2013 Air Quality Progress Report for Antrim Borough Council

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

September 2013

Local Authority Officer	Pamela Christie
Department	Environmental Services
Address	Antrim Borough Council Antrim Civic Centre 50 Stiles Way Antrim BT41 2UB
Telephone	028 9446 3113 Ext 1403
e-mail	pamela.christie@antrim.gov.uk
Report Reference number	ANT/PR/2013
Date	September 2013

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_{10}) 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. The AQAP was subsequently fully implemented and the AQMA was revoked in 2011.

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. 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 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, and in 2010 and 2011 Progress Reports were submitted.

A third round of review and assessment was initiated in 2012 with the submission of an Updating and Screening Assessment. The assessment examined all sources of pollutants within the borough as well as the results of nitrogen dioxide diffusion tube monitoring sites located at the busiest roads and junctions and concluded that there was no need to proceed to Detailed Assessment for any of the regulated pollutants.

This report takes the form of a Progress Report and 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 applications that might affect local air quality.

The main findings of the report are:

- Air Quality Objectives are being met at all nitrogen dioxide diffusion tube monitoring sites

- There are no new local developments likely to have an adverse effect on local air quality
- There are a number of planning applications not yet granted that have the potential to impact on air quality. They 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 2014.

Table of Contents

List of Tables

List of Figures

Appendices

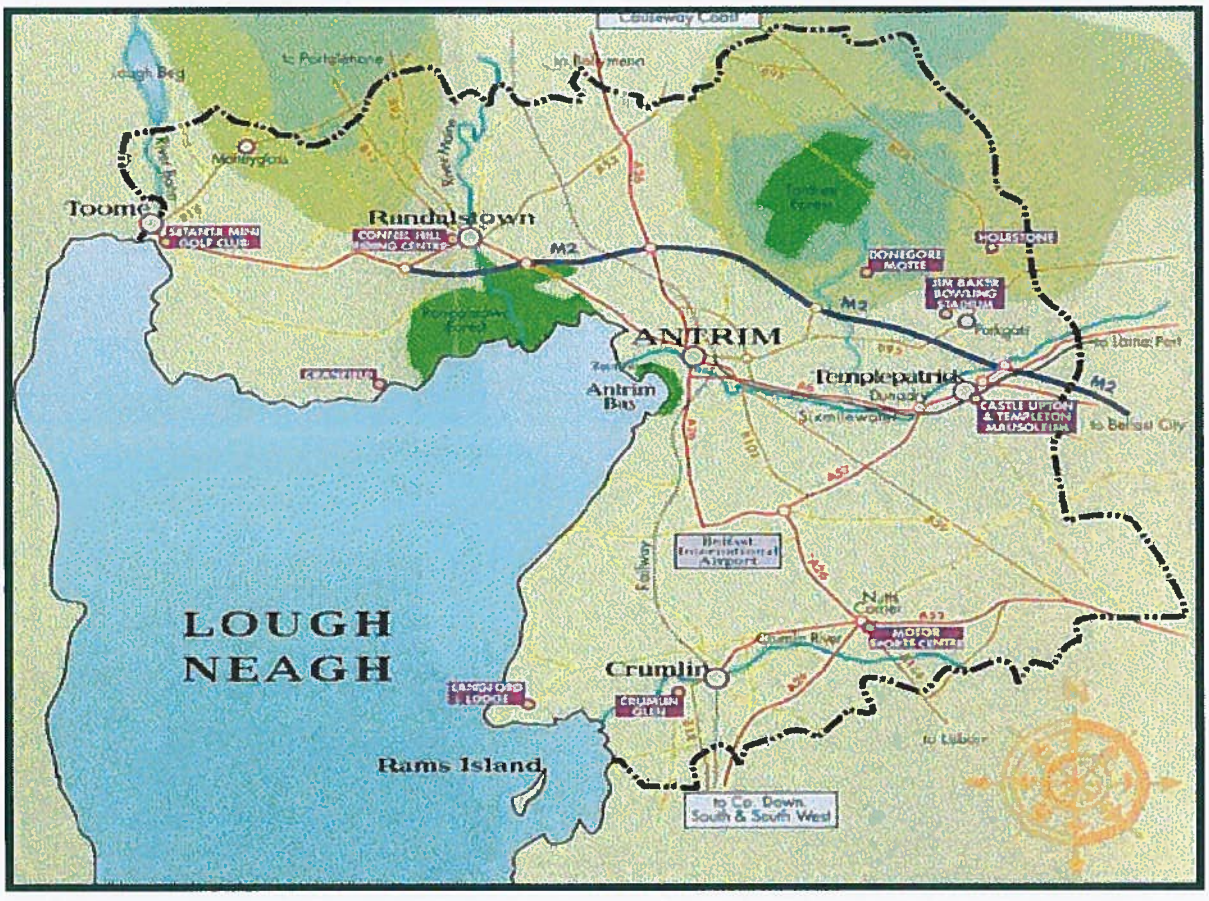
1 Introduction

1.1 Description of Local Authority Area

Antrim Borough Council, named after the town of Antrim, is a local government district in Northern Ireland. It is one of twenty-six districts created in 1973, and was granted borough status on 9 May 1977. The borough covers an area of some 220 square miles (570 km^2) with a population of 54,100 (2010). It is situated about 19 miles (31 km) north-west of Belfast. It borders the north and east shores of Lough Neagh the largest fresh water lake in the United Kingdom, and includes the towns of Antrim, Toomebridge, Crumlin, Randalstown, Parkgate and Templepatrick. The council headquarters are located on the outskirts of Antrim town. Although the borough is not within the Belfast Metropolitan Area, it houses the city's international airport and many commuter villages.

The economy of the area revolves around construction, distribution, transport and hospitality. It has a well-developed transport infrastructure that provides easy access to all the main external gateways for Northern Ireland and all parts of the region. Antrim Town lies on two of the main transport corridors, the Belfast –Derry corridor and the Southern corridor. Belfast International Airport is located within the borough, only 4 miles (6.4 km) from Antrim town.

Figure 1. Map of Antrim Borough.



1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management process as set out in the Environment (Northern Ireland) Order 2002, the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

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

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

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in 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 micrograms per cubic metre $\mu g/m^3$ (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 Northern Ireland

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	3.25 µg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m^3	Annual mean	31.12.2004
	0.25 µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

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 Ballycraigy 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.

As a result of these findings an AQMA which took in the Greystone and Ballycraigy housing estates in their entirety was declared in October 2004.

In 2005 a Progress Report was submitted that found no changes to circumstances previously reported.

The second round of air quality review and assessment commenced in 2006 with the production of a Updating & Screening Report (USA). 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 main recommendation that came out of this report was the production of an action plan for the AQMA

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 a further USA 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.

In 2011 a further Progress Report was submitted. The main findings of the report were:

- 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.

In 2012 Antrim Borough Council submitted a further USA which covered all regulated pollutants, and considered all possible sources within and close to the borough. The main conclusion of the report was that there were no sources likely to give rise to an exceedence of an air quality objective and that there was no requirement to proceed to a detailed assessment.

The main outcomes of Antrim Borough Council's reports are set out in Table 1.2 overleaf:

Table 1.2 Summary of Outcomes of Antrim Borough Council's Review and Assessment of Air Quality since 2001

Year	Report	Outcomes
2001	1st Stage Review & Assessment	2nd/3rd Stage Assessments required for Nitrogen Dioxide, Sulphur Dioxide & Particulates (PM_{10}).
2004	2nd/3rd Stage Review & Assessment	AQMA required for domestic sulphur dioxide emissions. (Declared Oct 2004)
2005	Progress Report	Confirmed no change to local circumstances
2005	Detailed Assessment	Confirmed need for AQMA
2006	Updating & Screening Assessment	Identified need for Action Plan for AQMA. Identified need for No_2 monitoring near Belfast International Airport.
2007	Progress Report	No significant changes found
2008	Progress Report	No significant changes found
2009	Updating & Screening Assessment	No requirement for detailed assessment.
2010	Progress Report (Incorporating AQMA Action Plan Progress Report)	AQMA could be revoked SO_2 real time analyser could be decommissioned.
2011	Progress Report	No significant changes found.
2012	Updating & Screening Assessment	No requirement for detailed assessment.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Antrim Borough Council does not operate any automatic monitoring sites.

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 (ESG).

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 is 50% TEA in Acetone. This preparation meets the guidelines set out in DEFRA's Harmonisation Practical Guidance.

ESG 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. ESG participates in the WASP scheme organised by the Health and Safety Laboratory. ESG currently holds the highest rank of a **Satisfactory** laboratory.

Tube Preparation and Analysis

The NO_2 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 acetone:triethanolamine (50:50) onto the grids prior to the tubes being assembled.

Samples are analysed in accordance with ESG's standard operating procedure HS/WI/1015 which meets the guidelines set out in DEFRA's " Diffusion Tubes For Ambient NO2 Monitoring: Practical Guidance"

The tubes are desorbed with distilled water and the extract analysed using a segmented flow auto-analyser with ultraviolet detection.

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.

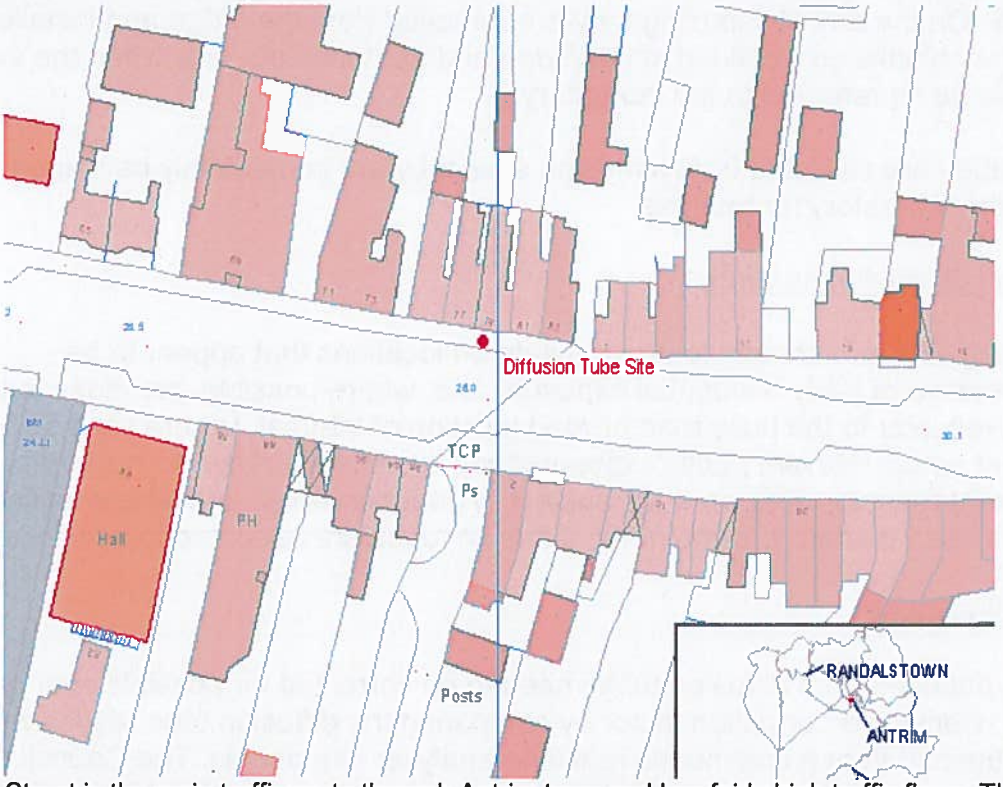
Data Adjustment

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 7/13), and this gives a correction factor of 0.79 for the year 2012, based on 34 studies. This value has been used in this report.

Figure 2.1 Maps of Non-Automatic Monitoring Sites

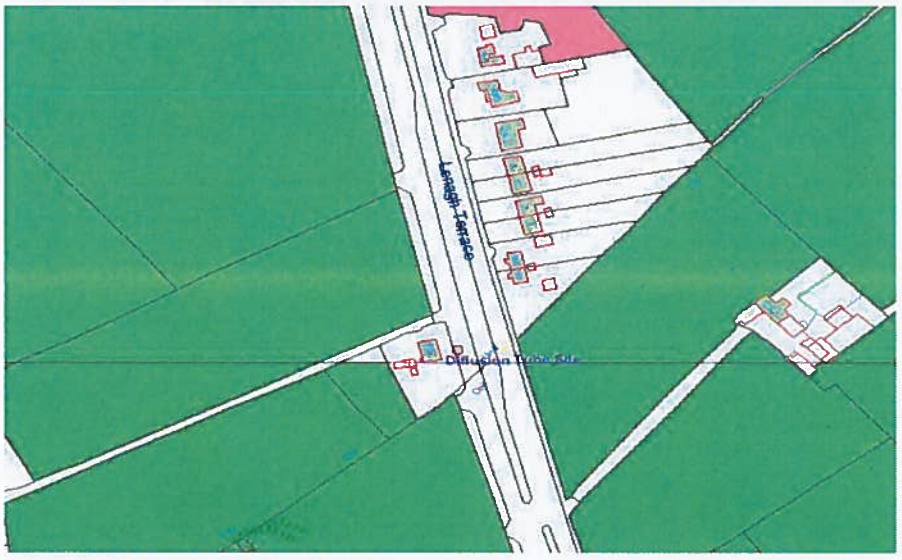
The monitoring sites referred to in this report are shown in the following maps. All maps are subject to Ordinance Survey copyright.

Fountain Street Site



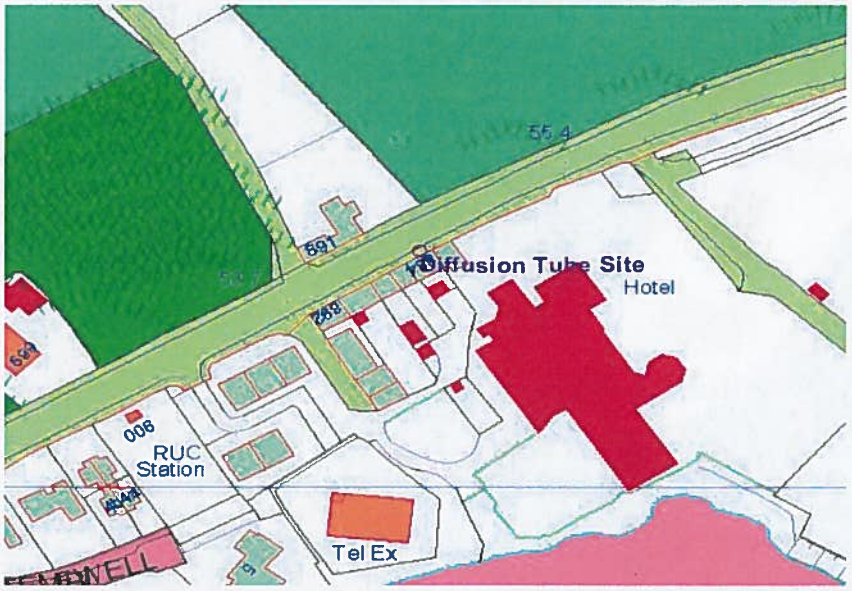
Fountain Street is the main traffic route through Antrim town and has fairly high traffic flows. The site monitors the nearest dwelling to traffic lights.

A26 Lisnevenagh Road Site



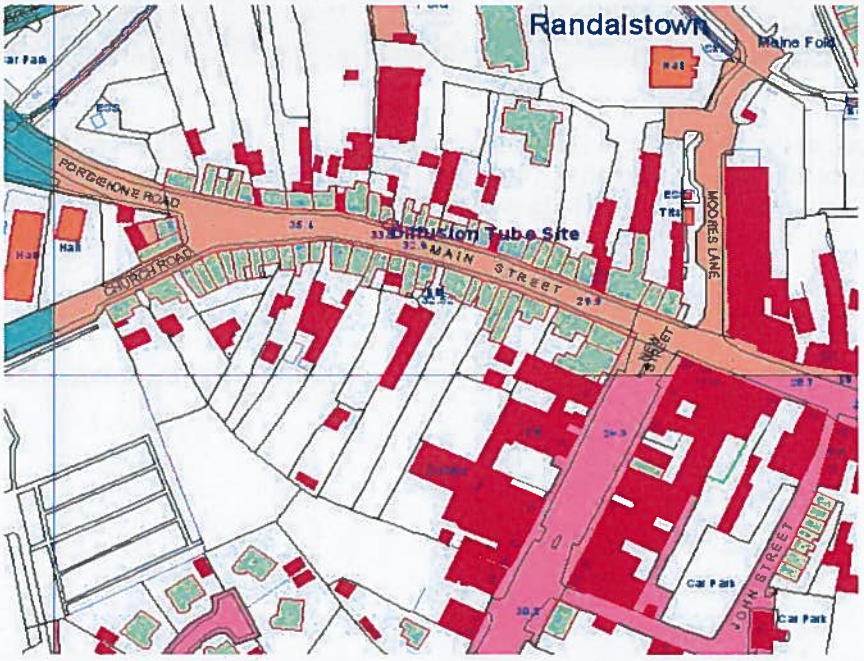
The Lisnevenagh Road is to the North of the Dunsilly roundabout and is a dual carriageway connecting Antrim with Ballymena. This site was set up to monitor concentrations close to the nearest dwelling to this busy road after Design Manual for Roads and Bridges (DMBR) modelling carried out for the Second 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



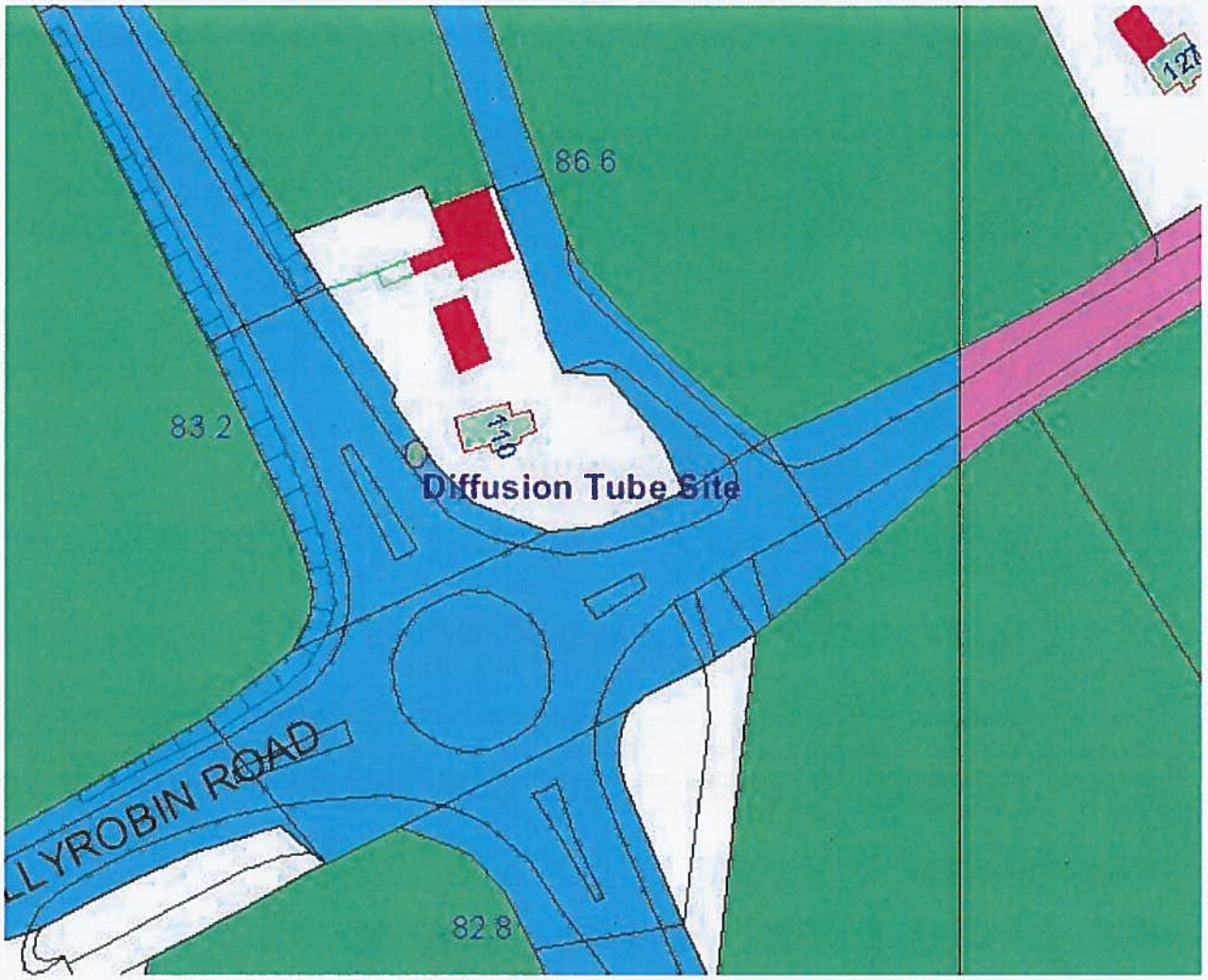
The site in Templepatrick is located on a lamppost in front of the Templeton Hotel. The site is very close to the facade of a residential property. Templepatrick is on the main route between the M2 motorway and Belfast International Airport and experiences high traffic flows. This site has been in operation for 12 years. The 7 day AADT here is 16,240(2009).

Randalstown Site



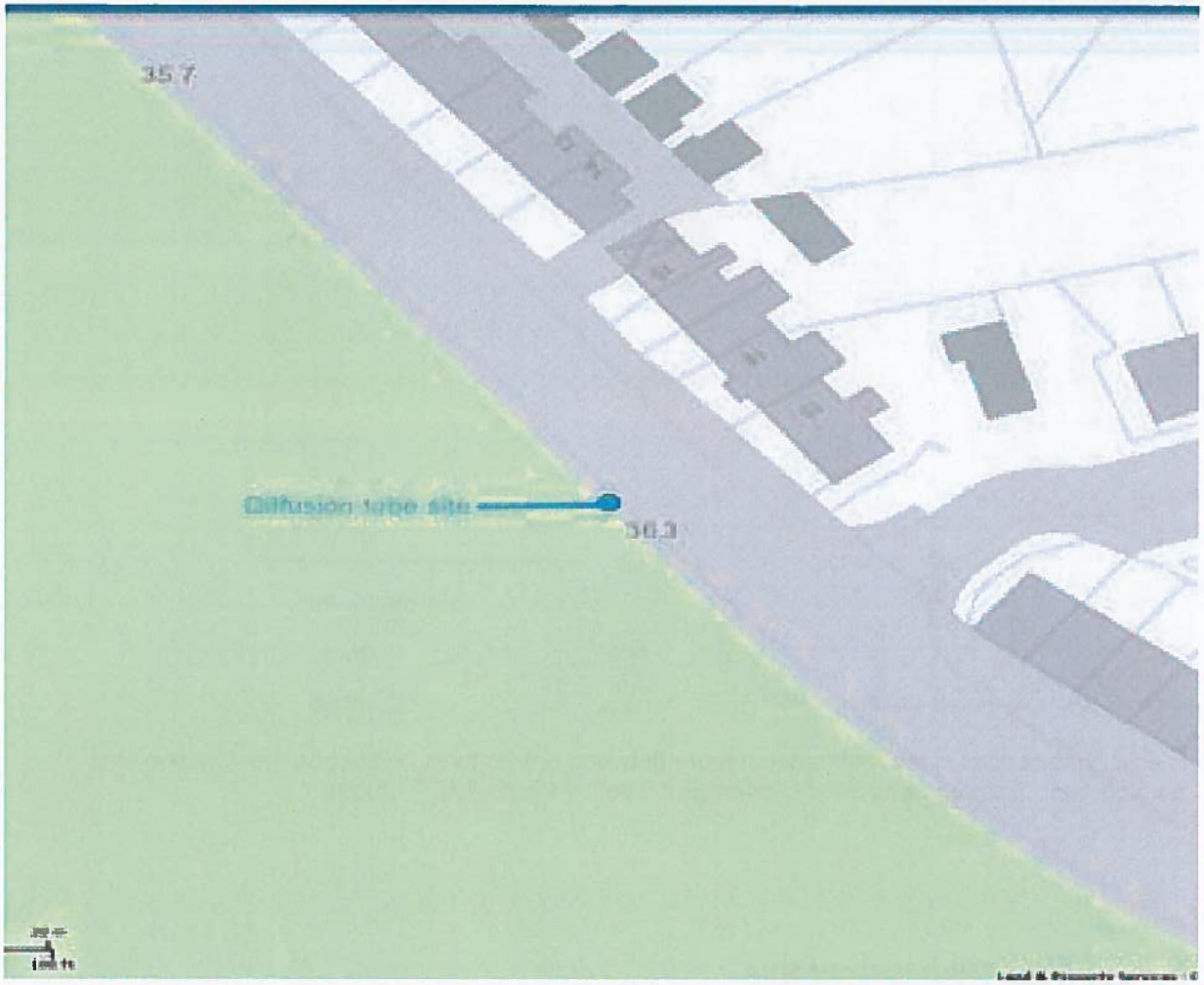
This site is located in front of a residential property on Main Street. The street is narrow at this location and traffic can be slow moving during periods of the day. This site has been operational for 11 years. The narrowness of the street and high buildings here could give rise to raised concentrations because of the canyon effect.

Oldstone Road / Ballyrobin Road Site



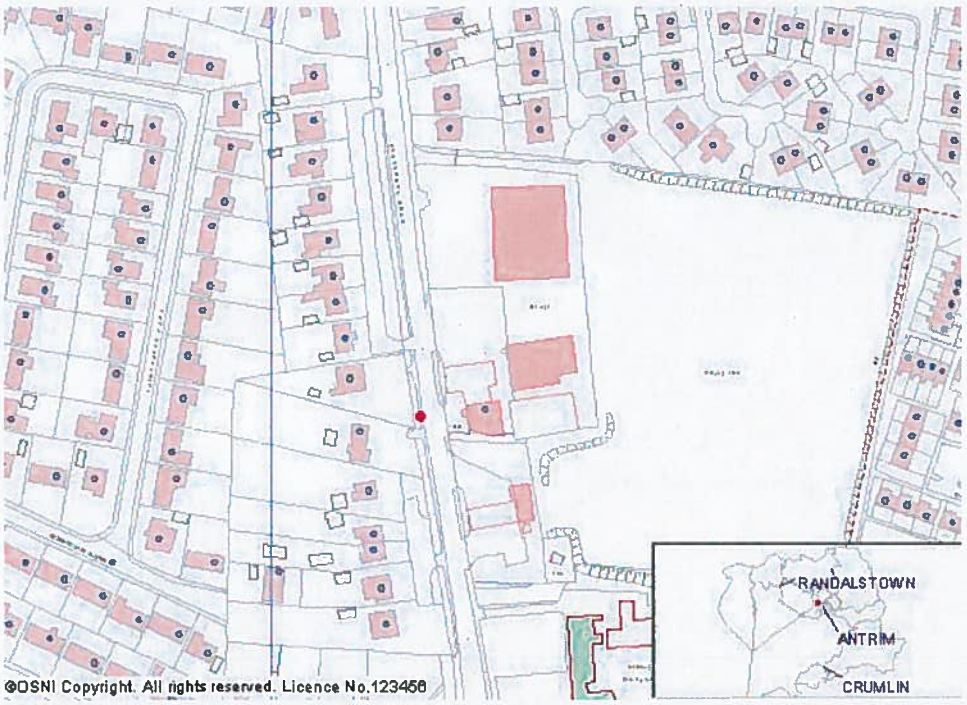
This site is on the Oldstone Road at the Ballyrobin Roundabout and is in front of a residential property. An estimation of concentrations at this location carried out in the first round of Review and Assessment using the Design Manual for Roads and Bridges (DMRB) forecast concentrations near to the national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

Castle Road Site



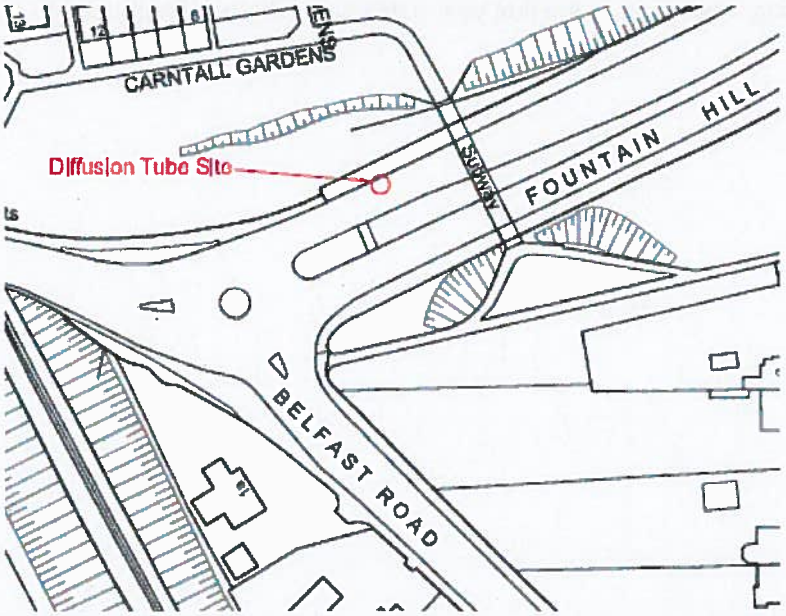
Castle Road takes all through traffic between Antrim & Randalstown and is subject to rush hour tailbacks twice a day during the working week. This is the first year a diffusion tube has been used to monitor NO2 concentrations here.

Ballymena Road Site.



The Ballymena road is the main arterial route between Antrim town centre and the 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 2.1 Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
1	Fountain St	Roadside	315197	386539		NO_2	N	N	Y (1m)	1.5m	Y
2	Lisnevenagh Rd	Roadside	313254	319205		NO_2	N	N	Y(4m)	3m	Y
3	Templepatrick	Kerbside	322992	385675		NO_2	N	N	Y(1m)	1m	Y
4	Randalstown	Kerbside	308113	390461		NO_2	N	N	Y(1m)	<1m	Y
5	Ballyrobin Roundabout	Roadside	317496	381750		NO_2	N	N	Y(5m)	2m	Y
6	Castle Road	Roadside	308669	390123		NO_2	N	N	Y(15m)	2m	Y
7	Ballymena Rd	Roadside	314670	387541		NO_2	N	N	Y(10m)	2m	Y
8	Belfast Rd Roundabout	Roadside	351662	386516		NO_2	N	N	Y(30m)	3m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

The only pollutant monitored by Antrim Borough Council in 2012 was nitrogen dioxide.

2.2.1 Nitrogen Dioxide (NO_2)

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.

Diffusion Tube Monitoring Data

Antrim Borough Council currently monitors nitrogen dioxide at 8 sites around the district using passive diffusion tubes. The diffusion tubes are supplied and analysed by Environmental Scientifics Group.

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 2012 are shown in Table 2.5 below. A minimum of 11 months' data is available for each site so the means have not been "annualised". In every case where data is missing the loss of data has been caused by vandalism to the monitoring site. The annual means have been bias adjusted using the appropriate bias adjustment factor from the Review & Assessment website. The correction factor for 2012, based on 34 studies is 0.79.

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

The full data set (monthly mean values) for 2012 are set out in Appendix 2.

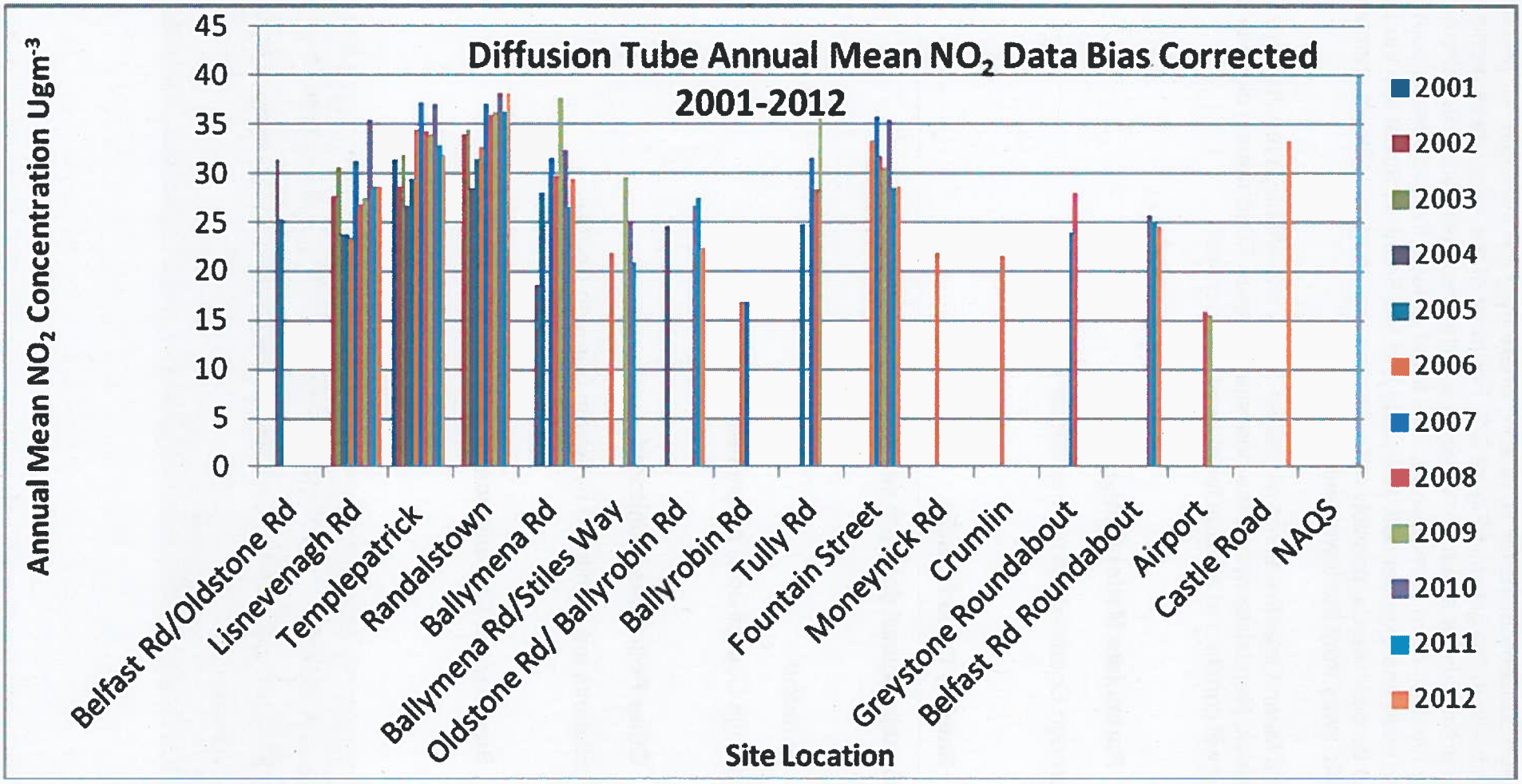
Table 2.2 Results of NO_2 Diffusion Tubes 2012

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months or %) [a]	2012 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.79
1	Fountain St	Roadside	N	N	11 months	28.6
2	Lisnevenagh Rd	Roadside	N	N	11 months	28.7
3	Templepatrick	Kerbside	N	N	11 months	31.9
4	Randalstown	Kerbside	N	N	12 months	38.2
5	Ballyrobin Roundabout	Roadside	N	N	12 months	22.3
6	Castle Road	Kerbside	N	N	12 months	33.3
7	Ballymena Rd	Roadside	N	N	12 Months	29.4
8	Belfast Rd Roundabout	Roadside	N	N	12 months	24.5

Table 2.3 Results of NO_2 Diffusion Tubes (2008 to 2012)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]				
			2008 (Bias Adjustment Factor = 0.83)	2009 (Bias Adjustment Factor = 0.81)	2010 (Bias Adjustment Factor = 0.84)	2011 (Bias Adjustment Factor = 0.84)	2012 (Bias Adjustment Factor = 0.79)
1	Roadside	N	31.6	30.6	35.5	28.4	28.6
2	Roadside	N	26.8	27.5	35.4	28.9	28.7
3	Kerbside	N	34.2	34.0	37.1	32.8	31.9
4	Kerbside	N	35.9	36.2	38.2	36.1	38.3
5	Roadside	N			26.6	27.5	22.3
6	Kerbside	N					33.3
7	Roadside	N	29.8	39.6	32.4	26.5	29.4
8	Roadside	N			25.8	24.9	24.5

Figure 2.2 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites



Annual mean concentrations for 2012 and, where they are available, for preceding years are shown in the graph in Figure 2.2. For most of the sites where monitoring has been continuous for a number of years a rising trend is noticeable although apparently levelling off in recent years. This trend reflects the increase in population that Antrim town has experienced. Noticeably, at the Fountain Street site the trend appears to be downwards, possibly reflecting the growth of out of town shopping taking traffic away from the town centre.

The Annual Mean Objective is not exceeded at any site although results from the Templepatrick, Randalstown and the new site at Castle Road remain close to it. Monitoring will continue at all sites for at least another year.

2.2.2 Particulate Matter (PM_{10})

Antrim Borough Council does not monitor for PM_{10}.

2.2.3 Sulphur Dioxide (SO_2)

Antrim Borough Council does not monitor for Sulphur Dioxide.

2.2.4 Benzene

Antrim Borough Council does not monitor for 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

No new roads have been opened since the last Updating & Screening Assessment was carried out and 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 in the pipeline for the Antrim area.

The largest airport in Northern Ireland, Belfast International Airport, is located within the Borough. In 2012 passenger numbers carried were 4.3million. In addition the airport handled a total of 48,000 tonnes of freight. If it is assumed that all freight arrives in "freight-only" flights then using the method given in the technical guidance this is approximately equivalent to a further ½ mppa making a total of 4.8 million. This is well under the 10million passengers per annum threshold for relevant exposure.

3.3 Industrial Sources

There are no new industrial installations within the borough or substantial changes to existing installations.

There are no major fuel storage depots within the area and no new petrol stations have been opened since the completion of the Updating and Screening Assessment. There are no new waste transfer stations or unmade roads on industrial sites and no other potential sources of fugitive particulate matter emissions have been identified.

One new poultry farm has been opened since the last assessment. This farm houses a total of 84,000 birds in two poultry units and therefore falls under the threshold for detailed assessment set out in LAQM.TG(09).

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 require air quality related planning conditions, could increase traffic on already busy roads. These are set out in the following table.

Table 4.1 Planning Permissions 2012

Location	Description	Relevant Pollutants	Source of Information	Comments
Staffordstown Road Randalstown	Residential Development	NO_2 PM10	Planning Application T/2010/0511/RM	Potential for increased traffic on New Street, Randalstown
12 Ballycraigy Road, Antrim	Residential Development consisting of 41 dwellings	NO_2 PM10	T/2011/0227/F	Potential for increased traffic on Ballycraigy Road, Antrim
34 Main Street, Parkgate	Residential Development for 15 dwellings	NO_2 PM10	T/2011/0273/F	Potential for increased traffic on Main Street, Parkgate
31 - 41 Main Street Crumlin	Residential Development for 24 dwellings	NO_2 PM10	T/2011/0324/F	Potential for increased traffic on main street, Crumlin

Consultations have recently been reissued by Planning NI for a new biomass fuelled power plant (S/2008/0630/F) just over Antrim Borough Council's border into the Lisburn City Council area however no decisions have yet been made on this planning application and none are expected in the near future.

A pre-application preliminary enquiry (T/2010/0240/Q) was lodged with Planning (NI) for ARC21 waste treatment facilities for the sorting, biological treatment and incineration of waste at Hightown Quarry which is nestled on the boundary between Antrim and Newtownabbey Borough Councils. An air quality assessment was provided in the Draft Environmental Statement submitted as part of the preliminary enquiry which did not predict any exceedences in relation to the air quality objectives. As this was only a pre-application enquiry, it will be some time before the planning application is submitted, consultations issued and a decision made.

A planning application for a recycling facility and landfill site for inert construction and demolition wastes is currently going through the planning system. This may be a source of fugitive particulate emissions if granted approval.

The status of the above-mentioned planning applications will be reassessed and given further consideration in the next Progress Report in 2014 and Updating and Screening Assessment in 2015.

5 Conclusions and Proposed Actions

5.1 Conclusions from New Monitoring Data

Antrim Borough Council monitored for nitrogen dioxide at eight sites throughout 2012. No exceedences of the air quality objective were identified at any of the sites. Annual mean concentrations of nitrogen dioxide of 30µg/m3 or above were recorded at three sites, namely Templepatrick, Main Street, Randalstown and Castle Road, Randalstown. Monitoring will continue at all sites for at least another year.

5.2 Conclusions relating to New Local Developments

There are no new transport, industrial, commercial and domestic or other developments identified that will require more detailed review in the next Updating and Screening Assessment.

5.3 Other Conclusions

A number of planning applications are currently submitted with Planning NI but not yet approved; namely:

- S/2008/0630/F – Biomass Fuelled Power Plant
- T/2010/0240/Q – Energy from Waste Plant
- T/2005/1054 – Construction Waste Recycling Facility and Landfilling of Inert Construction and Demolition Wastes.

These planning applications have the potential to impact on air quality and as such will need to be given further consideration in the next Progress Report and subsequent Updating and Screening Assessment.

5.4 Proposed Actions

New monitoring data has not identified the need to proceed to a Detailed Assessment for any pollutant. Monitoring of nitrogen dioxide by diffusion tubes at 8 sites throughout the borough will continue over the next 12 months.

Antrim Borough Council's next course of action will be to submit the 2014 Progress Report.

6 References

AEA Energy & Environment (2008). Diffusion Tubes for Ambient NO2 Monitoring: A Practical Guide for Laboratories and Users.

Antrim Borough Council (2011). 2011 Air Quality Progress Report for Antrim Borough Council July 2011.

Antrim Borough Council (2012). Updating and Screening Assessment May 2012.

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

Appendices

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

QA/QC of diffusion tube monitoring

The diffusion tubes used are supplied, prepared and analysed by EGS. The preparation method used is 50% TEA in Acetone. This preparation meets the guidelines set out in DEFRA's Harmonisation Practical Guidance.

ESG 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. ESG participates in the WASP scheme organised by the Health and Safety Laboratory. ESG currently holds the highest rank of a **Satisfactory** laboratory.

Tube Preparation and Analysis

The NO_2 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 acetone:triethanolamine (50:50) onto the grids prior to the tubes being assembled.

Samples are analysed in accordance with ESG's standard operating procedure HS/WI/1015 which meets the guidelines set out in DEFRA's " Diffusion Tubes For Ambient NO2 Monitoring: Practical Guidance"

The tubes are desorbed with distilled water and the extract analysed using a segmented flow auto-analyser with ultraviolet detection.

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.

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 7/13), and this gives a correction factor of 0.79 for the year 2012, based on 34 studies. This value has been used in this report.

Appendix B

Raw Data Set showing Mean Monthly Nitrogen Dioxide Concentrations at Eight Diffusion Tube Monitoring Locations

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Valid Mths	Avg	Total
1	37	38	42.4	36.3	43.5	40.7	33.4	24.1	30.2		35.5	36.4	11	36.14	28.55
2	33.8	34.7	33.8		35.5	32.9	32.1	31.3	25.1	53.2	40.9	46.5	11	36.35	28.71
3	35.1	39.5	53.9	40.1	45	44.9	38.3		29.6	49.5	36.9	31.7	11	40.41	31.92
4	51.9	56.3	40.9	48	51.2	48.1	40.6	36.1	53.4	60.8	45	49.1	12	48.45	38.28
5	26.1	28.4	36.5	35.3	24.5	21.7	21.1	25.3	27.2	28.1	34.2	30.3	12	28.23	22.30
6	46.3	51.1	53.4	45.3	39.3	33.4	30	30.9	25.9	51.2	51.6	48.1	12	42.21	33.34
7	31.3	32.9	36.7	33.3	33.7	29.3	34.4	33.9	35.6	49.2	50.3	46.5	12	37.26	29.43
8	33.4	37.6	34.6	30.8	19.2	30	17.7	24.6	27.3	38.4	37.5	40.3	12	30.95	24.45