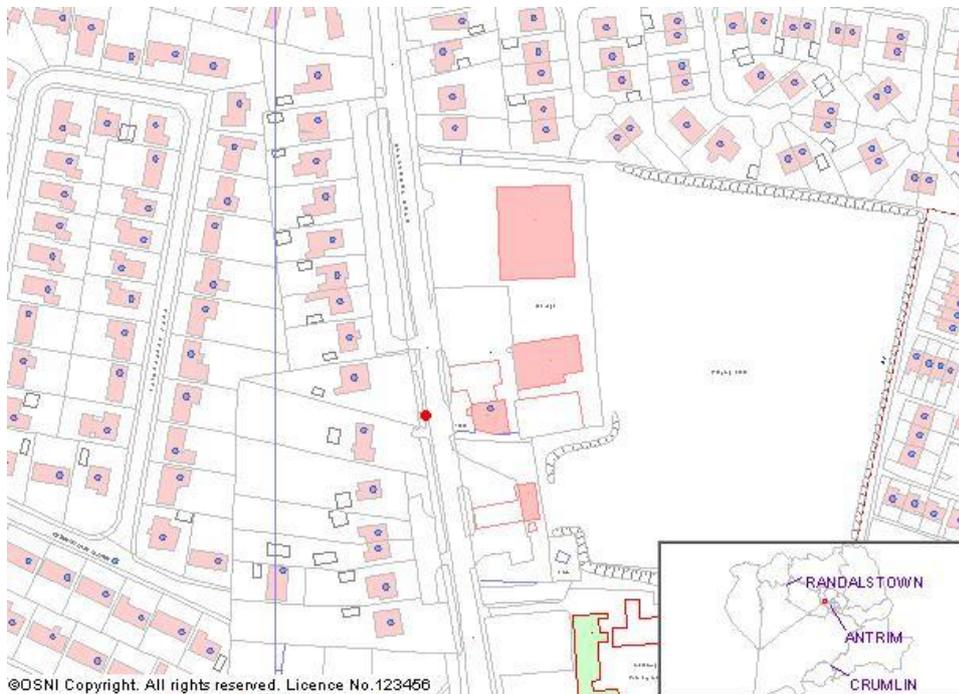
This site is on the Oldstone Road at the Ballyrobin roundabout and is in front of a residential property. An estimation of concentrations at this location carried out in the first round of Review and Assessment using the Design Manual for Roads and Bridges (DMRB) forecast concentrations near to the national objective.

**Meadowlands Site**



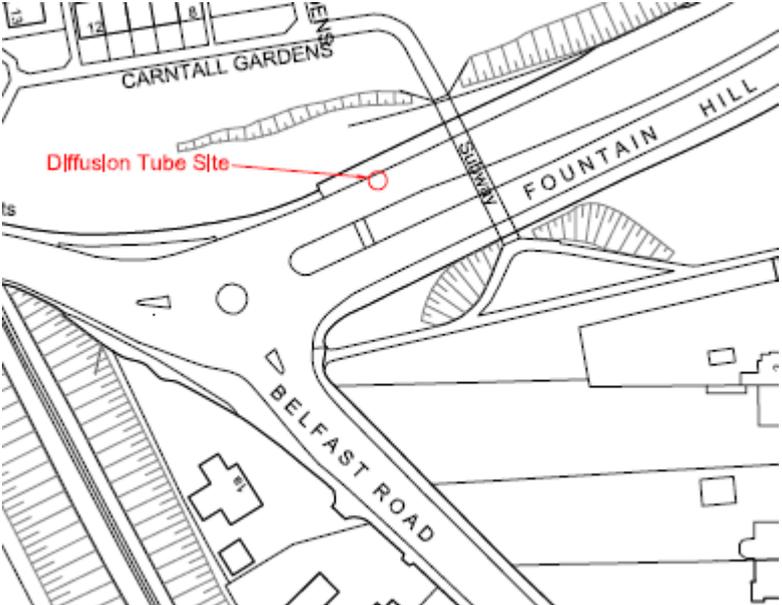
This site is at the Stiles Way / Ballymena Road junction, leading to the Junction One retail & leisure development.

**Ballymena Road Site.**



The Ballymena road is the main arterial route between Antrim town centre and the new Junction One development. This road has a 7 day average 16,880, 24 hour AADT (2009).

**Belfast Road Roundabout Site**



This site monitors a busy roundabout at the top of Antrim town.

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

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location?
Example 1	Urban backgrd.	X111222	Y222111	NO <sub>2</sub>	Y	Y (1m)	3m	Y
Fountain St	Kerbside	315197	386539	NO <sub>2</sub>	N	Y (1m)	1.5m	Y
Lisnevenagh Rd	Kerbside	313254	319205	NO <sub>2</sub>	N	Y(4m)	3m	Y
Templepatrick	Kerbside	322992	385675	NO <sub>2</sub>	N	Y(1m)	1.5m	Y
Randalstown	Kerbside	308113	390461	NO <sub>2</sub>	N	Y(1m)	1.5m	Y
Ballyrobin Roundabout	Kerbside	317496	381750	NO <sub>2</sub>	N	Y(5m)	2m	Y
Meadowlands	Kerbside	314360	388309	NO <sub>2</sub>	N	Y(15m)	6m	Y
Ballymena Rd	Kerbside	314670	387541	NO <sub>2</sub>	N	Y(10m)	2m	Y
Belfast Rd Roundabout	Kerbside	351662	386516	NO <sub>2</sub>	N	Y(45m)	3m	Y

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

The only pollutant monitored by Antrim Borough Council in 2011 was nitrogen dioxide

### 2.2.1 Nitrogen Dioxide

Antrim Borough Council currently monitors nitrogen dioxide at 8 sites around the district using passive diffusion tubes. There are no automatic monitoring sites within the borough.

#### Automatic Monitoring Data

Antrim Borough Council does not operate a continuous nitrogen dioxide monitor.

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

Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2010 <sup>b</sup> %	Annual mean concentrations ( $\mu\text{g}/\text{m}^3$ )		
						2008 <sup>c, d</sup>	2009 <sup>c, d</sup>	2010 <sup>c</sup>
A1	1 Example Site	N	Y	95	95	30.1	25.1	26.2

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> 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%.)

<sup>c</sup> Means should be “annualised” as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

<sup>d</sup> Annual mean concentrations for previous years are optional.

**Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Automatic Monitoring Sites.**

Not applicable.

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

Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2010 <sup>b</sup> %	Number of Exceedences of hourly mean (200 µg/m <sup>3</sup> ) If the period of valid data is less than 90% of a full year, include the 99.8 <sup>th</sup> percentile of hourly means in brackets.		
						2008 <sup>c</sup>	2009 <sup>c</sup>	2010
A1	1 Example Site	N	Y	95	95	0	3	15

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> 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%.)

<sup>c</sup> Numbers of exceedences for previous years are optional.

## Diffusion Tube Monitoring Data

Antrim Borough Council currently monitors nitrogen dioxide at 8 sites around the district using passive diffusion tubes. The diffusion tube are supplied and analysed by Environmental Scientifics Group (EGS), formerly Bureau Veritas.

Monitoring sites are chosen to provide data on locations that appear to be representative of likely residential exposure and, where possible, are close to the nearest receptor to the busy road or road junction of interest. Where sites do not represent actual relevant public exposure they are located closer to the source than the nearest receptor.

Annual mean concentrations for 2010 are shown in Table 2.4, below. A minimum of 10 month's data is available for each site so the means have not been "annualised". The annual means have been bias adjusted using the appropriate bias adjustment factor from the Review & Assessment website.

The annual mean air quality objective of  $40 \mu\text{g}/\text{m}^3$  was not exceeded at any of the monitoring sites and there were no monthly mean values in excess of  $60 \mu\text{g}/\text{m}^3$ .

The full data set (monthly mean values) for 2010 are set in Appendix 2.

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

Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2010 <sup>b</sup> %	Annual mean concentrations ( $\mu\text{g}/\text{m}^3$ )		
						2008 <sup>c, d</sup>	2009 <sup>c, d</sup>	2010 <sup>c</sup>
A1	1 Example Site	N	Y	95	95	30.1	25.1	26.2
1	Fountain St	N	Y	83.3 (10m)	83.3	31.62	30.58	<b>35.48</b>
2	Lisnevenagh F	N	Y	83.3 (10m)	83.3	26.79	27.54	35.35
3	Templepatrick	N	Y	91.6 (11m)	91.6	34.24	33.95	37.11
4	Randalstown	N	Y	83.3 (10m)	83.3	35.9	36.23	38.21
5	Ballyrobin	N	Y	83.3 (10m)	83.3			26.64
6	Meadowlands	N	Y	83.3 (10m)	83.3	21.96	29.67	25.05
7	Ballymena Rd	N	Y	83.3 (10m)	83.3	29.8	39.63	32.42
8	Belfast Rd	N	Y	83.3 (10m)	83.3			25.75

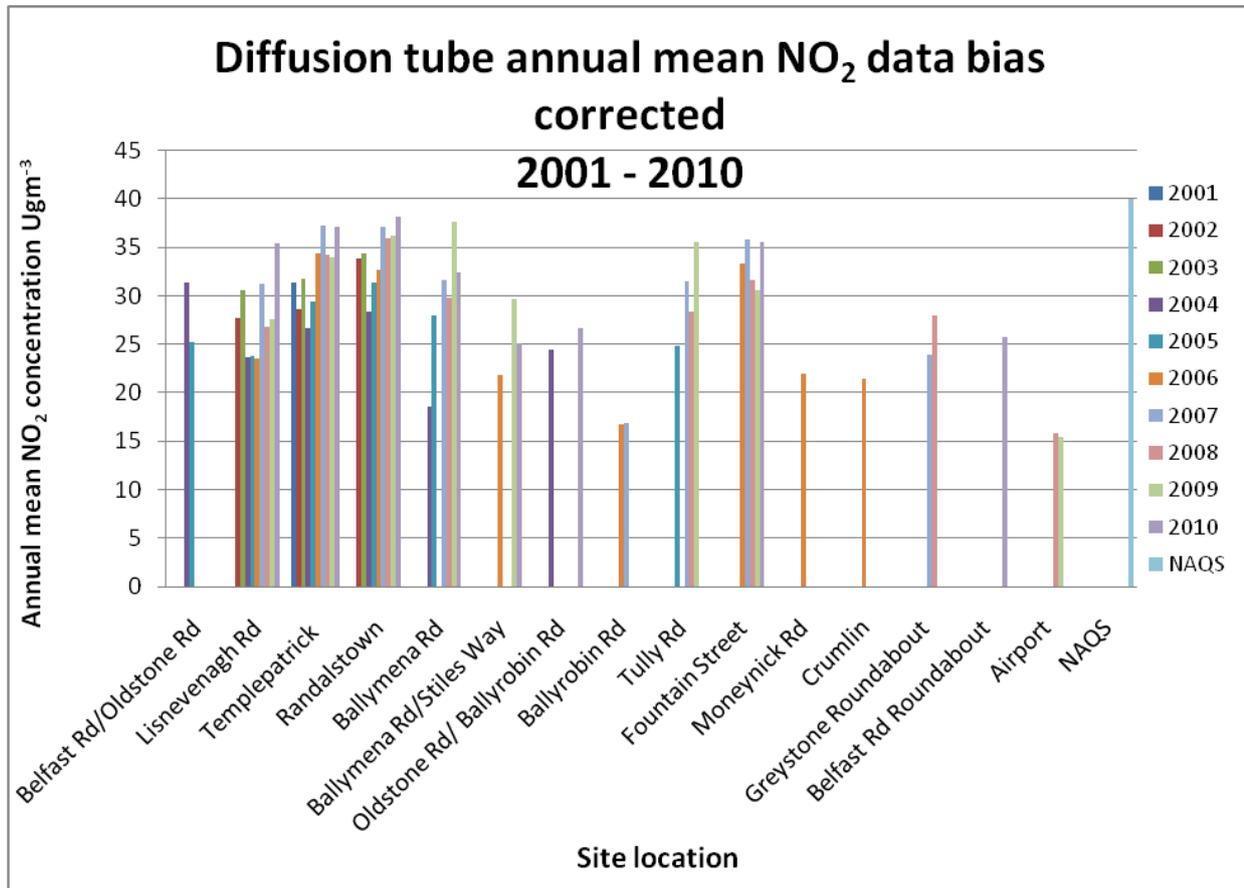
<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> 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%.)

<sup>c</sup> Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

<sup>d</sup> Annual mean concentrations for previous years are optional.

**Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Diffusion Tube Monitoring Sites.**



Annual mean concentrations for 2010 and, where they are available, for preceding years are shown in the graph. Although the increases have not been uniform, the graph demonstrates that the rising trend that has been evident in previous years continues for most sites. The Ballymena Road site has bucked the trend and shows a fall off in levels. This may be the result of the opening of the through road from the Junction one shopping complex to the Randalstown Road which diverts a lot of traffic which formerly would have had to use the Ballymena Road.

The Annual Mean Objective is not exceeded at any site although results from the Fountain Street, Lisnevenagh Road, Templepatrick and Randalstown sites are close to it. Monitoring will continue at these three sites and although some of the other sites may be discontinued the findings have highlighted the need to continue monitoring the roads networks at key locations.

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

Antrim Borough Council does not monitor PM<sub>10</sub>.

**Table 2.5a Results of PM<sub>10</sub> Automatic Monitoring: Comparison with Annual Mean Objective**

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2010 <sup>b</sup> %	Annual mean concentrations (µg/m <sup>3</sup> )		
					2008 <sup>c, d</sup>	2009 <sup>c, d</sup>	2010 <sup>c</sup>
A1	1 Example Site	N	98	98	45	41	44

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> 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%.)

<sup>c</sup> Means should be “annualised” as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

<sup>d</sup> Annual mean concentrations for previous years are optional.

**Table 2.5b Results of PM<sub>10</sub> Automatic Monitoring: Comparison with 24-hour Mean Objective**

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture 2010 <sup>b</sup> %	Number of Exceedences of daily mean objective (50 µg/m <sup>3</sup> ) If data capture < 90%, include the 90 <sup>th</sup> percentile of daily means in brackets.		
					2008 <sup>c</sup>	2009 <sup>c</sup>	2010 <sup>c</sup>
A	1 Example Site	N	98	95	0	3	2

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> 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%.)

<sup>c</sup> Numbers of exceedences for previous years are optional.

**Figure 2.5 Trends in Annual Mean PM<sub>10</sub>.**

A trend chart may be inserted here. Please explain any trends shown.

### **2.2.3 Sulphur Dioxide**

Antrim Borough Council does not monitor Sulphur Dioxide.

**Table 2.6 Results of SO<sub>2</sub> Automatic Monitoring: Comparison with Objectives**

Site ID	Location	Within AQMA	Data Capture for monitoring period <sup>a</sup> %	Data Capture 2010 <sup>b</sup> %	Number of Exceedences of:		
					15-minute Objective (266 µg/m <sup>3</sup> )	1-hour Objective (350 µg/m <sup>3</sup> )	24-hour Objective (125 µg/m <sup>3</sup> )
A1	1 Example Site	N	98	95	4	1	0

<sup>a</sup> I.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> This column shows 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%.

**Figure 2.6 Trends in Sulphur Dioxide .**

A trend chart for SO<sub>2</sub> may be inserted here. Please state which statistic(s) are shown, and explain any trends.

**2.2.4 Benzene**

Antrim Borough Council does not monitor Benzene.

**2.2.5 Other pollutants monitored**

No other pollutants are monitored by Antrim Borough Council.

**2.2.6 Summary of Compliance with AQS Objectives**

Antrim Borough Council has examined the results from monitoring in the borough. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

## **3 New Local Developments**

### **3.1 Road Traffic Sources**

The only new road that has been opened since the last Updating & Screening Assessment is a new access road from the Randalstown Road to the Junction One shopping complex. Any effect that this road will have on air quality will be beneficial in that it will take traffic away from the Ballymena Road which was, until this road was opened, the only approach road to Junction One. No busy or narrow congested streets have been identified that have not previously been considered, no roads with significantly changed traffic flows have been identified and there are no roads with high flows of buses and or HGVs. There are no new bus or coach stations.

### **3.2 Other Transport Sources**

No new airports, railway stations or ports have opened or are planned for the Antrim area. 4 million passengers travelled through Belfast International Airport in 2010, a decline of 11.7% since 2009.

### **3.3 Industrial Sources**

There are no new industrial installations within the borough and none are planned. There have been no substantial changes to existing installations. There are no major fuel storage depots within the area and no new petrol stations or poultry farms have been opened since the completion of the Updating and Screening Assessment

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

No new biomass installations have been identified and no areas of significant solid fuel burning have been identified.

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

No new landfill sites, quarries or other potential sources of fugitive particulate emissions have been identified since the last Updating and Screening Assessment.

Antrim 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.

Antrim Borough Council confirms that all the following have been considered –

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

## 4 Planning Applications

No planning applications were received or approved that necessitated the submission of an air quality assessment or required the attachment of planning conditions relating to air quality.

There were a number of planning approvals for developments which, although they did not necessitate air quality related conditions, could increase traffic on already busy roads. These are set out in the following table.

**Table 4.1 Planning Permissions 2010**

<b>Location</b>	<b>Description</b>	<b>Relevant Pollutants</b>	<b>Source of Information</b>	<b>Comments</b>
100 m south Of Ballymena Road	Housing Development Of 70 units	NO <sub>2</sub> PM10	Planning Application T/2009/0183	Potential for increased traffic on Ballymena Road
New Street, Randalstown	Housing Development	NO <sub>2</sub> PM10	Planning Application T/2008/0501	Potential for Increased traffic on Main Street Randalstown
Roguary Rd Toome	Petrol Filling Station	Benzene	Planning Application T/2008/0611	Should be Subject to Stage 2 Vapour recovery
Land between Niblock Road & Ballymena Road.	260 dwellings	NO <sub>2</sub> PM10	Planning Application T/2009/0635	Potential for increased traffic on Ballymena Rd

Date July 2011

Antrim Borough Council

## **5 Conclusions and Proposed Actions**

### **5.1 Conclusions from New Monitoring Data**

Antrim Borough Council monitored for nitrogen dioxide at eight sites throughout 2010. No exceedences of the air quality objective were identified at any of the sites. Annual mean concentrations of Nitrogen dioxide of  $30\mu\text{g}/\text{m}^3$  or above were recorded at five of the eight sites and these along with the Meadowlands site that monitors the Ballymena Road which has seen considerable development in recent years will be retained for at least a further year. The remaining two sites will be discontinued at the end of 2011 and the diffusion tubes moved to monitor other locations. These sites will be identified using available road traffic data.

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

There are no new local developments that will require more detailed in the next Updating and Screening Assessment.

### **5.3 Other Conclusions**

There is a planning application for a recycling facility and landfill site for inert construction and demolition wastes currently going through the planning permission process but which has not yet been granted planning permission. If planning permission is granted this facility may be a source of fugitive  $\text{pm}_{10}$  emissions. It will therefore require to be given consideration in the next Updating and Screening Assessment, if operational by that time.

### **5.4 Proposed Actions**

New monitoring data has not identified any likely breaches of the air quality objectives and it is not necessary to proceed to a Detailed Assessment for any of the monitored pollutants. Monitoring of nitrogen dioxide with diffusion tubes will continue at the 8 sites monitored over the year. Two sites will be discontinued at the end of 2011 and the diffusion tubes relocated.

Antrim Borough Council's next air quality report will be the 2012 Progress Report.

## **6 References**

Defra (2009) Part IV of the Environment Act 1995. Local Air Quality Management. Technical Guidance LAQM.TG(09).

AEA Energy & Environment (2008). Diffusion Tubes for Ambient NO<sub>2</sub> Monitoring: A Practical Guide for Laboratories and Users.

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## **Appendices**

Appendix A: NO<sub>2</sub> Diffusion Tube Data Set 2010

**Appendix A: NO<sub>2</sub> Diffusion Tube Data Set 2010**

Station	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Valid Months	Annual Mean	Corrected
Fountain Street	55		54.6	41.8		31.51	26.91	33.99	41.2	42.4	44.2	50.8	10	42.24	35.48
Lisnevenagh Rd	55	54.5	31.45	41.2	36.4	34.86	33.78			37.8	49.2	46.7	10	42.09	35.35
Templepatrick	47	54.9	53.5	51.7	40.19	37.89	32.05	30.39		36.7	42.7	58.9	11	44.17	37.11
Randalstown	55	57.3	52.3	41.7	46.89	38.81	23.05	39.81		47.4	52.6		10	45.49	38.21
Ballyrobin Roundabout			46.8	34	29.42	25.49	21.62	28.52	32.5	27.8	31	40	10	31.72	26.64
Meadowlands	35	37.1	37.5	24.3		17.64		20.36	29.7	26.7	27.6	42.3	10	29.82	25.05
Ballymena Rd	51		45.7	37.8	33.49	29.56	24.92	30.34		34.3	45.5	53.4	10	38.6	32.42
Belfast Rd Roundabout		33.6	35.8	34.8	21.55		20.13	22.15	30.4	34.1	32.7	41.3	10	30.65	25.75