2014 Air Quality Progress Report
for
Magherafelt District Council

In fulfilment of the Environment (NI) Order 2002
Local Air Quality Management

May 2014

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Executive Summary

Funding continues to be received from the Department of the Environment (DOENI) to carry out monitoring of nitrogen dioxide (NO2) on an on-going basis in order to monitor trends over time and validate the conclusions drawn from previous reviews.

The overarching objective of the monitoring activity is to maintain or improve human health. This objective to date has been achieved at sites 3-8, 11 and 12 as data collected confirms that levels of this pollutant met the standards set.

Based on monitoring data it was evident that concentrations measured at site 2 were exceeding the standard set for NO2. Additional sites (9-12) were identified in the area surrounding site 2 in order to gain a comprehensive overview of the air quality standard in this area. DOENI accepted the content and conclusions of Detailed Assessment MDC/DA/02 submitted in September 2011 and an Air Quality Management Area was formally declared on Church Street and lower King Street in February 2012. As a result an Action Plan is to be submitted to DOENI.

As a result of new school premises and new traffic movements adjacent to the AQMA, additional sites (13-22) continue to be monitored to establish if the designated area requires to be extended.

There are no other issues of concern which need to be highlighted in this report.

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1 Introduction

1.1 Description of Local Authority Area

The district of Magherafelt is located in the centre of Northern Ireland, stretching from Lough Neagh and the river Bann in the east, into the Sperrin mountains in the west and is divided by the Moyola river.

Magherafelt is a strategically located district within Northern Ireland. It lies on the axis of the main A29 north-south route and the east-west M2/A6 Euro-route and is within 45 minutes drive of major airports and main harbours.

Historically, agriculture has been the cornerstone of the area's economy and agribusiness remains a vital contributor today with an increasing number of food processing and manufacturing facilities. Over the past few decades the economic base has expanded and the area now boasts strong construction and manufacturing industries encompassing domestic, agricultural and industrial sectors together with related businesses in engineering and timber. Mineral extraction significantly exploits the natural resources of the area. The largest number of employees in the area are involved in the service sector.

Magherafelt District Council area covers approximately 217 square miles and has a current population of 39,500.

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 µg/m^3 (milligrams 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	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 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
Particles (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

Magherafelt District Council in February 2001 submitted a "1st Stage Review and Assessment of Air Quality". Using DETR guidance documents, the Review and Assessment considered pollutants of concern to determine whether or not a Second Stage Review and Assessment was required. The results of the 1st Stage Review and Assessment are summarised below.

POLLUTANT	**2ND STAGE REVIEW AND ASSESSMENT NEEDED**
Carbon Dioxide	No
Benzene	No
1,3 Butadiene	No
Lead	No
Nitrogen Dioxide	Yes
Sulphur Dioxide	Yes
PM10	Yes

A "2nd Stage Review and Assessment of Air Quality" was submitted in April 2004.The pollutants highlighted above were subject to further scrutiny and the conclusion of the report in part prepared by NETCEN was that there was no need to proceed to a Stage 3 Review and Assessment for SO2, NO2 or PM10.

A "Progress Report on Air Quality Management" was submitted in April 2005. A previous NETCEN report predicted exceedence of the air quality objective for nitrogen dioxide in 2005 at site 6, however it was stated that the proposed A6 Toome by-pass would ease the weight of traffic on that road significantly and that an exceedence would not be likely. The 2005 report confirmed that the by-pass takes the bulk of traffic away from it's original route thus reducing the impact of traffic on receptors close to the monitoring location. Results for site 6 showed a significant lowering of the annual average concentration in 2004 as opposed to the previous results. The new route runs through an area of open land in which there are no nearby receptors at present. Air quality objectives for SO2 and PM10 continued to be met.

An 'Air Quality Update and Screening Assessment' report was submitted in April 2006. This report concluded that there was no necessity to carry out a Detailed Assessment in respect of NO2, SO2 or PM10.

A "Progress Report on Air Quality Management" was submitted in April 2007. A review and assessment of pollutants showed the air quality objectives for NO2, SO2 and PM10 continued to be met throughout the district of Magherafelt.

A "Local Air Quality Management Grant Evaluation Form" was submitted in April 2008. Results for site 1 showed a clear exceedence for NO2 and therefore this department were advised to undertake a Detailed Assessment.

A "Progress Report on Air Quality Management" was submitted in August 2008. Due to the exceedence to the NO2 standard set for site 1, it was the intention of this department to provide an additional tube in the vicinity of the nearest residential property for comparison purposes.

A “Local Air Quality Management Grant Evaluation Form” was submitted in April 2009. Results for previous years showed a clear exceedence at site 1 for NO2 and so an additional tube (site 8) was provided in the vicinity of the nearest residential property for comparison purposes (from 4th September 2008). Results showed that levels of this pollutant met with standards set. Monitoring therefore ceased at site 1 as properties in the vicinity of this tube are now commercial or available for commercial use.

An ‘Air Quality Update and Screening Assessment’ report was submitted in May 2009. This report concluded that there was a necessity to carry out a Detailed Assessment in respect of NO2 at site 2.

A “Local Air Quality Management Grant Evaluation Form” and a “Progress Report on Air Quality Management” were submitted in July 2010. Additional sites were identified in the area surrounding site 2 in order to gain a comprehensive overview of the air quality standard in this area.

A “Detailed Assessment for NO2 Levels on Church Street and King Street, Magherafelt” was submitted March 2011 (amended September 2011) to the Air and Environmental Quality Unit of the Department of the Environment. This concluded that there were exceedences at site 2, 9 and 10 with other locations in this vicinity close to the objective limit. A recommendation to declare an AQMA was made.

A “Local Air Quality Management Grant Evaluation Form” was submitted in May 2011. This highlighted that a Detailed Assessment had been submitted however the final outcome had not been decided.

A “Local Air Quality Management Grant Evaluation Form” was submitted in March 2012. This highlighted that an AQMA had been formally declared.

An ‘Air Quality Update and Screening Assessment’ report was submitted in May 2012. This report concluded that an AQMA had been formally declared and that an Action Plan would be submitted.

A “Local Air Quality Management Grant Evaluation Form” was submitted in May 2013. This highlighted that an Action Plan would be submitted to DOENI and that monitoring commenced at additional sites adjacent to the AQMA as a result of new school premises and new traffic movements.

An ‘Air Quality Progress Report’ was submitted in December 2013. This highlighted that an Action Plan would be submitted to DOENI and that monitoring commenced at additional sites adjacent to the AQMA as a result of new school premises and new traffic movements.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

There are no automatic monitoring sites within the Magherafelt District Council area.

2.1.2 Non-Automatic Monitoring Sites

In 2013 initially there were eleven monitoring sites within the Magherafelt District Council area. However, additional monitoring sites were identified with twenty one being monitored from 27th March 2013. Monitoring sites are shown in Table 2.1.

Table 2.1 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 ?
Site 2	Main route through town	X 8977 Y 9073	NO2	Yes	Yes (1m)	1m	Yes
Site 3	Adjacent traffic lights at junction	X 8531 Y 0043	NO2	No	Yes (1m)	1m	Yes
Site 4	Off main road leading to cul-de-sac	X 8989 Y 9078	NO2	Yes	Yes (10m)	20m	No
Site 5	Roadside location in village	X 9251 Y 9318	NO2	No	Yes (0m)	1m	Yes
Site 6	Area formerly adjacent to main arterial route	X 9887 Y 9085	NO2	No	Yes (25m)	1m	Yes
Site 7	Moderately used route into town centre	X 8982 Y 9069	NO2	Yes	Yes (15m)	1.5m	Yes
Site 8	Nearest residential property to site 1	X 8960 Y 9046	NO2	No	Yes (0m)	10m	Yes
Site 9	Adjacent roundabout in town centre	X 8974 Y 9073	NO2	Yes	Yes (10m)	1.5m	No
Site10	Adjacent mini-roundabout off town centre	X 8979 Y 9074	NO2	Yes	Yes (0m)	1.5m	Yes
Site 11	Moderately used route into town centre	X 8979 Y 9071	NO2	Yes	Yes (15m)	1.5m	No
Site 12	Main route through town	X 8989 Y 9075	NO2	Yes	Yes (15m)	1.5m	No

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 ?
Site 13	Main route through town	X 8989 Y 9077	NO2	Yes	Yes (5m)	1.5m	Yes
Site 14	Main route through town	X 8995 Y 9083	NO2	No	Yes (5m)	1m	Yes
Site 15	Moderately used route into town centre	X 8994 Y 9084	NO2	No	Yes (10m)	1m	Yes
Site 16	Moderately used route into town centre	X 8993 Y 9089	NO2	No	Yes (5m)	1m	Yes
Site 17	Main route through town	X 8997 Y 9082	NO2	No	Yes (3m)	1m	Yes
Site 18	Main route through town	X 8999 Y 9085	NO2	No	Yes (3m)	1m	Yes
Site 19	Main route through town	X 9003 Y 9087	NO2	No	Yes (3m)	1m	Yes
Site 20	Main route through town	X 9004 Y 9089	NO2	No	Yes (20m)	1m	Yes
Site 21	Main route through town	X 9008 Y 9093	NO2	No	Yes (20m)	1m	Yes
Site 22	Main route through town	X 9013 Y 9097	NO2	No	Yes (20m)	1m	Yes

QA:QC data can be found in Appendix 1.

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

There are no automatic monitoring sites within the Magherafelt District Council area.

Diffusion Tube Monitoring Data

Table 2.2a Results of Nitrogen Dioxide Diffusion Tubes for 2013

Site ID	OS Grid Reference	Within AQMA?	Data Capture %	Annual mean concentrations 2013 (μg/m^3) Adjusted for bias
2	X 8977 Y 9073	Yes (declared 14/2/12)	100	44*
3	X 8531 Y 0043	No	100	30
4	X 8989 Y 9078	Yes (declared 14/2/12)	100	19
5	X 9251 Y 9318	No	100	20
6	X 9887 Y 9085	No	100	23
7	X 8982 Y 9069	Yes (declared 14/2/12)	100	23
8	X 8960 Y 9046	No	100	22
9	X 8974 Y 9073	Yes (declared 14/2/12)	100	42*
10	X 8979 Y 9074	Yes (declared 14/2/12)	100	50*
11	X 8979 Y 9071	Yes (declared 14/2/12)	92	29
12	X 8989 Y 9075	Yes (declared 14/2/12)	100	33

Site ID	OS Grid Reference	Within AQMA?	Data Capture %	Annual mean concentrations 2013 (μg/m^3) Adjusted for bias
13	X 8989 Y 9077	Yes (declared 14/2/12)	75	25
14	X 8995 Y 9083	No	75	21
15	X 8994 Y 9084	No	75	19
16	X 8993 Y 9089	No	75	18
17	X 8997 Y 9082	No	75	29
18	X 8999 Y 9085	No	75	31
19	X 9003 Y 9087	No	75	34
20	X 9004 Y 9089	No	75	41*
21	X 9008 Y 9093	No	75	37
22	X 9013 Y 9097	No	75	24

***** Indicates exceedence identified

Analysis of the diffusion tubes was carried out by Gradko Environmental. Results are calculated based on the national database bias adjustment factor of 0.95 for Gradko Environmental (extracted from Spreadsheet Version Number 03/14 on the DEFRA website). An Air Quality Management Area was declared in the District of Magherafelt on 14th February 2012 in respect of Church Street and lower King Street. Monitoring sites within this AQMA are shown on the map in Appendix 2.

Table 2.2b Results of Nitrogen Dioxide Diffusion Tubes for period 2008 - 2012

Site ID	OS Grid Reference	Within AQMA?	Annual mean concentrations (μg/m^3) Adjusted for bias				
			2008	2009	2010	2011	2012
2	X 8977 Y 9073	Yes (declared 14/2/12)	54	48	37	47	48
3	X 8531 Y 0043	No	33	35	38	32	33
4	X 8989 Y 9078	Yes (declared 14/2/12	20	21	18	19	19
5	X 9251 Y 9318	No	24	24	20	23	23
6	X 9887 Y 9085	No	21	21	20	21	21
7	X 8982 Y 9069	Yes (declared 14/2/12)	25	24	22	24	23
8	X 8960 Y 9046	No	21	24	34	25	26
9	X 8974 Y 9073	Yes (declared 14/2/12)	-	46	54	38	41
10	X 8979 Y 9074	Yes (declared 14/2/12)	-	55	59	51	50
11	X 8979 Y 9071	Yes (declared 14/2/12)	-	39	40	30	30
12	X 8989 Y 9075	Yes (declared 14/2/12)	-	35	39	31	32

Analysis of the diffusion tubes in 2008 was carried out by Gradko Environmental. Results for sites 1-7 are calculated based on the national database bias adjustment factor of 0.92 for Gradko Environmental. Site 8 is based on 4 months data and the local study (Belfast) bias adjustment factor of 0.79.

Analysis of the diffusion tubes in 2009 was carried out by Gradko Environmental. Results for site 1 are based on 6 months data and the local study (Belfast) bias adjustment factor of 0.87. Site 2-8 are calculated based on the national database bias adjustment factor of 0.9 for Gradko Environmental. Sites 9-12 are calculated based on 3 months data and the local study (Belfast) bias adjustment factor of 0.87.

Analysis of the diffusion tubes in 2010 was carried out by Gradko Environmental. Results are calculated based on the national database bias adjustment factor of 0.90.

Analysis of the diffusion tubes in 2011 was carried out by Gradko Environmental. Results are calculated based on the national database bias adjustment factor of 0.89.

Analysis of diffusion tubes in 2012 was carried out by Gradko Environmental. Results are calculated based on the national database bias adjustment factor of 0.97 for Gradko Environmental.

2.2.2 PM_{10}

Not applicable to Magherafelt District Council, see section 1.4 of this report.

2.2.3 Sulphur Dioxide

Not applicable to Magherafelt District Council, see section 1.4 of this report.

2.2.4 Benzene

Not applicable to Magherafelt District Council, see section 1.4 of this report.

2.2.5 Other pollutants monitored

Not applicable to Magherafelt District Council, see section 1.4 of this report.

2.2.6 Summary of Compliance with AQS Objectives

Magherafelt District Council has examined the results from monitoring in the Magherafelt District.

Concentrations within the AQMA still exceed the objective for NO2 at sites 2, 9 & 10 and the AQMA should remain.

The concentration at site 20 exceeds the objective for NO2. This may be due a sporadic raised concentration in November 2013.

All other concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment. As a result of historic results, monitoring at sites 5,6 & 8 ceased on 2nd April 2014.

3 New Local Developments

Magherafelt District Council identified in an 'Air Quality Progress Report' submitted in December 2013 the following new local development which may impact on air quality in the Local Authority area.

"Magherafelt Primary School and Nursery School have recently re-located to the site vacated by the security forces on the Castledawson Road. The Ministry of Defence gifted this land to the NEELB and new school premises have been built on a shared campus with a single traffic access from the Castledawson Road.

The result of this development is that new traffic movements are experienced in this part of the town with the main traffic concentrations occurring at school opening and closing times. The AQMA is adjacent to this location and extra diffusion tubes have been placed in order to quantify the impact of this change on NO2 levels, if any.

This will be taken into consideration in the next Updating and Screening Assessment."

Monitoring in this area continues.

4 Planning Applications

There are no planning applications currently under consideration which are envisaged to adversely affect local air quality.

5 Air Quality Planning Policies

Planning Service in Northern Ireland does not operate to a standard laid down in a Planning Policy Statement as with a range of other subject matter. The approach of Magherafelt District Council would be to alert Planning Service to exceedences or near exceedences of objective limits in the event of a development proposal being made in a relevant area, and to object to development taking place, or recommend amendments to the proposal in order that development can satisfactorily take place, as appropriate.

The maintenance and if possible the improvement of air quality is a factor looked at in each planning application.

6 Local Transport Plans and Strategies

Construction of the A31 Magherafelt by-pass is due to commence in mid 2014. The by-pass will consist of a 5.9km single carriageway to the east of Magherafelt town.

The Department for Regional Development has commissioned an Environmental Statement. In the section dealing with Environmental Impacts and Mitigation, the following is included regarding air quality;

'The EIA has demonstrated that many more people would benefit from reductions in concentrations of key pollutants with implications for local air quality and human health than would experience increases as a result of the diversion of strategic traffic from the existing road through the town to the proposed by-pass. It has also demonstrated that the increases would result in concentration markedly below levels established as an indicator of risk to human health.

The evaluation of emissions of nitrous oxides, particulates and carbon monoxide as a contributor to regional air quality has concluded these would be small and not significant in the context of overall emissions'.

Magherafelt District Council concurs with the views expressed above and is confident that the use of the by-pass will result in a reduction of NO2 levels leading to improved health outcomes and enabling the AQMA to be revoked. Monitoring will continue at the current locations to ensure that future decisions are based on sufficient and robust evidence.

7 Implementation of Action Plans

Magherafelt District Council has pointed repeatedly to the fact that the construction of the A31 by-pass whilst primarily designed to take large numbers of road users away from arterial routes which run through the town and thus improve journey times, will also result in significant reduction in pollutant levels.

The action to be taken by the Department for Regional Development is confidently predicted to result in positive outcomes for human health and reduce pollutant levels to a degree where the AQMA can be revoked. As this is the desired outcome to which all concerned parties aspire, the Department for Regional Development is to be congratulated for deciding to proceed with this project in 2014.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

DOENI has accepted the content and conclusions of Detailed Assessment MDC/DA/02 submitted in September 2012. An AQMA has been formally declared (14th February 2012) and an Action Plan is to be submitted.

Based on monitoring data for 2013, it is evident that concentrations at sites 2, 9 & 10 continue to exceed the standard set for NO2.

As a result of new school premises and new traffic movements adjacent to the AQMA, additional sites (13-22) continue to be monitored to establish if the designated area requires to be extended. To date they do not exceed the objective set for NO2 with the exception of site 20. This may be due a sporadic raised concentration in November 2013.

8.2 Proposed Actions

DOENI has accepted the content and conclusions of Detailed Assessment MDC/DA/02 submitted in September 2012. An AQMA has been formally declared (14th February 2012) and an Action Plan is to be submitted.

As a result of new school premises and new traffic movements adjacent to the AQMA, additional sites (13-22) continue to be monitored to establish if the designated area requires to be extended.

9 References

i. The Environment (Northern Ireland) Order 2002

ii. Air Quality Regulations (Northern Ireland) 2003

iii. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2000

iv. DEFRA Local Air Quality Management Technical Guidance LAQM.TG(09)

v. Magherafelt District Council 1st Stage Review and Assessment of Air Quality 2001

vi. Magherafelt District Council 2nd Stage Review and Assessment of Air Quality 2002

vii. Magherafelt District Council Progress Report on Air Quality Management 2005

viii. Magherafelt District Council Air Quality Update and Screening Assessment 2006

ix. Magherafelt District Council Progress Report on Air Quality Management 2007

x. Magherafelt District Council Local Air Quality Management Grant Evaluation Form 2008

xi. Magherafelt District Council Progress Report on Air Quality Management 2008

xii. Magherafelt District Council Local Air Quality Management Grant Evaluation Form 2009

xiii. Magherafelt District Council Air Quality Update and Screening Assessment 2009

xiv. Magherafelt District Council Local Air Quality Management Grant Evaluation Form 2010

xv. Magherafelt District Council Progress Report on Air Quality Management 2010

xvi. Magherafelt District Council Local Air Quality Management Grant Evaluation Form 2011

xvii. Magherafelt District Council Detailed Assessment for NO2 Levels on Church Street and King Street, Magherafelt 2011

xviii. Magherafelt District Council Local Air Quality Management Grant Evaluation Form 2012

xix. Magherafelt District Council Air Quality Update and Screening Assessment 2012

xx. Magherafelt District Council Local Air Quality Management Grant Evaluation Form 2013

xxi. Magherafelt District Council Air Quality Progress Report 2013

Appendices

Appendix 1: Quality Assurance / Quality Control (QA/QC) Data

Appendix 2: Map of Non-Automatic Monitoring Sites in AQMA

Appendix 3: Non-automatic monitoring sites in AQMA

Appendix 1: QA:QC Data

Diffusion Tube Bias Adjustment Factors

Lambeth Scientific Services Ltd., Arlington Lodge, 26 Wanless Road, London, SE24 0HW supplied and analysed NO2 diffusion tubes up until and including December 2007. Results for 2007 with the exception of site 6 are calculated based on the national database bias adjustment factor of 1.056 for Lambeth Scentific Services Ltd. The result for site 6 is based on 7 months data and on the local study (Belfast) bias adjustment factor of 1.00. Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

NO2 diffusion tubes from 2008 were supplied and analysed by Gradko Environmental, St. Martins House, 77 Wales Street, Winchester, Hampshire, SO23 0RH. The preparation method used was 20% Triethanolamine / Deionised Water.

2008 results for sites 1 - 7 are calculated based on the national database bias adjustment factor of 0.92 for Gradko Environmental. Site 8 is based on 4 months data and the local study (Belfast) bias adjustment factor of 0.79. Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

2009 results for site 1 are based on 6 months data and the local study (Belfast) bias adjustment factor of 0.87. Site 2 – 8 are calculated based on the national database bias adjustment factor of 0.9 for Gradko Environmental. Sites 9 – 12 are calculated based on 3 months data and the local study (Belfast) bias adjustment factor of 0.87. Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

2010 results are calculated based on the national database bias adjustment factor of 0.90. Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

2011 results are calculated based on the national database bias adjustment factor of 0.89 for Gradko Environmental. Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

2012 results are calculated based on the national database bias adjustment factor of 0.97 for Gradko Environmental. Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

2013 results are calculated based on the national database bias adjustment factor of 0.95 for Gradko Environmental. Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

Factor from Local Co-location Studies (if available)

Not applicable to Magherafelt District Council.

Discussion of Choice of Factor to Use

Guidance on the most suitable bias adjustment factor to be applied was taken from Technical Guidance.

2013 results are calculated based on the national database bias adjustment factor of 0.95 for Gradko Environmental. Bias adjustment factors were obtained from the Air Quality Review and Assessment website.

PM Monitoring Adjustment

Not applicable to Magherafelt District Council, see section 1.4 of this report.

Short-term to Long-term Data adjustment

Not applicable to Magherafelt District Council.

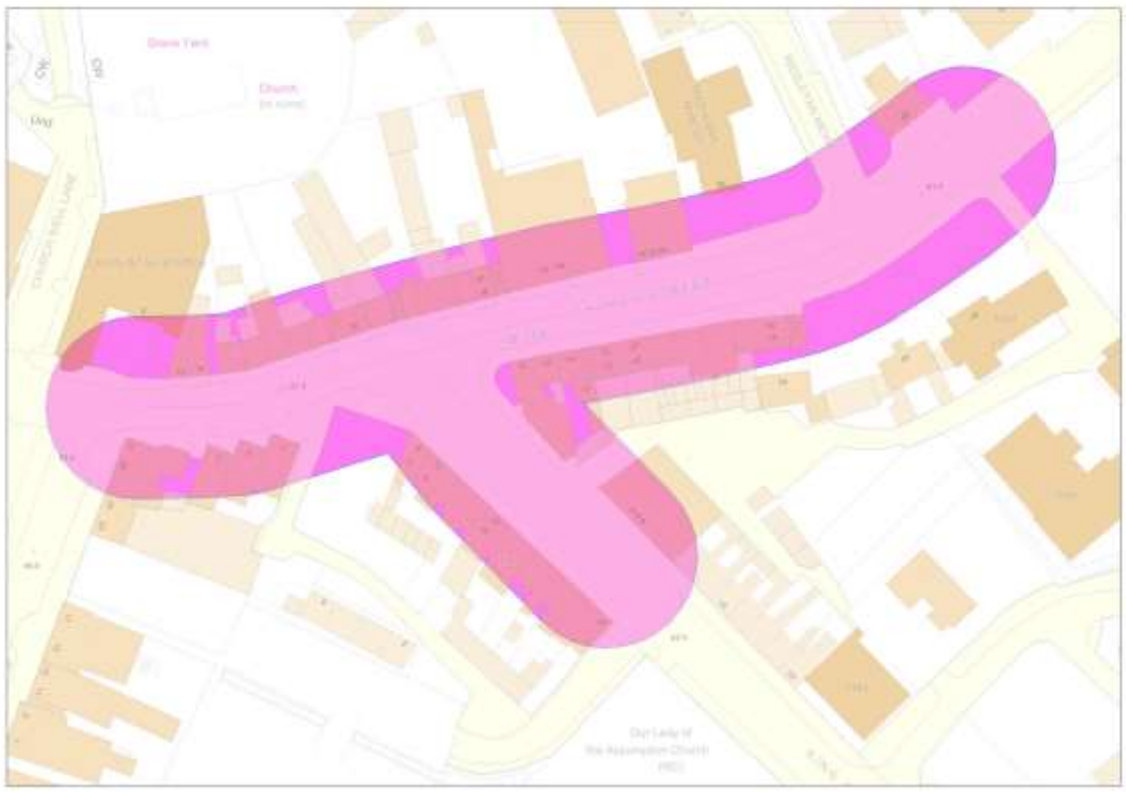
QA/QC of automatic monitoring

Not applicable to Magherafelt District Council.

QA/QC of diffusion tube monitoring

Gradko Environmental analytical laboratory is assessed annually by UKAS to establish conformance of the Laboratory Quality Procedures to the requirements of ISO/IEC 17025 Standard and have continually demonstrated a good performance in the WASP scheme for analysis of NO2 diffusion tubes, operated by the Health and Safety Laboratory.

Appendix 2: Area designated as AQMA



Appendix 3: Non-automatic monitoring sites in AQMA