2015 Updating and Screening Assessment, 2016 Progress Report and 2017 Progress Report:

Derry and Strabane District Council

April 2017

Experts in air quality management & assessment

Document Control

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Executive Summary

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. Results from monitoring by the Council are presented and sources of air pollution are identified.

This report confirms that air quality within the Derry and Strabane District Council area continues to meet the relevant air quality objectives at locations of relevant exposure, with the exception of locations within existing Air Quality Management Areas (AQMAs). There were no exceedences of any objectives outside the existing AQMA boundaries, or within the Strand Road AQMA.

It is recommended that the extent of the Spencer Road AQMA is reduced to reflect the 2014 Detailed Assessment and that the Strand Road AQMA is revoked. The remaining AQMAs are considered appropriate and should remain unchanged. There is no requirement to proceed to a Detailed Assessment for any pollutant.

The report has not identified any significant changes in emissions sources within the Derry and Strabane District Council area. There have been no new relevant industrial installations and no new significant commercial, domestic or fugitive sources of emissions.

Table of contents

1 Introduction

1.1 Description of Local Authority Area

Derry and Strabane District Council area was formed in 2015 by the merger of Derry City Council and Strabane District Council, and is located in the west of Northern Ireland. Derry City is the second-largest city in Northern Ireland, situated on the River Foyle, and includes Foyle Port and the City of Derry Airport within its boundaries. Road transport emissions have previously been found to be the dominant source of air pollution in the Derry City area. The remainder of the district is largely rural in character, the largest population centre outside Derry being Strabane Town.

1.2 Purpose of 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.

The objective of this Updating and Screening Assessment and Progress Report is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in 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 (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	10.0 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

As part of the review and assessment process, Derry City Council has prepared a number of air quality reports. A summary is provided in Table 1.2. In 2005 an AQMA

was declared at the Creggan Road / Infirmary Road junction in Derry, in 2011 two AQMAs were declared in Derry at Dale's Corner and at the Buncrana Road / Racecourse Road junction, and in 2012/2013 two further AQMAs were declared at Spencer Road and Strand Road, all for exceedences of the annual mean NO_2 objective. The declared AQMAs are shown in Figures 1.1 to 1.5.

Strabane District Council has also completed a number of rounds of air quality review and assessment. Three AQMAs were declared in Strabane, Newtownstewart and Castlederg in 2004 for exceedences of the annual and 24-hour mean PM_{10} objectives due to domestic heating. The declared AQMAs are shown in Figures 1.6 to 1.8. An action plan was developed in order to identify measures to reduce ambient concentrations of particles and to attempt to comply with the objectives for PM_{10}. The Council has also completed updating and screening assessments which did not highlight any other areas of concern that required a detailed assessment to be undertaken.

Table 1.2 Summary of Review and Assessment by Derry City Council

Report	Summary
2004 Detailed Air Quality Modelling of Domestic Fuel Use and Road Traffic Emissions in Derry (Stage 3)	Exceedences of the annual mean NO_2 concentrations were modelled at the Creggan Road / Infirmary Road junction, and the Council subsequently declared an AQMA in February 2005, and a draft Air Quality Action Plan was released in November 2006. The 2004 Detailed Assessment concluded that PM_{10} exceedences were not expected; however it was not possible to rule out potential exceedences of the SO_2 or PM_{10} objectives due to the resolution of the modelling undertaken.
2005 Progress Report	The 2005 Progress Report provided a review of the most recent monitoring data within the local authority. Automatic monitoring of SO_2 and $_{PM10}$ at Brandywell indicated a large drop in the number of 15-minute and daily mean exceedences, reflecting the decreased use of solid fuel in the area.
2006 Updating & Screening Assessment	The Updating & Screening Assessment identified 2 locations to consider for the Detailed Assessment of NO_2: Dale's Corner and the Buncrana Road / Racecourse Road Junction.It was concluded that no further assessment was required for carbon monoxide, benzene, 1,3-butadiene, lead or sulphur dioxide, however assessment was required for $_{PM10}$ at a rural area near Claudy, and in the Culmore Point area.

Report	Summary
2007 Detailed Assessment and Further Assessment	A Detailed Assessment was undertaken for Dale's Corner and Buncrana Road / Racecourse Road Junction following measured exceedence of the NO_2 annual mean objective. It was determined that a declaration of an AQMA at either location was not required at the time, as the modelling did not confirm exceedences of the air quality objectives at locations of relevant exposure. A Further Assessment was undertaken for the existing AQMA at Creggan Road / Infirmary Road, and it was concluded that there was a continuing need for the AQMA, though no extension was considered necessary.
2008 Progress Report	Review of updated NO_2 monitoring data for the Creggan Road / Infirmary Road junction confirmed the continuing need for the AQMA. Decreases were seen in concentrations of SO_2. The Progress Report proposed that a new detailed dispersion modelling be undertaken at the Dale's Corner junction due to exceedences of the NO_2 annual mean objective recorded at a new monitoring diffusion tube site at no.5 Glendermott Road.
2008 Final Air Quality Action Plan	The final Air Quality Action Plan, released in September 2008, included detailed dispersion modelling to quantify the potential impact of a number of traffic measures, which may be implemented to reduce air pollution in the area of the Creggan Road / Infirmary Road junction. Proposals included the removal of HGVs on specific road links within the AQMA.
2008 Dale's Corner Detailed Assessment	The assessment confirmed that exceedences of the NO_2 annual mean AQS objective were likely at the façade of properties along Glendermott Road and Limavady Road close to the junction and it was recommended that an AQMA encompassing these properties be declared. The Council declared the Dale's Corner AQMA in 2010.
2009 Updating & Screening Assessment	The Updating & Screening Assessment reviewed and assessed new monitoring data and potential new sources of pollutants within the area. There were no new or significantly changed sources identified which may cause potential exceedences of the AQS objectives. However, the assessment highlighted that a new Detailed Assessment was required with regard to NO_2 at Buncrana Road / Racecourse Road junction based on updated monitoring data.
2010 Air Quality Progress Report and Buncrana Road Detailed Assessment	Based on updated 2009 monitoring data, the air quality Progress Report 2010 confirmed exceedences of the NO_2 annual mean objective at several monitoring sites within the Creggan Road / Infirmary Road and Dale's Corner AQMAs and at the junction of Buncrana Road and Racecourse Road. The Detailed Assessment of Buncrana Road confirmed that a third AQMA was required at the junction for NO_2. The Council declared an AQMA at the junction in 2010.
2010 Dale's Corner Further Assessment	The report confirmed the need for an AQMA at Dale's Corner and provided detailed information related to source apportionment, population exposure and required reduction of NOx emissions to comply with the AQS objectives. The Further Assessment also considered the impact of several mitigation measures. Conclusions were that the combined effect of these measures would result in significant reductions in NO_2 levels, and compliance with the annual mean objective.

Report	Summary
2011 Buncrana Road Further Assessment	The report confirmed the need for an AQMA at Buncrana Road and provided detailed information related to source apportionment, showing that road traffic is the main contributor to overall NO_2 levels, population exposure and required reduction of emissions to comply with the AQS objectives. The Further Assessment estimated that the annual mean objective would be met at all locations by 2014, however it was noted that this was an optimistic estimate, as predicted concentrations were likely to be underestimated as shown by recent NO_2 monitoring trends across the UK.
2011 Progress Report	Review of updated monitoring data showed that areas within the existing AQMAs were still exceeding the NO_2 objective. In addition, four new areas of where exceedences were identified in Spencer Road, John Street, Strand Road and Abercorn Road. a Detailed Assessment was therefore recommended.
2012 Air Quality Action Plan Update	The Air Quality Action Plan update reviewed the first AQAP to incorporate the new AQMAs. The AQAP included details of the traffic measures which may be implemented to reduce air pollution in the identified AQMAs together with an update as to how measures identified in 2008 have been implemented.
2012 Updating & Screening Assessment	Review of updated monitoring data showed that areas within the existing AQMAs were still exceeding the NO_2 objective. It was noted that concentrations in John Street, Strand Road and Abercorn Road had fallen below objective levels and it was recommended to continue monitoring in these locations. Concentrations at Spencer Road were still exceeding the objectives and a Detailed Assessment was recommended.
2012 Detailed Assessments	Based on monitoring results, Derry CC decided to undertake Detailed Assessments at Spencer Road, John Street, Strand Road and Abercorn Road. It was concluded, based on a combination of pollutant monitoring and predictive modelling, that AQMA's be declared at Spencer Road and Strand Road. The report found that there was no requirement to declare for John Street and Abercorn Road.
2012/2013 AQMA declaration	Based upon the outcome of the Detailed Assessments at Spencer Road and Strand Road, two new small AQMA areas were declared.
2013 Progress Report	Review of updated monitoring data showed that sites within the existing AQMAs were still exceeding the annual mean NO_2 objective. It was therefore recommended to continue to monitor within the AQMAs and surrounding areas including Abercorn Road. The Council proceeded to the review of the Air Quality Action Plan to include the new AQMAs in Strand Road and Spencer Road.
2014 Detailed Assessment (Draft)	The modelling confirmed exceedences of the annual mean NO_2 objective within all AQMAs, with the exception of the Strand Road AQMA. The area of exceedence in the Creggan Road and Buncrana Road AQMAs is smaller than when they were declared, therefore amended AQMA boundaries were recommended. Most of the properties in the
2014 Progress Report	Review of updated monitoring data showed that sites within the existing AQMAs were still exceeding the annual mean NO_2 objective, with the exception of the Strand Road AQMA. It was therefore concluded that the Council could consider potential revocation of the Strand Road AQMA. All other AQMAs are to remain in place.

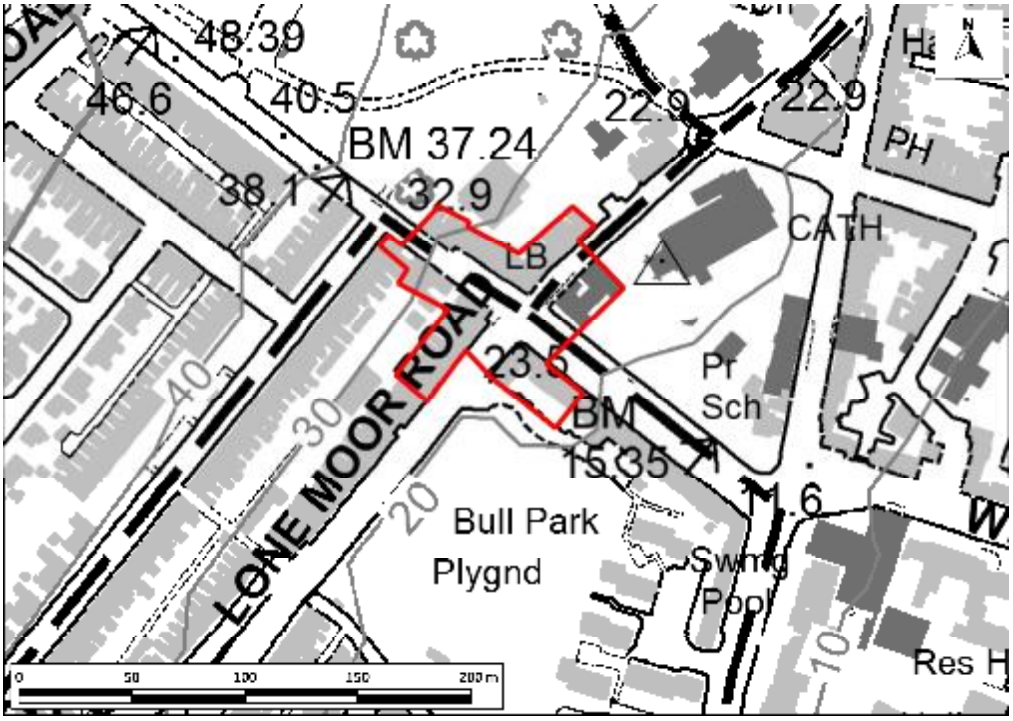

Figure 1.1 Map of AQMA Boundary – Creggan Road

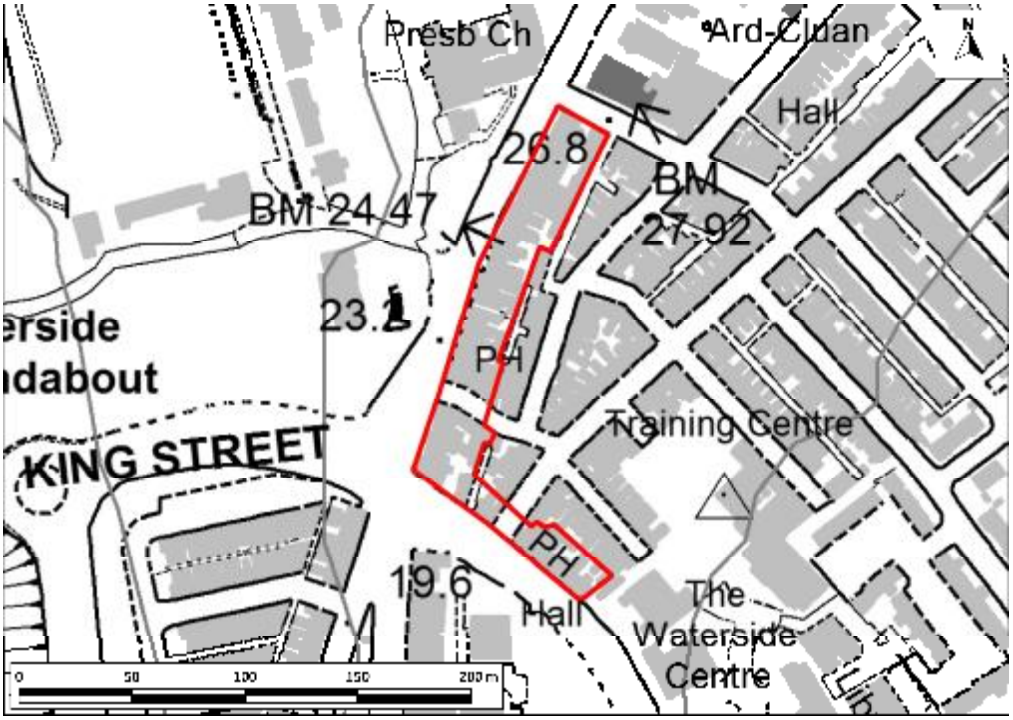

Figure 1.2 Map of AQMA Boundary - Dale's Corner

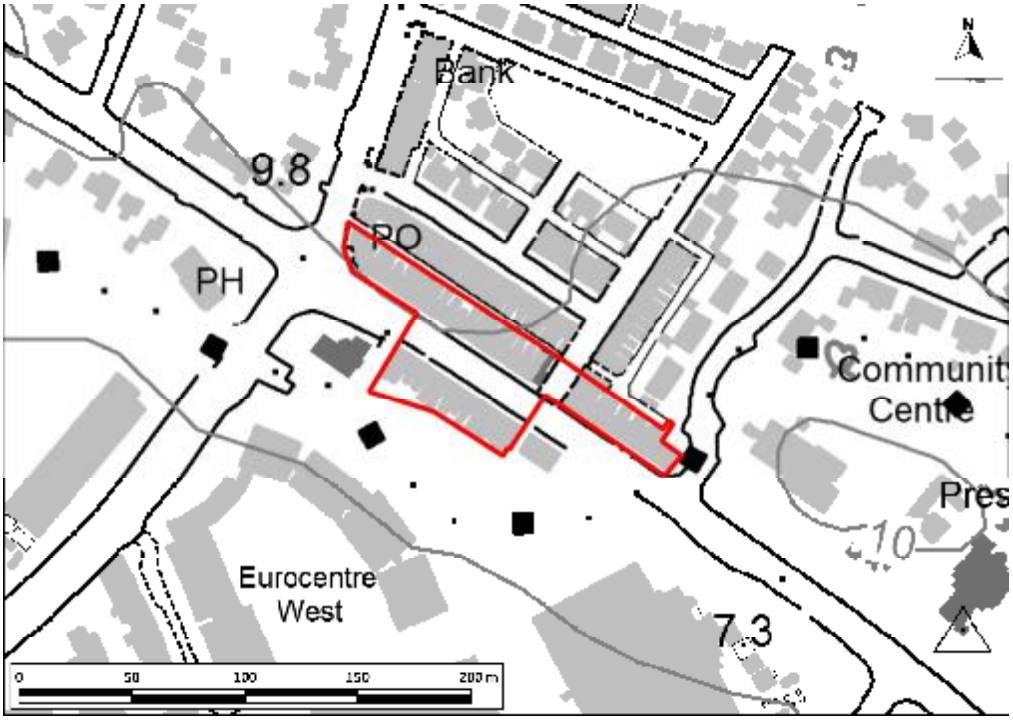

Figure 1.3 Map of AQMA Boundary – Buncrana Road

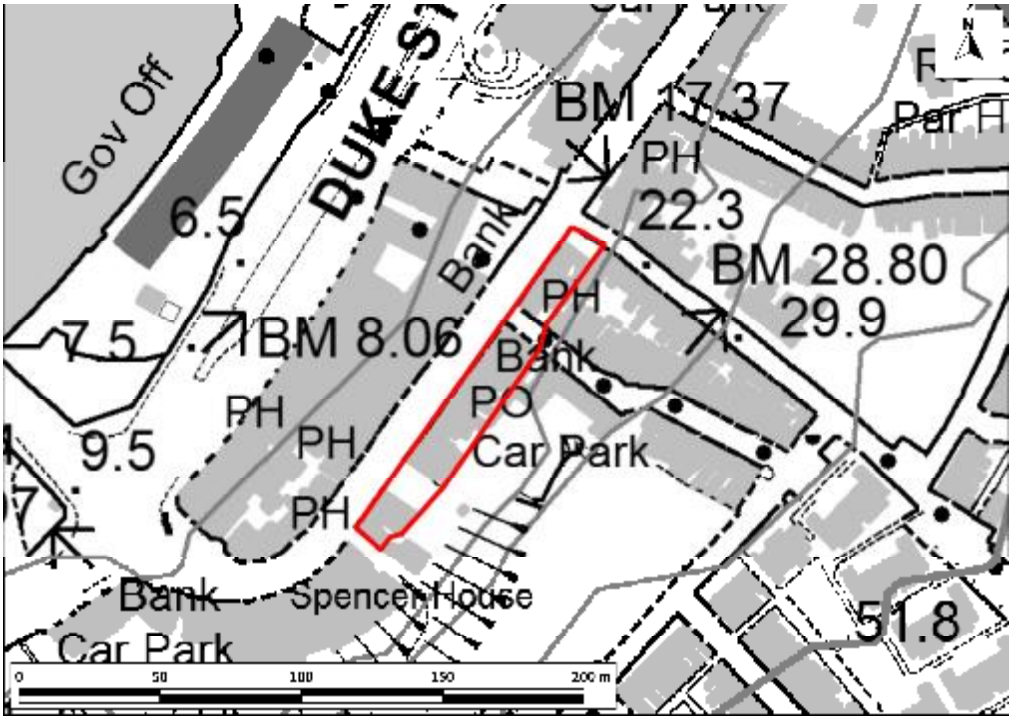

Figure 1.4 Map of AQMA Boundary – Spencer Road

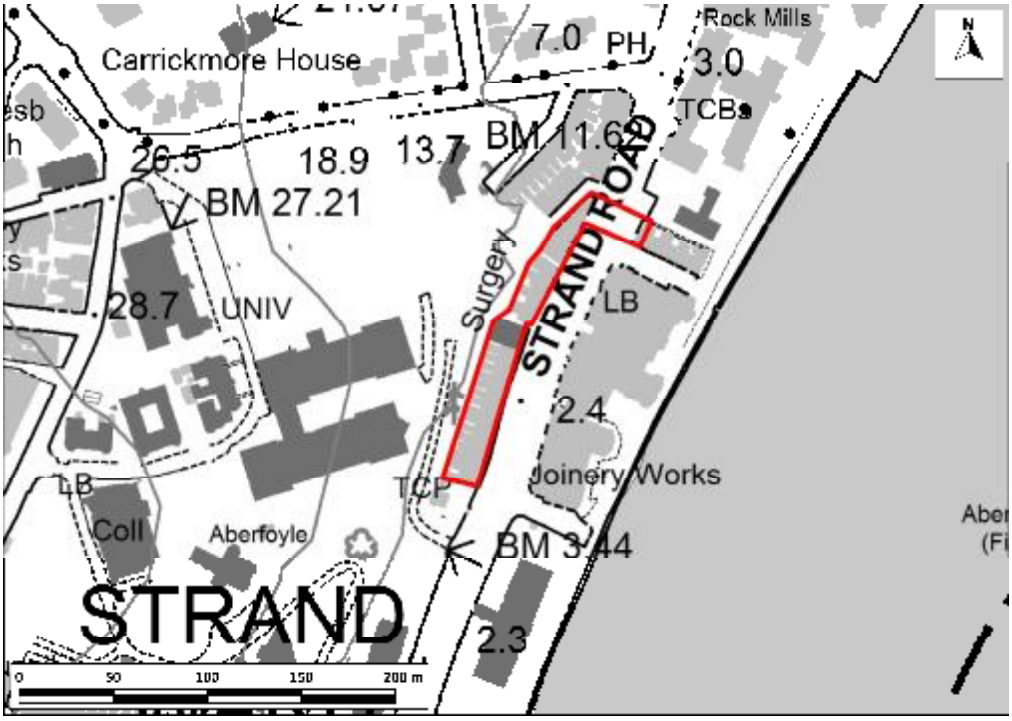

Figure 1.5 Map of AQMA Boundary – Strand Road

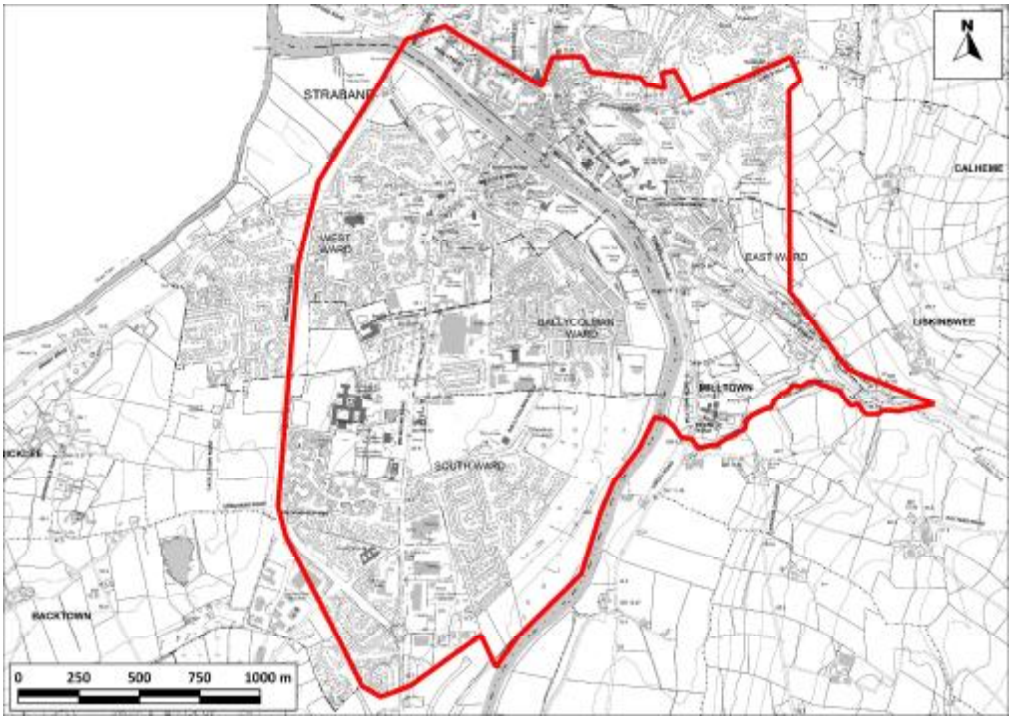

Figure 1.6 Map of AQMA Boundary - Strabane

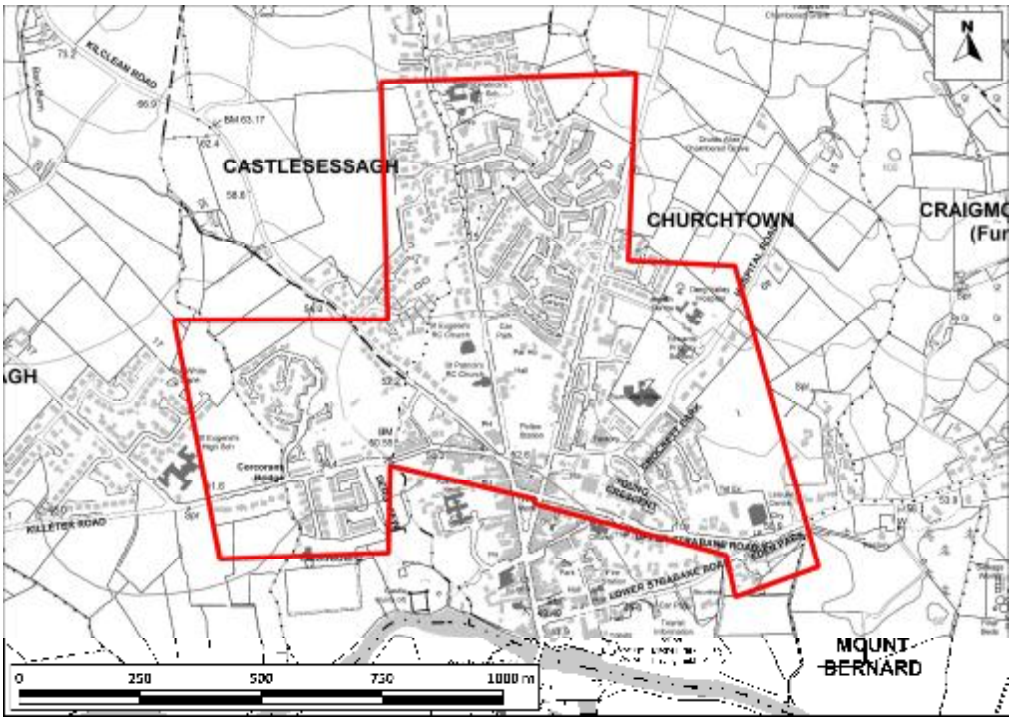

Figure 1.7 Map of AQMA Boundary - Castlederg

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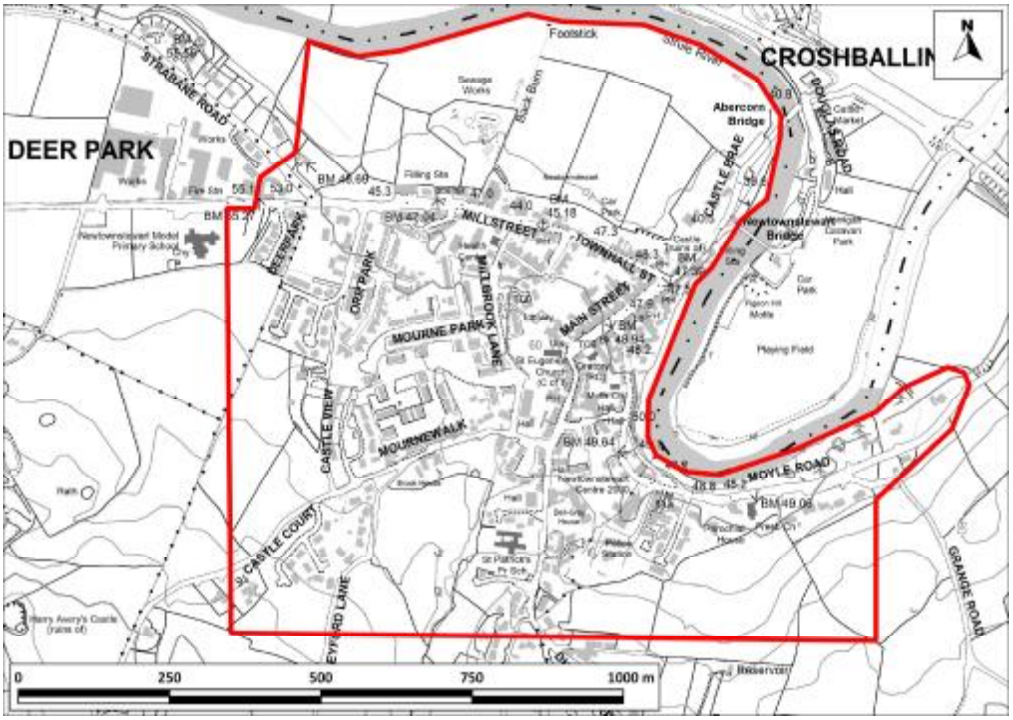

Figure 1.8 Map of AQMA Boundary - Newtonstewart

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2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Derry and Strabane Council operated four automatic monitoring sites within its area in 2015. The locations of these sites are described in Table 2.1 and shown in Figures 2.1 and 2.2. The Marlborough Street monitoring station was installed in 2011 and ceased operating in 2015.

The quality assurance and quality control procedures are set out in Appendix A.

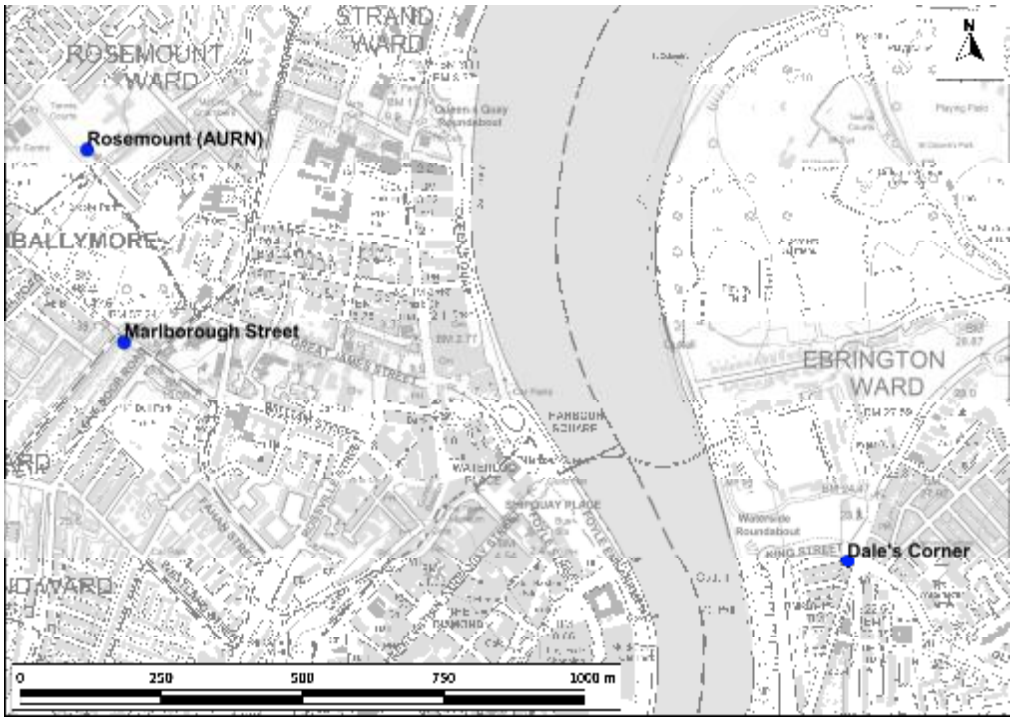

Figure 2.1 Map of Automatic Monitoring Sites in Derry

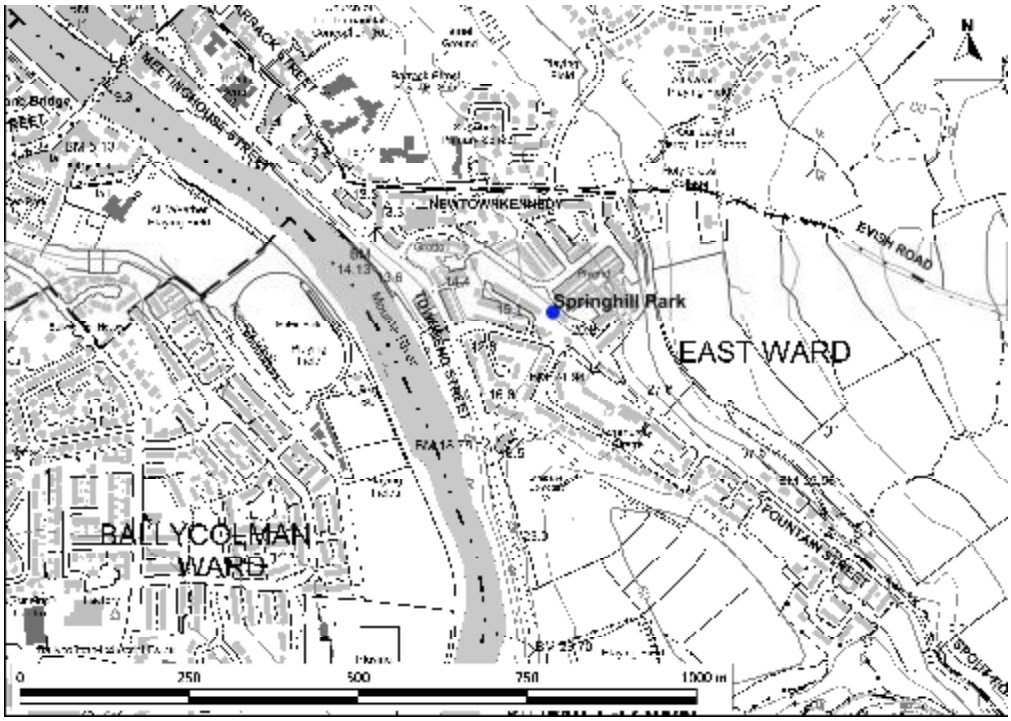

Figure 2.2 Map of Automatic Monitoring Sites in Strabane

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	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?
Rosemount, Derry (AURN)	Urban Background	242962	417217	O_3, NO_2, NOx, SO_2, PM_{10}, $PM_{2.5}$	N	FDMS and chemiluminescence monitor	N (approx. 50m, background site)	N/A	N/A
Dale's Corner, Derry	Roadside	244178	416760	NO_2, NOx	N	chemiluminescence monitor	Y - 1.5 m	2 m	Y
Marlborough Street, Derry	Roadside	242900	417152	NO_2, NOx	Y	chemiluminescence monitor	Y – 1 m	2 m	Y
Springhill Park, Strabane	Urban Background	235100	397200	PM_{10}, SO_2	Y	beta ray attenuation and UV florescence	Y – 1 m	1 m	Y

2.1.2 Non-Automatic Monitoring Sites

Derry and Strabane Council operated 24 nitrogen dioxide diffusion tube monitoring sites within its area in 2015. The locations of these sites are shown in Figure 2.3 to 2.7 and described in detail in Table 2.2.

The following monitors were installed in 2014:

- HB1, HB2.

The following monitors were discontinued in 2014:

- AB1, AB2, AB3, AB4.

The following monitors were discontinued in 2015:

- C11, C12, C13;
- S1, S2, S3, S4, S5, S6, S9, S10;
- SP3, SP4, SP5, SP6; and
- HB1, HB2.

Full details of the QA/QC procedure are provided in Appendix A.

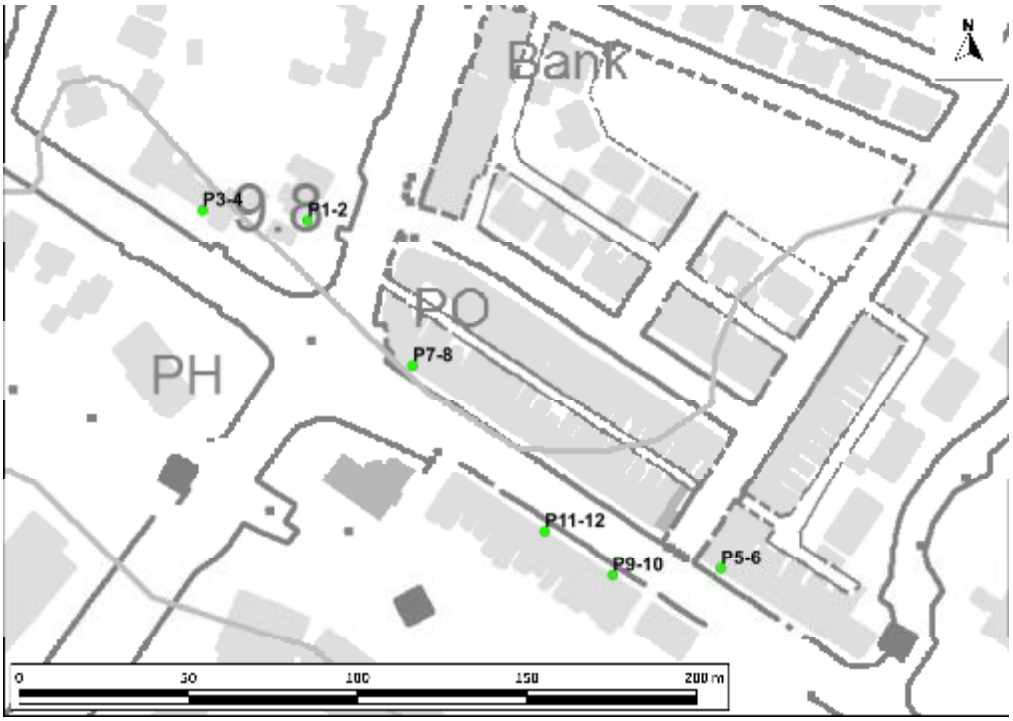

Figure 2.3 Map of Non-Automatic Monitoring Sites – Buncrana Road

Figure 2.4 Map of Non-Automatic Monitoring Sites – Strand Road

Figure 2.5 Map of Non-Automatic Monitoring Sites – Creggan Road

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Figure 2.6 Map of Non-Automatic Monitoring Sites – Dale's Corner

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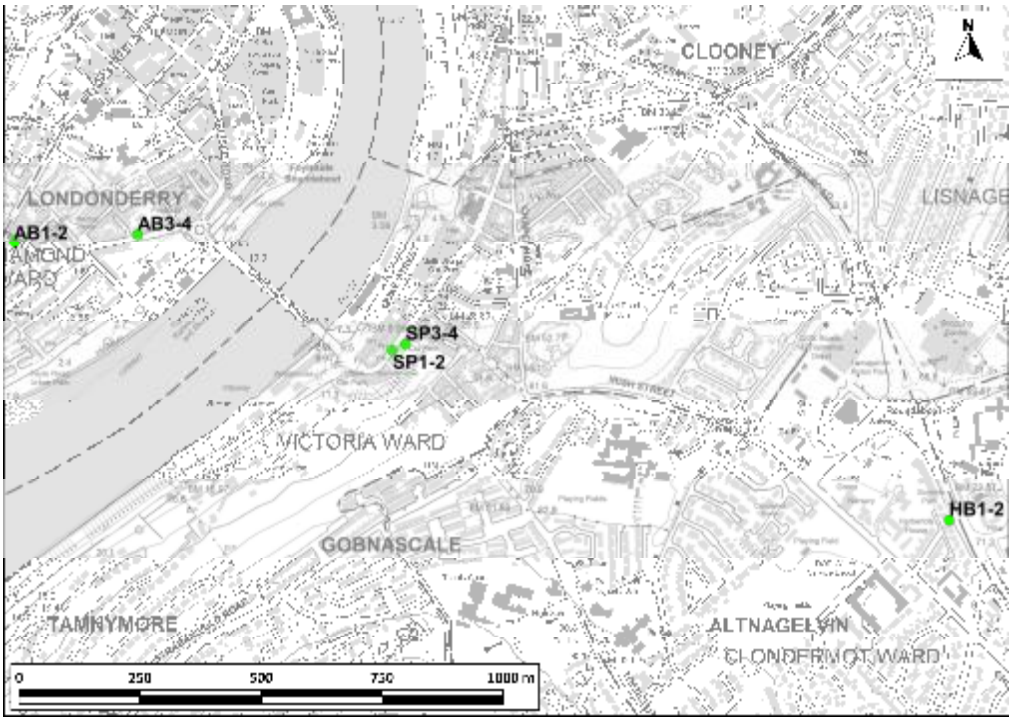


Figure 2.7 Map of Non-Automatic Monitoring Sites – South Derry

Table 2.2 Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Collocated with a Continuous Analyser (Y/N)	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Does this location represent worst-case exposure?
A1-3	Brooke Park	Urban background	242962	417217	NO_2	N	Y (triplicate)	N	55 m	N/A
C1-2	3 Creggan Road	Roadside	242913	417144	NO_2	Y	N (duplicate)	Y (0 m)	2 m	Y
C3-4	6 Marlborough Terrace	Roadside	242921	417101	NO_2	Y	N (duplicate)	Y (0 m)	4.5 m	Y
C5-6	22A Creggan Street	Urban Background	242959	417102	NO_2	Y	N (duplicate)	Y (0 m)	5.5 m	Y
C7-8	1 Windsor Terrace	Roadside	243017	417191	NO_2	N	N (duplicate)	Y (0 m)	3 m	Y
C9-10	14 Creggan Road	Roadside	242928	417148	NO_2	Y	N (duplicate)	Y (0 m)	4 m	Y
C11-13	2 Marlborough Street	Roadside	242898	417154	NO_2	Y	Y (triplicate)	Y (0 m)	2 m	Y
D1-3	Dale's Corner	Roadside	244178	416760	NO_2	N	N (duplicate)	Y (0 m)	3 m	Y
D4-5	52 Clooney Terrace	Urban Centre	244210	416714	NO_2	N	N (duplicate)	Y (0 m)	6.5 m	Y
D6-7	5 Glendermott Road	Roadside	244238	416753	NO_2	Y	N (duplicate)	Y (0 m)	2 m	Y
D8-9	19 Glendermott Road	Roadside	244283	416718	NO_2	Y	N (duplicate)	Y (0 m)	3 m	Y
D10-11	4 Ebrington Terrace	Roadside	244219	416794	NO_2	Y	N (duplicate)	Y (0 m)	4 m	Y
D12-13	12 Ebrington Terrace	Roadside	244240	416856	NO_2	Y	N (duplicate)	Y (0 m)	3 m	Y
D14-15	9 Columba Terrace	Roadside	244277	416931	NO_2	Y	N (duplicate)	Y (0 m)	6 m	Y
D16-17	17 Melrose Terrace	Roadside	244189	416756	NO_2	N	N (duplicate)	Y (0 m)	3 m	Y
P1-2	53 Messine	Suburban	243449	419013	NO_2	N	N (duplicate)	Y (0 m)	14 m	Y

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Collocated with a Continuous Analyser (Y/N)	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Does this location represent worst-case exposure?
	Park									
P3-4	57 Messine Park	Suburban	243418	419016	NO_2	N	N (duplicate)	Y (0 m)	11 m	Y
P5-6	8 Maybrook Terrace	Roadside	243571	418910	NO_2	Y	N (duplicate)	Y (0 m)	5 m	Y
P7-8	19 St Patricks Terrace	Roadside	243480	418970	NO_2	Y	N (duplicate)	Y (0 m)	5 m	Y
P9-10	1 Collon Terrace	Roadside	243539	418908	NO_2	Y	N (duplicate)	Y (0 m)	5 m	Y
P11-12	5 Collon Terrace	Roadside	243519	418921	NO_2	Y	N (duplicate)	Y (0 m)	5 m	Y
S1-2	99 Strand Road	Roadside	243522	417894	NO_2	Y	N (duplicate)	Y (0 m)	3 m	Y
S3-4	Rockmills	Roadside	243607	418037	NO_2	Y	N (duplicate)	Y (0 m)	10 m	Y
S5-6	1 Baronet Street	Roadside	243557	417907	NO_2	Y	N (duplicate)	Y (0 m)	6 m	Y
S7-8	35 Aberfoyle Terrace	Roadside	243483	417801	NO_2	Y	N (duplicate)	Y (0 m)	6 m	N
S9-10	1 Rock Terrace	Roadside	243527	417928	NO_2	Y	N (duplicate)	Y (0 m)	8 m	Y
AB1-2	63 Abercorn Road	Roadside	243166	416211	NO_2	N	N (duplicate)	Y-0m	2 m	Y
AB3-4	65 Abercorn Road	Roadside	243422	416230	NO_2	N	N (duplicate)	Y-0m	4.5 m	Y
FR1-2	3 Francis Street	Roadside	243084	417075	NO_2	N	N (duplicate)	Y-0m	2 m	Y
FR3-4	45 Francis Street	Roadside	243110	417225	NO_2	N	N (duplicate)	Y-0m	1.5 m	Y
SP1-2	32 Spencer Road	Roadside	243949	415989	NO_2	Y	N (duplicate)	Y-0m	2 m	Y
SP3-4	48 Spencer Road	Roadside	243976	416002	NO_2	Y	N (duplicate)	Y-0m	2 m	Y
SP5-6	70 Spencer Road	Roadside	243557	417907	NO_2	Y	N (duplicate)	Y-0m	2m	Y
HB1-2	3 Harberton Park	Background	245099	415638	NO_2	N	N (duplicate)	Y	13 m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

The Council monitored NO_2 at three locations in 2014 and 2015, however the Marlborough Street site closed in May 2015 and hence data capture was low at this site in 2015.

The monitoring data are summarised in Table 2.3 and Table 2.4. Concentrations were below both the annual mean and 1-hour objectives at the Rosemount and Dale's Corner sites in all years. The annual mean objective was exceeded at the Marlborough Street site in all years, while the 1-hour mean was exceeded in 2014 and 2015. This site is within the Creggan Road AQMA.

Figure 2.8 shows the trends in annual mean NO_2 concentrations at all three sites. The concentrations at Dale's Corner and Rosemount showed two peaks in 2008 and 2010, before displaying a general downward trend until 2014. Concentrations at both of these sites have increased again since 2014. Concentrations at Marlborough Street decreased between 2011 and 2013 before increasing again in 2014. Data have not been included for 2015 at Marlborough Street because data capture was low in that year.

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

Site Name	Site Type	Within AQMA?	Valid Data Capture for monitoring period %[a]			Valid Data Capture % [b]			Annual Mean Concentration mg/m^3					
			2014	2015	2016	2014	2015	2016	2011	2012	2013	2014	2015	2016
Rosemount, Derry (AURN)	Urban Background	N	98	76	**90.5**	98	76	76	15.6	15.0	14.1	14	16	10
Dale's Corner, Derry	Roadside	N	98.2	95.9	99	98.2	95.9	99	33.6	34.5	30.3	23	29	38
Marlborough Street, Derry	Roadside	Y	98.8	65.7	-	98.8	15.1	-	**71.3**	**63.4**	**60.3**	**71**	**76** [c]	-

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] Low data capture (15%).

Figure 2.8 Trends in Annual Mean Nitrogen Dioxide Concentrations measures at Automatic Monitoring Sites

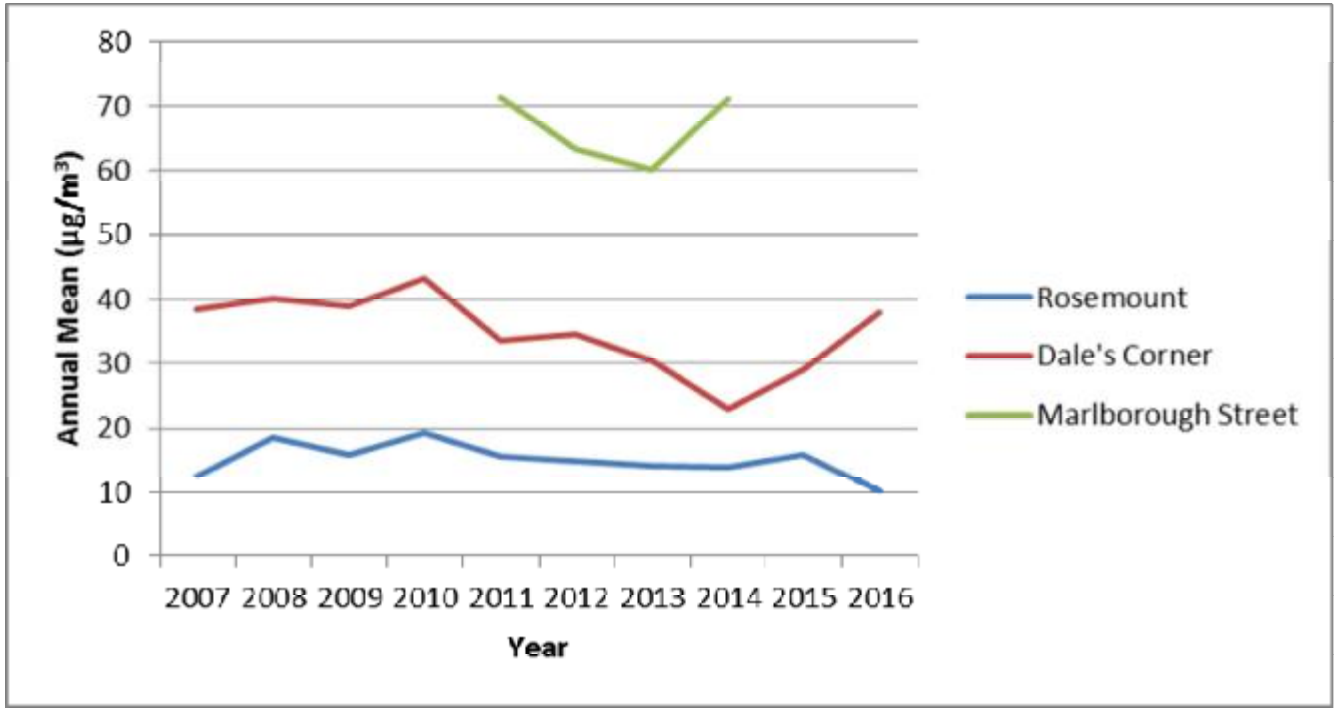


Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring period %[a]			Valid Data Capture % [b]			Number of Exceedences of Hourly Mean (200 µg/m^3)					
			2014	2015	2016	2014	2015	2016	2011	2012	2013	2014	2015	2016
Rosemount, Derry (AURN)	Urban Background	N	98	76	**90.5**	98	76	76	0	0	0	0	0	0
Dale's Corner, Derry	Roadside	N	98.2	95.9	99	98.2	95.9	99	1	0	0	0	0	4
Marlborough Street, Derry	Roadside	Y	98.8	65.7	-	98.8	15.1	-	0 (181)[c]	3	0	**56**	**25** (**227**)[c]	-

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] Valid data capture is less than 90%, therefore the 99.8th percentile of hourly means is included in brackets.

Diffusion Tube Monitoring Data

The NO_2 diffusion tube data are summarised in Table 2.5 and Table 2.6. The annual mean objective was exceeded at eight sites in each of 2014, 2015 and 2016. No exceedences have been recorded outside the existing AQMAs within the past three years.

The following sites were found to be exceeding in 2014:

- C1-2 (Creggan Road AQMA);
- C5-6 (Creggan Road AQMA);
- C9-10 (Creggan Road AQMA);
- C11-13 (Creggan Road AQMA);
- D6-7 (Dale's Corner AQMA);
- D8-9 (Dale's Corner AQMA);
- D10-11 (Dale's Corner AQMA); and
- P11-12 (Buncrana Road AQMA).

The following sites were found to be exceeding in 2015:

- C1-2 (Creggan Road AQMA);
- C5-6 (Creggan Road AQMA);
- C9-10 (Creggan Road AQMA);
- D6-7 (Dale's Corner AQMA);
- D8-9 (Dale's Corner AQMA);
- D10-11 (Dale's Corner AQMA);
- P11-12 (Buncrana Road AQMA); and
- SP1-2 (Spencer Road AQMA).

The following sites were found to be exceeding in 2016:

- C1-2 (Creggan Road AQMA);
- C9-10 (Creggan Road AQMA);
- D6-7 (Dale's Corner AQMA);
- D8-9 (Dale's Corner AQMA);
- D10-11 (Dale's Corner AQMA);
- D14-15 (Dale's Corner AQMA);

- P11-12 (Buncrana Road AQMA); and
- SP1-2 (Spencer Road AQMA).

Creggan Road AQMA

Exceedences of the annual mean NO_2 objective continue to occur within the AQMA as shown by the monitoring results. Diffusion tube monitoring site C1-2 showed concentrations greater than 60µg/m^3 in 2016. It is therefore recommended that this AQMA remains as declared.

Dale's Corner AQMA

Exceedences of the annual mean NO_2 objective continue to occur within the AQMA as shown by the monitoring results.

Buncrana Road AQMA

Exceedence of the annual mean NO_2 objective was recorded at one site within the AQMA (P11-12) in 2015 and 2016. Measurements at other sites within this AQMA have remained below the objective in recent years. The Detailed Assessment undertaken in 2014 concluded that exceedences of the annual mean objective are localised around the junction with Racecourse Road and recommended reducing the size of the AQMA. Monitoring has increased within the AQMA since the modelling was carried out, which was based on a verification using 2013 concentrations and it is therefore recommended that this AQMA remains as declared.

Spencer Road AQMA

No exceedences have been recorded within the Spencer Road AQMA in the past three years. However, site SP1-2 showed concentrations close to the annual mean NO_2 objective in 2015 and 2016. Therefore monitoring should continue in this area and the AQMA should remain. However, the 2014 Detailed Assessment of Derry AQMAs determined that the properties in the south west of the AQMA were not relevant receptors for the annual mean objective. If it is verified that this is still the case, it is recommended that the extent of this AQMA is reduced to reflect the findings of the 2014 Detailed Assessment.

Strand Road AQMA

No exceedences have been recorded within the Strand AQMA in the past three years. The only exceedences were in 2010 at S1-2 and S3-4 and these results appear to have been anomalously high, given that they were not repeated in subsequent years. It is therefore recommended that this AQMA is revoked.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2014, 2015 and 2016

Site ID	Location	Site Type	In AQMA?	Collocated with a Continuous Analyser (Y/N)	Annual mean (µg/m^3)		
					2014 (Bias Adjustment factor = 0.71)	2015 (Bias Adjustment factor = 0.79)	2016 (Bias Adjustment factor = 0.83)
A1-3	Brooke Park	Urban Background	N	Y (triplicate)	12.7	15.1	13.4
C1-2	3 Creggan Road	Roadside	Y	N (duplicate)	**53.4**	**59.3**	**63.2**
C3-4	6 Marlborough Terrace	Roadside	Y	N (duplicate)	28.9	34.4	37.5
C5-6	22A Creggan Street	Urban Background	Y	N (duplicate)	33.7	38.4	37.6
C7-8	1 Windsor Terrace	Roadside	N	N (duplicate)	18.5	21.2	21.2
C9-10	14 Creggan Road	Roadside	Y	N (duplicate)	34.1	39.0	**43.5**
C11-13	2 Marlborough Street	Roadside	Y	Y (triplicate)	**50.9**	-	-
D1-3	Dale's Corner	Roadside	N	N (duplicate)	26.3	29.7	32.2
D4-5	52 Clooney Terrace	Urban Centre	N	N (duplicate)	22.9	25.9	28.1
D6-7	5 Glendermott Road	Roadside	Y	N (duplicate)	38.8	**43.5**	**49.6**
D8-9	19 Glendermott Road	Roadside	Y	N (duplicate)	**42.5**	**47.4**	**52.6**
D10-11	4 Ebrington Terrace	Roadside	Y	N (duplicate)	**43.5**	**45.8**	**46.8**
D12-13	12 Ebrington Terrace	Roadside	Y	N (duplicate)	31.9	30.8	30.1
D14-15	9 Columba Terrace	Roadside	Y	N (duplicate)	26.1	36.1	**40.8**
D16-17	17 Melrose Terrace	Roadside	N	N (duplicate)	25.6	28.6	31.1
P1-2	53 Messine Park	Suburban	N	N (duplicate)	16.5	19.2	21.2
P3-4	57 Messine Park	Suburban	N	N (duplicate)	22.4	24.5	26.8
P5-6	8 Maybrook Terrace	Roadside	Y	N (duplicate)	22.0	26.7	28.1
P7-8	19 St Patricks Terrace	Roadside	Y	N (duplicate)	25.2	30.9	37.3
P9-10	1 Collon Terrace	Roadside	Y	N (duplicate)	30.1	36.4	37.0

Site ID	Location	Site Type	In AQMA?	Collocated with a Continuous Analyser (Y/N)	Annual mean (µg/m^3)		
					2014 (Bias Adjustment factor = 0.71)	2015 (Bias Adjustment factor = 0.79)	2016 (Bias Adjustment factor = 0.83)
P11-12	5 Collon Terrace	Roadside	Y	N (duplicate)	35.4	**41.1**	**43.5**
S1-2	99 Strand Road	Roadside	Y	N (duplicate)	30.0	**-**	**-**
S3-4	Rockmills	Roadside	Y	N (duplicate)	26.6	**-**	**-**
S5-6	1 Baronet Street	Roadside	Y	N (duplicate)	24.8	-	-
S7-8	35 Aberfoyle Terrace	Roadside	Y	N (duplicate)	23.2	27.5	29.6
S9-10	1 Rock Terrace	Roadside	Y	N (duplicate)	23.1	-	-
FR1-2	3 Francis Street	Roadside	N	N (duplicate)	25.1	27.1	30.1
FR3-4	45 Francis Street	Roadside	N	N (duplicate)	24.7	27.5	30.8
SP1-2	32 Spencer Road	Roadside	Y	N (duplicate)	32.8	37.2	39.4
SP3-4	48 Spencer Road	Roadside	Y	N (duplicate)	29.8	-	-
SP5-6	70 Spencer Road	Roadside	Y	N (duplicate)	31.7	-	-
HB1-2	3 Harberton Park	Background	N	N (duplicate)	16.0	-	-

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes (2010 to 2016)

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m^3						
			2010 (Bias Adjustment Factor = 0.99)	2011 (Bias Adjustment Factor = 0.90)	2012 (Bias Adjustment Factor = 0.86)	2013 (Bias Adjustment Factor = 0.87)	2014 (Bias Adjustment Factor = 0.71)	2015 (Bias Adjustment Factor = 0.79)	2016 (Bias Adjustment Factor = 0.83)
A1-3	Urban Background	N	20	15.6	19.9	15.3	12.7	15.1	13.4
C1-2	Roadside	Y	**94**	**68.1**	**62.0**	**61.1**	**53.4**	**59.3**	**63.2**
C3-4	Roadside	Y	**48**	34.8	39.2	34.6	28.9	34.4	37.5
C5-6	Urban Background	Y	**54**	**41.5**	**41.8**	39.5	33.7	38.4	37.6
C7-8	Roadside	N	23	26.4	23.3	23.1	18.5	21.2	21.2
C9-10	Roadside	Y	**63**	39.8	**46.3**	**40.5**	34.1	39.0	**43.5**
C11-13	Roadside	Y	-	-	**54.2**	**51.9**	**50.9**	-	-
D1-3	Roadside	N	**44**	33.5	32.8	32.0	26.3	29.7	32.2
D4-5	Urban Centre	N	**41**	28	27.0	29.1	22.9	25.9	28.1
D6-7	Roadside	Y	**71**	**44**	**50.0**	**50.0**	38.8	**43.5**	**49.6**
D8-9	Roadside	Y	-	**50.4**	**53.2**	**55.2**	**42.5**	**47.4**	**52.6**
D10-11	Roadside	Y	**68**	**46.6**	**51.9**	**49.6**	**43.5**	**45.8**	**46.8**
D12-13	Roadside	Y	-	37.6	35.4	**40.7**	31.9	30.8	30.1
D14-15	Roadside	Y	-	31.8	32.6	32.6	26.1	36.1	**40.8**
D16-17	Roadside	N	**41**	32	31.9	33.2	25.6	28.6	31.1
P1-2	Suburban	N	29	21.8	21.4	22.2	16.5	19.2	21.2
P3-4	Suburban	N	**41**	25.8	27.6	27.6	22.4	24.5	26.8
P5-6	Roadside	Y	-	25.2	27.0	28.7	22.0	26.7	28.1
P7-8	Roadside	Y	**51**	32.4	33.0	36.1	25.2	30.9	37.3
P9-10	Roadside	Y	-	37.4	33.7	38.2	30.1	36.4	37.0
P11-12	Roadside	Y	**52**	**45.7**	39.8	**43.7**	35.4	**41.1**	**43.5**
S1-2	Roadside	Y	**52**	39.5	37.3	36.7	30.0	**-**	**-**
S3-4	Roadside	Y	**48**	33.2	30.0	31.7	26.6	**-**	**-**
S5-6	Roadside	Y	-	-	-	30.5	24.8	-	-
S7-8	Roadside	Y	-	-	-	30.3	23.2	27.5	29.6
S9-10	Roadside	Y	-	-	-	31.6	23.1	-	-

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m^3						
			2010 (Bias Adjustment Factor = 0.99)	2011 (Bias Adjustment Factor = 0.90)	2012 (Bias Adjustment Factor = 0.86)	2013 (Bias Adjustment Factor = 0.87)	2014 (Bias Adjustment Factor = 0.71)	2015 (Bias Adjustment Factor = 0.79)	2016 (Bias Adjustment Factor = 0.83)
AB1-2	Roadside	N	**47**	39.2	**40.4**	33.9	-	-	-
AB3-4	Roadside	N	-	-	25.5	20.2	-	-	-
FR1-2	Roadside	N	**42**	26.2	26.5	31.4	25.1	27.1	30.1
FR3-4	Roadside	N	**44**	29.4	26.1	32.7	24.7	27.5	30.8
SP1-2	Roadside	Y	-	-	-	**43.0**	32.8	37.2	39.4
SP3-4	Roadside	Y	-	-	-	39.8	29.8	-	-
SP5-6	Roadside	Y	38.2	38.2	38.2	37.2	31.7	-	-
HB1-2	Background	N	-	-	-	-	16.0	-	-

2.2.2 PM_{10}

The Council monitored PM_{10} at two locations in 2014, 2015 and 2016.

The monitoring data are summarised in Table 2.7 and Table 2.8. Concentrations were below both the annual mean and 24-hour mean objectives at both the Rosemount and Springhill Park sites in all years.

Figure 2.9 shows the trends in annual mean PM_{10} concentrations at both sites. Concentrations at Rosemount show a general downwards trend, while there is no clear trend in the Springhill Park data.

Table 2.7 Results of Automatic Monitoring of PM_{10}: Comparison with Annual Mean Objective

Site Name	Site Type	Within AQMA?	Confirm Gravimetric Equivalent (Y or NA)	Valid Data Capture for monitoring period %[a]			Valid Data Capture % [b]			Annual Mean Concentration mg/m^3					
				2014	2015	2016	2014	2015	2016	2011	2012	2013	2014	2015	2016
Rosemount, Derry (AURN)	Urban Background	N	Y	89	93	90.5	89	93	76	18.6	18.4	14.8	15	16	13
Springhill Park, Strabane	Urban Background	Y	Y	95.7	84.6	96	95.7	84.6	96	18	18	20	17	17	18

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] Means should be "annualised" as in Technical Guidance LAQM.TG16, if monitoring was not carried out for the full year.

Table 2.8 Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour mean Objective

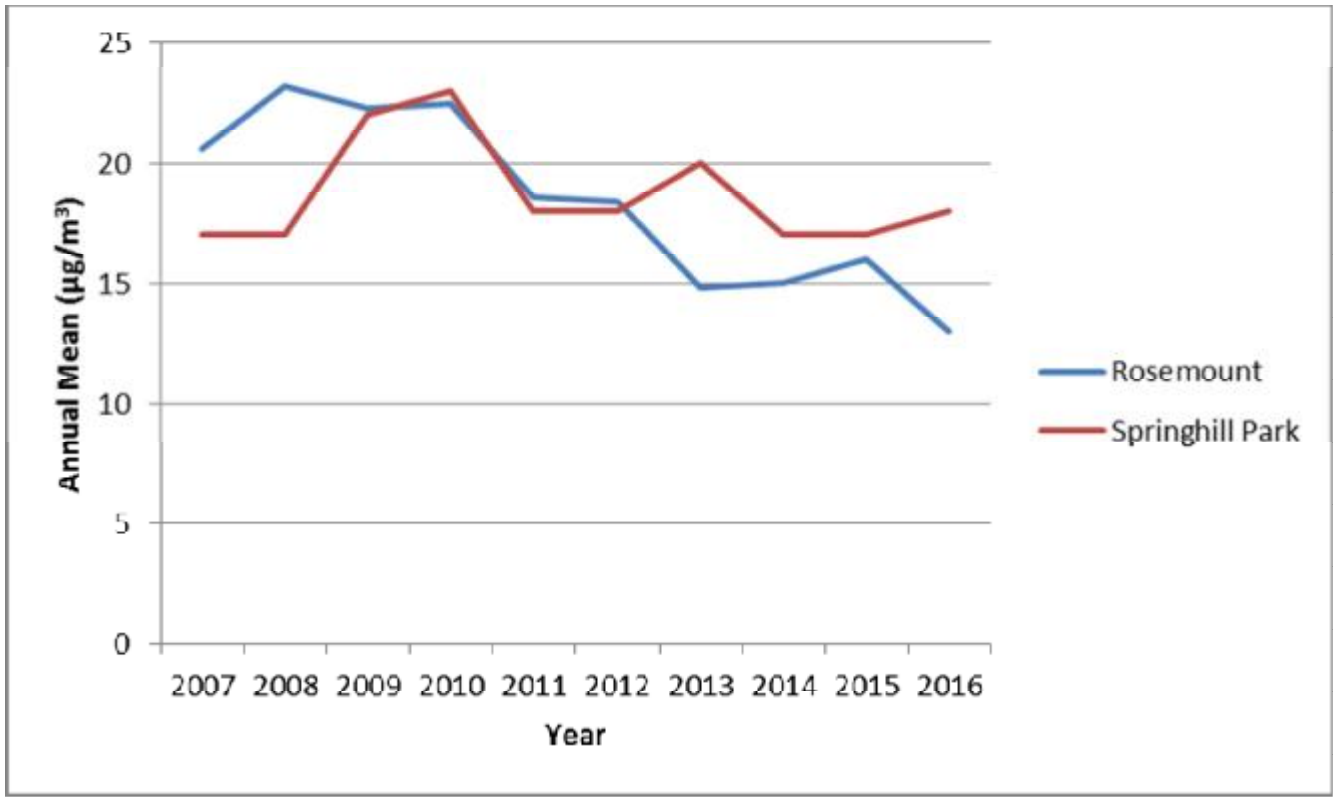
Site Name	Site Type	Within AQMA?	Confirm Gravimetric Equivalent (Y or NA)	Valid Data Capture for monitoring period % [b]			Valid Data Capture % [c]			Number of Exceedences of 24-Hour Mean (50 $\mu g/m^3$) [a]					
				2014	2015	2016	2014	2015	2016	2011	2012	2013	2014	2015	2016
Rosemount, Derry (AURN)	Urban Background	N	Y	89	93	90.5	89	93	76	6	2 (32)	1 (25)	2	1	4
Springhill Park, Strabane	Urban Background	Y	Y	95.7	84.6	96	95.7	84.6	96	5	4	4	2	0	3

[a] if data capture is less than 90%, include the 90th percentile of 24-hour means in brackets

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

[c] 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%).

Figure 2.9 Trends in Annual Mean PM_{10} Concentrations



2.2.3 Sulphur Dioxide

The Council monitored SO_2 at two locations in 2014, 2015 and 2016.

The monitoring data are shown in Table 2.9. There were no exceedences of the objectives at either site in any year.

Table 2.9 Results of Automatic Monitoring of SO_2: Comparison with Annual Mean Objectives

Site Name	Site Type	Within AQMA?	Valid Data Capture for monitoring period %[a]			Valid Data Capture % [b]			Number of Exceedences								
									15-minute Objective (266 µg/m^3)			1-hour Objective (350 µg/m^3)			24-hour Objective (125 µg/m^3)		
			2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Rosemount, Derry (AURN)	Urban Background	N	64	99	90.5	64	99	76	0	0	0	0	0	0	0	0	0
Springhill Park, Strabane	Urban Background	Y	95.6	95.4	95	95.6	95.4	95	0	0	0	0	0	0	0	0	0

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

2.2.4 Benzene

No benzene monitoring takes place within the Derry and Strabane District.

2.2.1 $PM_{2.5}$

$PM_{2.5}$ is measured at the Rosemount (AURN) site. $PM_{2.5}$ objectives have been set out in the UK Air Quality Regulations. Although there is no requirement for local authorities to review and assess $PM_{2.5}$ against these objectives as part of the LAQM regime, results have been reported as recommended by Technical Guidance LAQM.TG16.

The monitoring data are shown in Table 2.10. There were no exceedences of the objectives in any year.

Table 2.10 Results of Automatic Monitoring of $PM_{2.5}$: Comparison with Annual Mean Objective

Site Name	Site Type	Within AQMA?	Valid Data Capture for monitoring period %[a]			Valid Data Capture % [b]			Annual Mean Concentration $\mu g/m^3$		
			2014	2015	2016	2014	2015	2016	2014	2015	2016
Rosemount, Derry (AURN)	Urban Background	N	92	96	90.5	92	96	76	12	12	9

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

2.2.2 Ozone (O_3)

Ozone is measured at the Rosemount (AURN) site. O_3 is a transboundary pollutant; the sources of O_3 are frequently spatially distant from the measured site of the concentrations. This pollutant is not a prescribed air quality objective for LAQM purposes; however, it has been reported as recommended by Technical Guidance LAQM.TG16.

The monitoring data are shown in Table 2.11. There were no exceedences of the objectives in any year.

Table 2.11 Results of Automatic Monitoring of Ozone: Comparison with Annual Mean Objective

Site Name	Site Type	Within AQMA?	Valid Data Capture for monitoring period %[a]			Valid Data Capture % [b]			Number of Exceedences of 8-Hour Running Mean (100 µg/m^3)		
			2014	2015	2016	2014	2015	2016	2014	2015	2016
Rosemount, Derry (AURN)	Urban Background	N	100	99	75	100	99	75	0	4	0

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

2.2.3 Summary of Compliance with AQS Objectives

Derry and Strabane District Council has examined the results from monitoring in the district. Concentrations outside of the AQMAs are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment. The results within the Strand Road AQMA have not exceeded the objective since 2010, and it is therefore recommended that this AQMA is revoked. Consideration should also be given to reducing the extent of the Spencer Road AQMA.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Narrow congested streets were considered in previous assessments.

Derry and Strabane District Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb that have not been adequately considered in previous rounds of Review and Assessment.

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

Busy streets where people may spend 1-hour or more close to traffic were considered in previous assessments.

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

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

Roads with a high flow of buses and/or HGVs were considered in previous assessments.

Derry and Strabane District Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

Junctions were considered in previous assessments.

Derry and Strabane District Council confirms that there are no new/newly identified busy junctions/busy roads.

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

No new roads have been identified.

Derry and Strabane District Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

No roads with significantly changed traffic flows have been identified.

Derry and Strabane District Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Bus and coach stations were considered in previous assessments.

Derry and Strabane District Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Airports were considered in previous assessments.

Derry and Strabane District Council confirms that there are no new airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Stationary trains were considered in previous assessments.

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

4.2.2 Moving Trains

Moving trains were considered in previous assessments.

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

4.3 Ports (Shipping)

Ports and shipping were considered in previous assessments.

Derry and Strabane District Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

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

No new installations have been identified.

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

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

No relevant installations have been identified.

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

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

All installations were considered in previous assessments.

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

5.2 Major Fuel (Petrol) Storage Depots

Major fuel storage depots were considered in previous assessments.

There are major fuel (petrol) storage depots within the Local Authority area, but these have been considered in previous reports.

5.3 Petrol Stations

Petrol stations were considered in previous assessments.

Derry and Strabane District Council confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

No relevant poultry farms have been identified.

Derry and Strabane District Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Six new 99kW boilers and two new 999kW boilers are to be installed at Eglinton Timber on Longfield Industrial Estate, adjacent to City of Derry Airport. An air quality assessment should be requested as part of the planning application process.

Derry and Strabane District Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.2 Biomass Combustion – Combined Impacts

As above, an air quality assessment should be requested as part of the planning application process for the new boilers at Eglinton Timber.

Derry and Strabane District Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.3 Domestic Solid-Fuel Burning

Domestic solid-fuel burning was considered in previous assessments.

Derry and Strabane District Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Fugitive sources were considered in previous assessments.

Derry and Strabane District Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Planning Applications

Derry and Strabane District Council considers all planning applications that are submitted in the district. If any proposed development has the potential to adversely affect air quality in relation to the relevant public exposure criteria, as described in the most recent Technical Guidance LAQM.TG16, the developer is requested to submit an air quality assessment.

The following developments have the potential to adversely affect air quality:

Planning application No. A/2011/0115/F

Development: Extension to quarry including consolidation and deepening of extraction areas and the installation of a wheel-wash, weighbridge and office.

Location: Gortree Quarry, Gortree Road, Gorticross

The Dust Impact Assessment concluded that any nuisance impact would be limited to the immediate vicinity of the activities with dust suppression measures in operation. The potential for nuisance dust impacts on air quality is considered to be low at the nearest sensitive receptors.

Planning application No. J/2011/0433/O

Development: Mixed use development to include an employment park, learning campus, hotel, retail park, petrol filling station, sports centre and riverine wetland park.

Location: Land north of (and including) the River Mourne, east of (and including) the River Foyle and west of the Lifford Road, Strabane

The air quality assessment has shown that any impact of the scheme on local air quality will be negligible. A dust minimisation plan is required for the site and outlines a number of measures that will be implemented.

Planning application No. A/2014/0629/F

Development: Mixed use regeneration of the Arntz Belting Co. Ltd and Eurocentre West site to provide four retail warehouses, a medical building with a semi-basement car park, a superstore, restaurant, petrol filling station and associated car parking.

Location: Pennyburn Industrial Estate, Derry

The air quality assessment has concluded that concentrations of NO_2 and PM_{10} will remain below the air quality objectives.

Planning application No. A/2015/0001/O

Development: A mixed-use development to include creative industries and culture, education and research, museum and heritage, hotel and leisure, commercial office space, residential properties, cafes and restaurants, bars and associated car parking.

Location: Former Ebrington Barracks Site, Ebrington.

An air quality assessment was carried out to assess the impacts on Dales Corner. Exceedences of the annual mean nitrogen dioxide objective were predicted at five receptors locations in the baseline year of 2012, where local monitoring has also shown the objective to be exceeded.

The future year assessments showed that the impacts of the development would range from negligible to slight adverse in 2018, and that all impacts would be negligible in 2028. Furthermore, the objective would not be exceeded at any receptor locations. The impacts of the development would therefore not be significant and no specific mitigation would be required.

Planning application No. A/2015/0057/F

Development: New biomass boiler shed with associated flue and adjoining storage bay for wood-chip fuel pellets.

Location: Longfield Industrial Estate East. Eglinton

An air quality assessment should be requested as part of the planning application process.

Planning application No. LA11/2016/0422/O

Development: New residential development with a local centre (including retail and professional services), open spaces, a new signalised junction and associated landscaping and access works.

Location: Site Bounded by Clooney Road, Crescent Link and Rossdowney Road.

The developer was required to undertake air quality dispersion modelling to assess potential effects in the vicinity of the proposed development and also the potential effects on the AQMA at Dale's Corner 2.4 km away as a proportion of the traffic associated with the scheme would pass through this AQMA. A cumulative assessment, including various other committed residential and commercial developments in the general vicinity, was undertaken.

The air quality assessment concluded that concentrations would be below the relevant air quality objectives at all receptors. Any effect would not be significant and no mitigation as such is required.

Planning application No. LA11/2016/0753/O

Development: Demolition of existing buildings and construction of 85 residential units with off road car parking.

Location: Land at former IAWS site located on Woodside Road, Newbuildings

An assessment of potential air quality impacts due to traffic emissions was undertaken using the DMRB Screening Assessment Tool. The assessment concluded that the development would have no adverse impact on air quality in the vicinity of the site and there will be no significant adverse air quality impact on future residents of the development.

Planning application No. LA11/2016/0045/PAD

Development: Proposed Housing Development.

Location: 66 Culmore Road, Derry

An air quality assessment has not yet been completed for this application.

Planning application No. LA11/2016/0166/PAD

Development: Proposed mixed use development comprising of retail and residential scheme.

Location: Site adjacent to former B & Q site, Buncrana Road, Derry

An air quality assessment has not yet been completed for this application.

Planning application No. LA11/2016/0705/PAD

Development: 14 properties on a site between Skeoge Link Park and Ferndale Road.

Location: Small site between Skeoge Link Park and Ferndale Road, Derry

An air quality assessment has not yet been completed for this application.

Planning application No. LA11/2017/0298/LBC

Development: Refurbishment of Waterside Railway Station.

Location: Waterside Railway Station, Duke Street, Derry

An air quality assessment has not yet been completed for this application.

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

There were no exceedences of any objectives outside the existing AQMA boundaries, or within the Strand Road AQMA.

9.2 Conclusions from Assessment of Sources

No significant changes in emissions sources within the Derry and Strabane District Council area have been identified. No new developments have been identified which would significantly impact on air quality at relevant locations.

9.3 Proposed Actions

As properties in the south west of the Spencer Road AQMA may not be relevant receptors, it is recommended that the extent of the Spencer Road AQMA is reduced to reflect the 2014 Detailed Assessment. It is further recommended that the Strand Road AQMA is revoked as there have been no measured exceedences of air quality objectives over the last six years. The remaining AQMAs are considered appropriate and should remain unchanged.

10 References

AEA Energy & Environment (2008) *Technical Guidance: Screening assessment for biomass boilers,* ED48673005/R2655, Issue Number 1.

Defra (2007*) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland*, Defra.

Defra (2016) *Review & Assessment: Technical Guidance LAQM.TG16*, Defra.

The Environment (Northern Ireland) Order 2002, Statutory Instrument 3153 (2002), HMSO.

11 Appendices

Appendix A: QA/QC Data

Factor from Local Co-location Studies

Two local co-location studies have been undertaken at the Rosemount AURN and Dale's Corner automatic sites. Local bias adjustment factors of 0.71, 0.79 and 0.83 have been calculated for the years 2014, 2015 and 2016 respectively, as shown in Table A.1.

Table A.1 Local Bias Adjustment Factors

	2014	2015	2016
Rosemount AURN	0.81	0.77	0.72
Dale's Corner	0.63	0.80	0.99
Overall Factor [a]	0.71	0.79	0.83

[a] The overall factor has been calculated using the methodology outlined in paragraph 7.192 of Technical Guidance LAQM.TG16

Diffusion Tube Bias Adjustment Factors

The diffusion tubes are supplied and analysed by Environmental Scientifics Group (ESG) Glasgow utilising the 50% triethanolamine (TEA) in acetone preparation method. Bias adjustment factors of 0.76, 0.78 and 0.78 for the years 2014, 2015 and 2016 respectively (based on one – Marylebone Road -study) have been obtained from the national bias adjustment calculator[1].

Discussion of Choice of Factor to Use

The Technical Guidance LAQM.TG16 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tubes. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data from NOx / NO_2 continuous analysers. Alternatively, the national database[1] of diffusion tube co-location surveys provides bias adjustment factors for the relevant laboratory and preparation method.

[1] National Diffusion Tube Bias Adjustment Factor Spreadsheet, version 03/17, published in March 2017.

Local bias adjustment factors have been used because this approach has been taken since 2008 and the national bias adjustment factors were calculated using only one study, Marylebone Road, which is not applicable to conditions in Derry and Strabane.

PM Monitoring Adjustment

No adjustment to the PM monitoring data was required.

QA/QC of Automatic Monitoring

The sites are managed to the UK Automatic Urban and Rural Network (AURN) QA procedures and standard.

Ricardo E&E undertakes the Quality Assurance/Quality Control (QA/QC) procedures at the three monitoring sites, ensuring that measurements from the analysers are as accurate as possible.

Manual calibration of automatic monitors is undertaken every two weeks by the Council's officers. This allows the instrument drifts to be fully quantified and documented using traceable calibration gas standards and the results are used to scale data.

The analysers are checked and serviced every six months by the appointed equipment support contractors. The reports are then sent to Ricardo E&E.

QA/QC of Diffusion Tube Monitoring

ESG Glasgow has participated in the AIR NO_2 PT scheme since it started in April 2014, and participated in the Workplace Analysis Scheme for Proficiency (WASP) for NO_2 diffusion tube analysis prior to this. These schemes provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. AIR is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT is a new scheme, started in April 2014, which combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL WASP PT scheme. AIR offers a number of test samples designed to test the proficiency of

laboratories undertaking analysis of chemical pollutants in ambient indoor, stack and workplace air. One such sample is the AIR NO_2 test sample type that is distributed to participants in a quarterly basis. AIR NO_2 PT forms an integral part of the UK NO_2 Network's QA/QC. The scores achieved by ESG Glasgow are shown in Table A.2. The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$.

Table A.2 Summary of Performance in WASP NO2 PT Round 124 and AIR NO2 PT Rounds AR001 to AR016

Round	WASP R124	AIR PT AR001	AIR PT AR003	AIR PT AR004	AIR PT AR006	AIR PT AR007	AIR PT AR009	AIR PT AR010	AIR PT AR012	AIR PT AR013	AIR PT AR015	AIR PT AR016
Period	January – March 2014	April – May 2014	July – August 2014	October – November 2014	January – February 2015	April – May 2015	July – August 2015	October – November 2015	January – February 2016	April – May 2016	July – August 2016	September – October 2016
Score	100%	100%	100%	100%	100%	100%	100%	100%	75%	100%	0%	100%