



## 2013 Air Quality Progress Report for *North Lanarkshire Council*

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

Date (November, 2013)



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## Executive Summary

The Annual Progress Report summarises monitoring data from 2012 and considers any new or modified emissions sources which may have an adverse effect on local air quality.

The summarised report findings are as follows:

- Measured PM<sub>10</sub> concentrations at monitoring sites in 2012 had fallen since 2011 and are now below NAQS objectives at all sites, although data capture rates are low.
- Measured annual mean NO<sub>2</sub> concentrations measured at all automatic monitoring locations have similarly fallen, and are below the NO<sub>2</sub> annual mean objective.

The results indicate that the overall trends in measured annual mean NO<sub>2</sub> concentrations are:

- No overall trends in measured concentrations at Urban Background sites between 2011 and 2012;
- Decreases in measured concentrations at Kerbside sites between 2011 and 2012; and
- Decreases in measured concentrations at Roadside sites between 2011 and 2012.

Measured annual mean NO<sub>2</sub> concentrations in excess of the objective were recorded at five diffusion tube monitoring locations. These can be summarised within the following areas:

- Coatbridge, at Bargeddie (107), Carnbroe (109) and Kirkshaws Road (119). All sites are located within 50 m of the edge of the A8, between Ballieston and Eurocentral; and
- Cumbernauld, at diffusion tubes located under the bridge over Central Way (61) and on the westbound carriageway on Central Way (62) measured exceedences of the annual mean NO<sub>2</sub> objective.

Exceedences at Cumbernauld are addressed by the use of the “NO<sub>2</sub> fall-off with distance” calculator and the three remaining sites at Coatbridge will need to be considered in the 2013 Detailed Assessment of the wider Airdrie-Coatbridge area looking at potential exceedances of both NO<sub>2</sub> and PM<sub>10</sub>.

**Tabulated results of exceeding diffusion tubes and proposed action**

<b>Diffusion Tube Site ID</b>	<b>2012 Annual Mean (µg/m<sup>3</sup>)</b>	<b>Corrected for Drop Off 2012 Annual Mean (µg/m<sup>3</sup>)</b>	<b>Proposed Action</b>
107	<b>40.9</b>	N/A	To be included in Detailed Assessment of Airdrie-Coatbridge area
109B	<b>50.1</b>	N/A	To be included in Detailed Assessment of Airdrie-Coatbridge area
119	<b>41.5</b>	N/A	To be included in Detailed Assessment of Airdrie-Coatbridge area
61	<b>47.2</b>	35.4	Continued monitoring
62	<b>40.8</b>	31.4	Continued monitoring

The following actions are proposed by the Council in 2013-14, in response to the analysis of local monitoring data:

- The AQMA in Moodiesburn will be revoked on the basis of the reduction in measured concentration since the by-pass road was opened; and
- A Detailed Assessment of Airdrie-Coatbridge will be conducted for NO<sub>2</sub> and PM<sub>10</sub>, to include all monitoring locations that exceed annual mean objectives and assess the need to include PM<sub>10</sub> in any existing AQMA declarations, and be submitted by March 2014.



# Table of Contents

<b>1</b>	<b>Introduction</b>	<b>6</b>
1.1	Description of Local Authority Area	6
1.2	Purpose of Progress Report	7
1.3	Air Quality Objectives	7
1.4	Summary of Previous Review and Assessments	9
<b>2</b>	<b>New Monitoring Data</b>	<b>18</b>
2.1	Summary of Monitoring Undertaken	18
2.2	Comparison of Monitoring Results with Air Quality Objective	30
<b>3</b>	<b>New Local Developments</b>	<b>57</b>
3.1	Road Traffic Sources	57
3.2	Other Transport Sources	57
3.3	Industrial Sources	57
3.4	Commercial and Domestic Sources	58
3.5	New Developments with Fugitive or Uncontrolled Sources	58
<b>4</b>	<b>Local / Regional Air Quality Strategy</b>	<b>59</b>
<b>5</b>	<b>Planning Applications</b>	<b>60</b>
<b>6</b>	<b>Air Quality Planning Policies</b>	<b>61</b>
<b>7</b>	<b>Local Transport Plans and Strategies</b>	<b>62</b>
<b>8</b>	<b>Implementation of Action Plans</b>	<b>63</b>
<b>9</b>	<b>Conclusions and Proposed Actions</b>	<b>64</b>
9.1	Conclusions from New Monitoring Data	64
9.2	Conclusions relating to New Local Developments	65
9.3	Proposed Actions	65

## List of Tables

Table 1.1:	Air Quality Objectives included in Regulations for the purpose of LAQM in Scotland	8
Table 1.2:	Summary of previous reviews and assessments	9
Table 2.1:	Details of Automatic Monitoring Sites	19
Table 2.2:	Details of Non- Automatic Monitoring Sites	21
Table 2.3:	Results of Automatic Monitoring for NO <sub>2</sub> : Comparison with Annual Mean Objective	31

Table 2.4: Results of Automatic Monitoring for NO <sub>2</sub> : Comparison with 1-hour Mean Objective	33
Table 2.5: Results of NO <sub>2</sub> Diffusion Tubes 2012	35
Table 2.6: Results of NO <sub>2</sub> Diffusion Tubes (2008 to 2012)	41
Table 2.7: Results of NO <sub>2</sub> drop off correction.	49
Table 2.8: Results of Automatic Monitoring for PM <sub>10</sub> : Comparison with Annual Mean Objective	50
Table 2.9: Results of Automatic Monitoring for PM <sub>10</sub> : Comparison with 24-hour Mean Objective	52
Table 2.10: Results of Automatic Monitoring for SO <sub>2</sub> : Comparison with Objectives	54
Table 2.11: CO Automatic Monitoring: Comparison with running 8 hour mean Objective	55
Table 3.1: New PPC installations identified in North Lanarkshire	57
Table 9.1: Tabulated results of exceeding diffusion tubes and proposed action	64

## **List of Figures**

Figure 1.1 Map of Whifflett AQMA Boundary	13
Figure 1.2 Map of Motherwell AQMA Boundary	14
Figure 1.3 Map of Chapelhall AQMA Boundary	15
Figure 1.4 Map of Moodiesburn AQMA Boundary	16
Figure 1.5 Map of Croy AQMA Boundary	17
Figure 2.1 Trends in Annual Mean NO <sub>2</sub> Concentrations Measured at Automatic Monitoring Sites	32
Figure 2.2 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Urban Background Diffusion Tube Monitoring Sites	45
Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Roadside Diffusion Tube Monitoring Sites	46
Figure 2.4 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Kerbside Diffusion Tube Monitoring Sites	47

## **Appendices**

Appendix A	Quality Assurance / Quality Control (QA/QC) Data
Appendix B	Monitoring Location Maps

# **1 Introduction**

## **1.1 Description of Local Authority Area**

North Lanarkshire is located in the central belt of Scotland and is Scotland's fourth largest (by population) local authority. Due to its geographic location many of Scotland's trunk roads pass through it, including the M8/A8, M74, M73 and M80/A80. There is substantial cross-boundary travel with neighbouring local authorities (particularly Glasgow, South Lanarkshire, Falkirk and West Lothian) for employment, education and leisure activities.

North Lanarkshire can be divided into three general areas; the North, the Rural East and the Urban West. The north covers the A80 corridor, the Kelvin Valley and Kilsyth Hills. The M80/A80 is the main route in this area connecting Glasgow to Stirling and the north of Scotland. The main centre of population in the north is Cumbernauld, whilst there are several large villages on the M80/A80 corridor closer to the Glasgow boundary. Croy and Kilsyth lie to the north of Cumbernauld at the foot of the Kilsyth Hills.

The eastern area of North Lanarkshire is mainly rural and is transected by the M8 motorway. There are a number of small towns and villages in this area including Caldercruix, Shotts and Harthill.

The western area of North Lanarkshire is a more densely populated urbanised area and can be considered as two areas, north and south of the M8 motorway. To the south of the motorway are the towns of Bellshill, Motherwell and Wishaw, as well as a number of satellite villages to each town. The Ravenscraig regeneration area is situated between Motherwell and Wishaw. To the north of the motorway are the towns of Coatbridge and Airdrie. The M73 and M74 motorways form the western and southern boundaries between North Lanarkshire, Glasgow and South Lanarkshire.

North Lanarkshire has traditionally been associated with heavy industry, particularly the urbanised western area. The level of heavy industry has declined over the last two decades, with the economy of North Lanarkshire now a mixture of commerce and light industry, focussed around the western urban area and Cumbernauld.

## 1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The Local Air Quality Management (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 **Scotland** are set out in the Air Quality (Scotland) Regulations 2000 (Scottish SI 2000 No 97), the Air Quality (Scotland) (Amendment) Regulations 2002 (Scottish SI 2002 No 297), and are shown in **Table 1.1**. This table shows the objectives in units of micrograms per cubic metre  $\mu\text{g}/\text{m}^3$  (milligrams per cubic metre,  $\text{mg}/\text{m}^3$  for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

**Table 1.1: Air Quality Objectives included in Regulations for the purpose of LAQM in Scotland**

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	3.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10 $\text{mg}/\text{m}^3$	Running 8-hour mean	31.12.2003
Lead	0.50 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particulate Matter (PM <sub>10</sub> ) (gravimetric)	50 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	18 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## 1.4 Summary of Previous Review and Assessments

**Table 1.2: Summary of previous reviews and assessments**

<b>Review / Assessment</b>	<b>Year</b>	<b>Outcome</b>
Updating & Screening Assessment	2006	Potential exceedences of NAQS NO <sub>2</sub> and PM <sub>10</sub> objectives identified at various locations.
Compilation of emissions inventory	2007	Recommended: Whifflet, Coatbridge AQMA for PM <sub>10</sub> should be maintained and that AQMA for NO <sub>2</sub> be declared with the same boundaries. AQMA boundary for PM <sub>10</sub> at Chapelhall should be maintained and consideration should be given to extending the AQMA to along Lauchope Street, and Main Street beyond the Main Street and Bellside Road junction. AQMA boundary for PM <sub>10</sub> in Motherwell should be maintained the Council should consider extending the boundary of the AQMA to include the south of the town centre.
LAQM Action Plan	2007	Identified and appraised a number of potential measures that could be undertaken to improve air quality both across the North Lanarkshire area and in the areas contained by each AQMA.
Progress Report	2007	Five locations were identified where potential exceedences of the NAQS 2010 PM <sub>10</sub> annual mean objective may occur. Recommended that monitoring data from a full year at Croy should be analysed prior to deciding if a Detailed Assessment is required at this location
Further Assessment – Harthill	2008	Concluded that there was a risk of exceeding the 2010 PM <sub>10</sub> annual mean objective at Harthill and that the boundary of the proposed AQMA was valid and should remain unchanged.
Progress Report	2008	Potential exceedences of NAQS NO <sub>2</sub> and PM <sub>10</sub> objectives identified at various locations. Report recommended that the Council consider declaring an AQMA at Moodiesburn and locations within 100m of the M8.

Review / Assessment	Year	Outcome
Detailed assessment of PM <sub>10</sub> emissions – Croy	2008	Concluded that it was likely that the PM <sub>10</sub> objectives will be exceeded across the village and that there may be grounds to declare an AQMA for PM <sub>10</sub> in Croy. Also recommended a number of steps that could be taken to improve the understanding of PM <sub>10</sub> concentrations around Croy
Detailed assessment of NO <sub>2</sub> and PM <sub>10</sub> emissions at Moodiesburn	2008	The study indicated that the annual mean air quality objectives for NO <sub>2</sub> and PM <sub>10</sub> are likely to be exceeded at residential properties located close to the A80 and recommended further monitoring of NO <sub>2</sub> and PM <sub>10</sub>
Updating and Screening Assessment	2009	It was proposed to undertake a Detailed Assessment of NO <sub>2</sub> concentration at Auchenkilns and a Detailed Assessment of NO <sub>2</sub> concentration at New Edinburgh Road along with further monitoring using diffusion tubes.
Progress Report	2010	It was proposed that a Detailed Assessment be conducted to support the decision process with respect to potentially revoking the existing AQMA.

Review / Assessment	Year	Outcome
Progress Report	2011	<p>Measured concentrations at diffusion tubes 107,108,109 and 119 continue to exceed the annual mean objective; these tubes are located at receptors close to the A8.</p> <p>Measured concentrations at diffusion tubes 138 and 139 were above the annual mean NO<sub>2</sub> objective and are located within the Chapelhall AQMA for the annual mean PM<sub>10</sub> objective. It is the intention of the Council to continue monitoring and give consideration to amend this AQMA to include the annual mean NO<sub>2</sub> objective.</p> <p>Measured Concentrations at diffusion tubes 110 and 112 are located at receptors close to the M74 and New Edinburgh Road and indicate that the annual mean objective may be exceeded at receptors close to the M74. The Council intend to proceed to a Detailed Assessment for NO<sub>2</sub> and PM<sub>10</sub> at this location.</p> <p>Measured concentrations at diffusion tube 117 were above the annual mean objective. This tube is located within the Motherwell AQMA for PM<sub>10</sub>. However this is the only diffusion tube within the AQMA that was above the NO<sub>2</sub> annual mean objective. The Council intend to continue monitoring at this location.</p>
Harthill Further Assessment	2011	Revocation of AQMA



Review / Assessment	Year	Outcome
Updating and Screening Assessment	2012	<p>Measured PM<sub>10</sub> concentrations in the Chapelhall and Motherwell AQMAs remain above objective levels and as such the AQMA designations remain valid. Exceedences of the NO<sub>2</sub> annual mean objective were also measured in both areas.</p> <p>Measured PM<sub>10</sub> concentrations in Coatbridge indicate that the concentrations in Whifflett have fallen below objective levels, however both PM<sub>10</sub> and NO<sub>2</sub> concentrations at Shawhead, and NO<sub>2</sub> concentrations at Kirkshaws are in excess of objective levels. Amendment of the Whifflett AQMA boundaries may, therefore be required.</p> <p>Since the opening of the A80 Moodiesburn Bypass ambient PM<sub>10</sub> and NO<sub>2</sub> concentrations have fallen below NAQS objective levels. The AQMA can, therefore be revoked.</p> <p>Measured NO<sub>2</sub> concentrations at Bank Street and Sunnyside Street remain above objective levels. Further automatic monitoring is proposed at this location in a more representative location.</p> <p>Potential exceedence of NO<sub>2</sub> (and PM<sub>10</sub>) objectives has been identified in the A73 corridor in Airdrie. A Detailed Assessment is proposed.</p>

Figure 1.1 Map of Whifflett AQMA Boundary

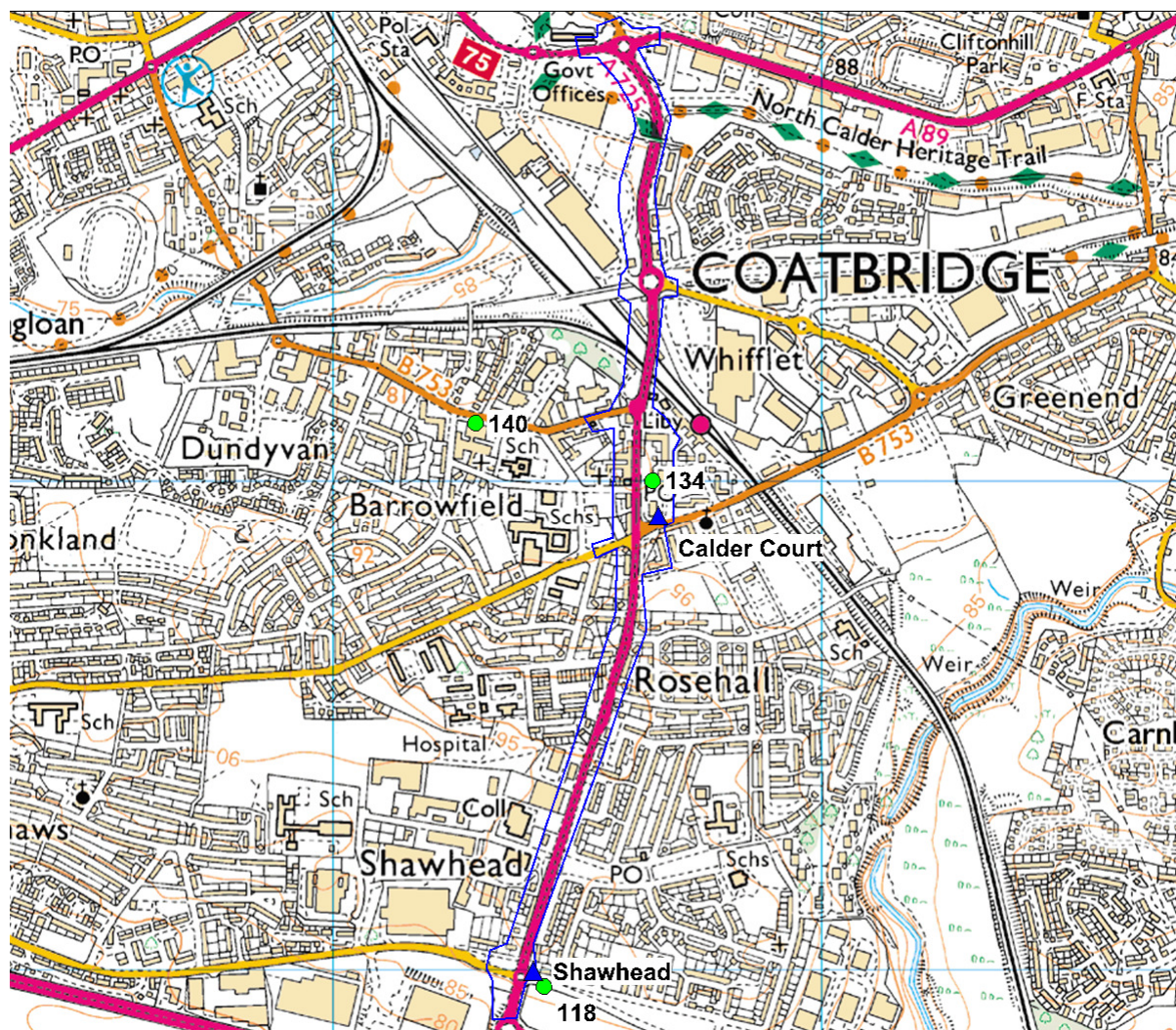


Figure 1.2 Map of Motherwell AQMA Boundary

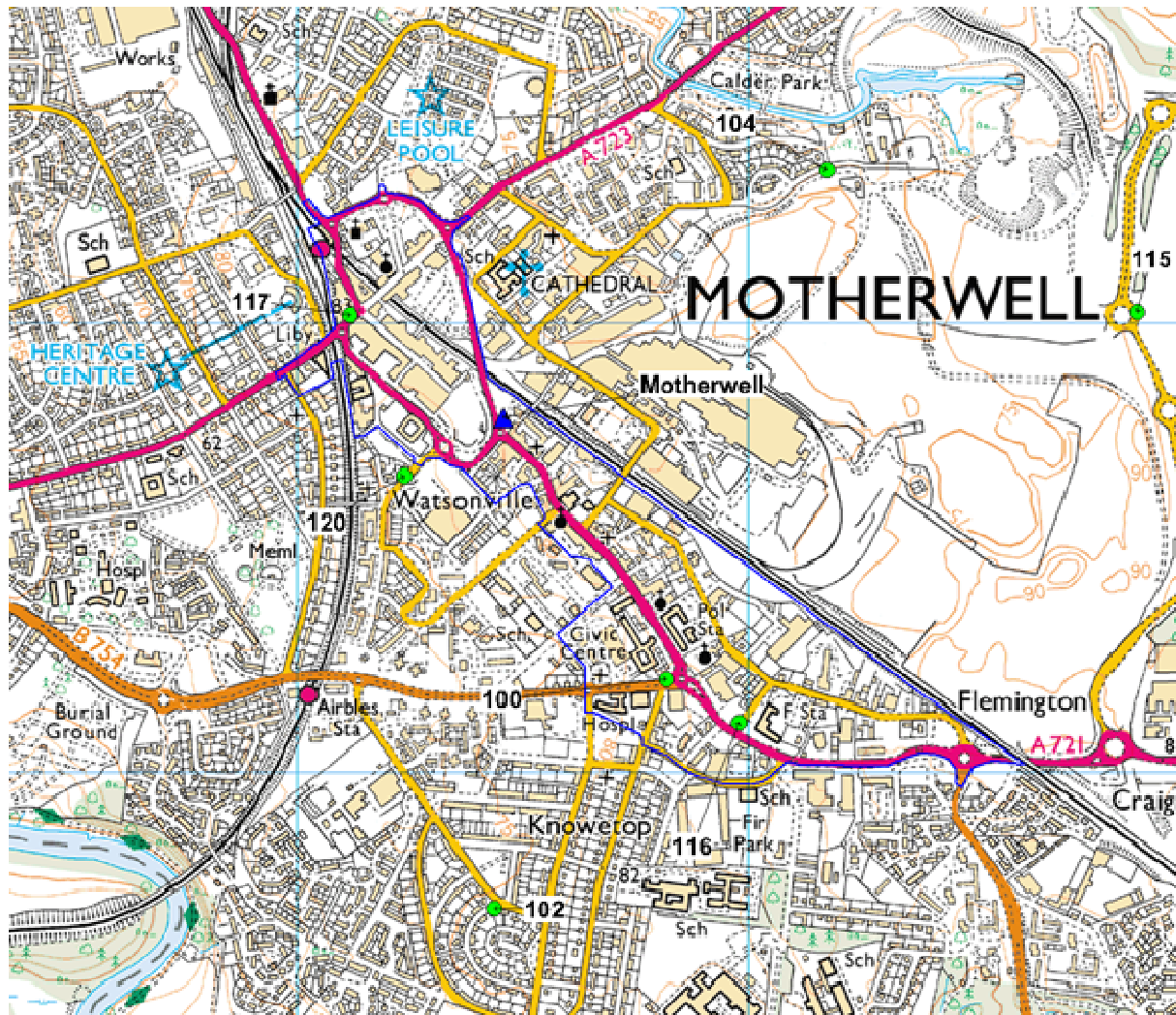




Figure 1.3 Map of Chapelhall AQMA Boundary



Figure 1.4 Map of Moodiesburn AQMA Boundary

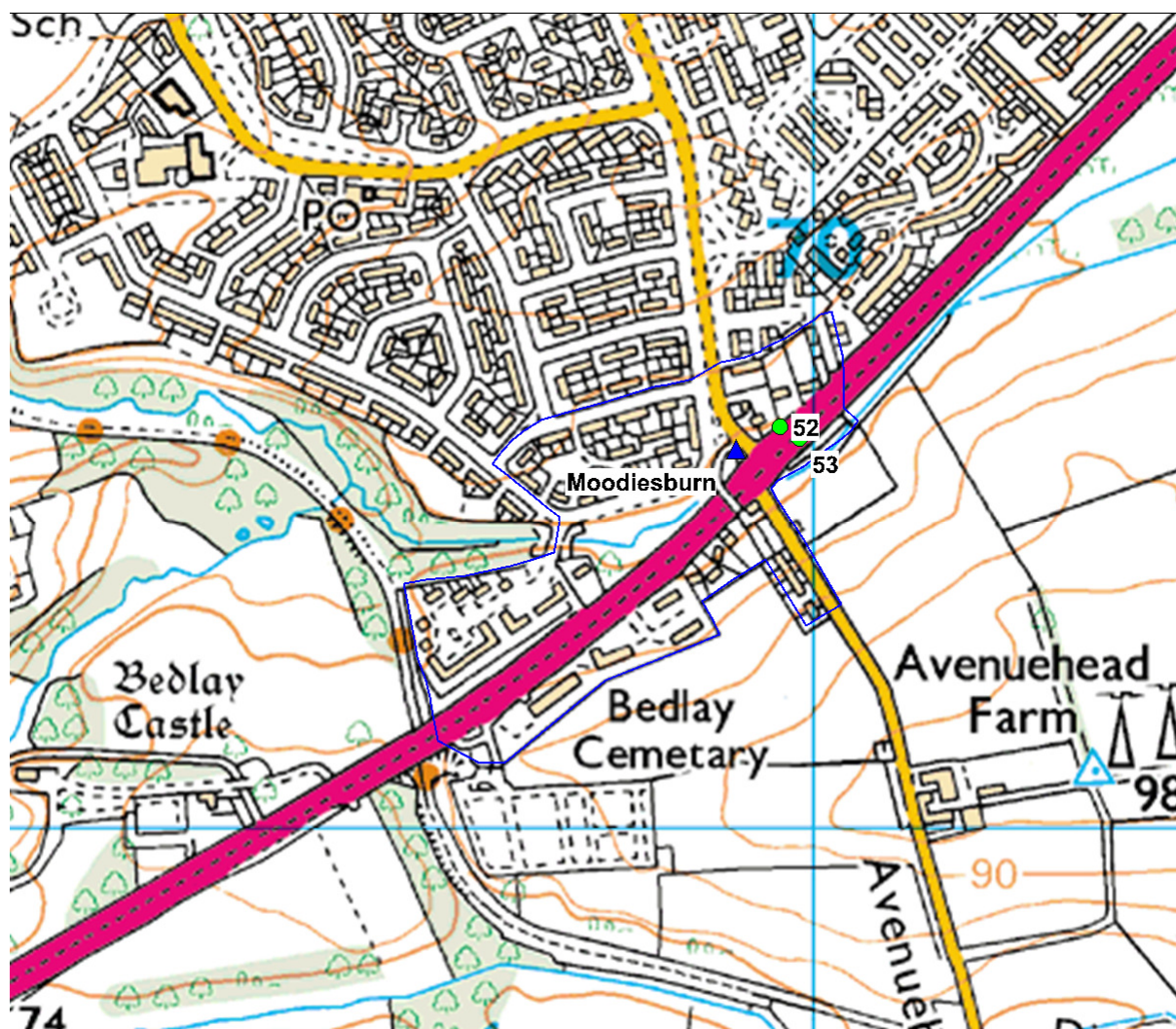
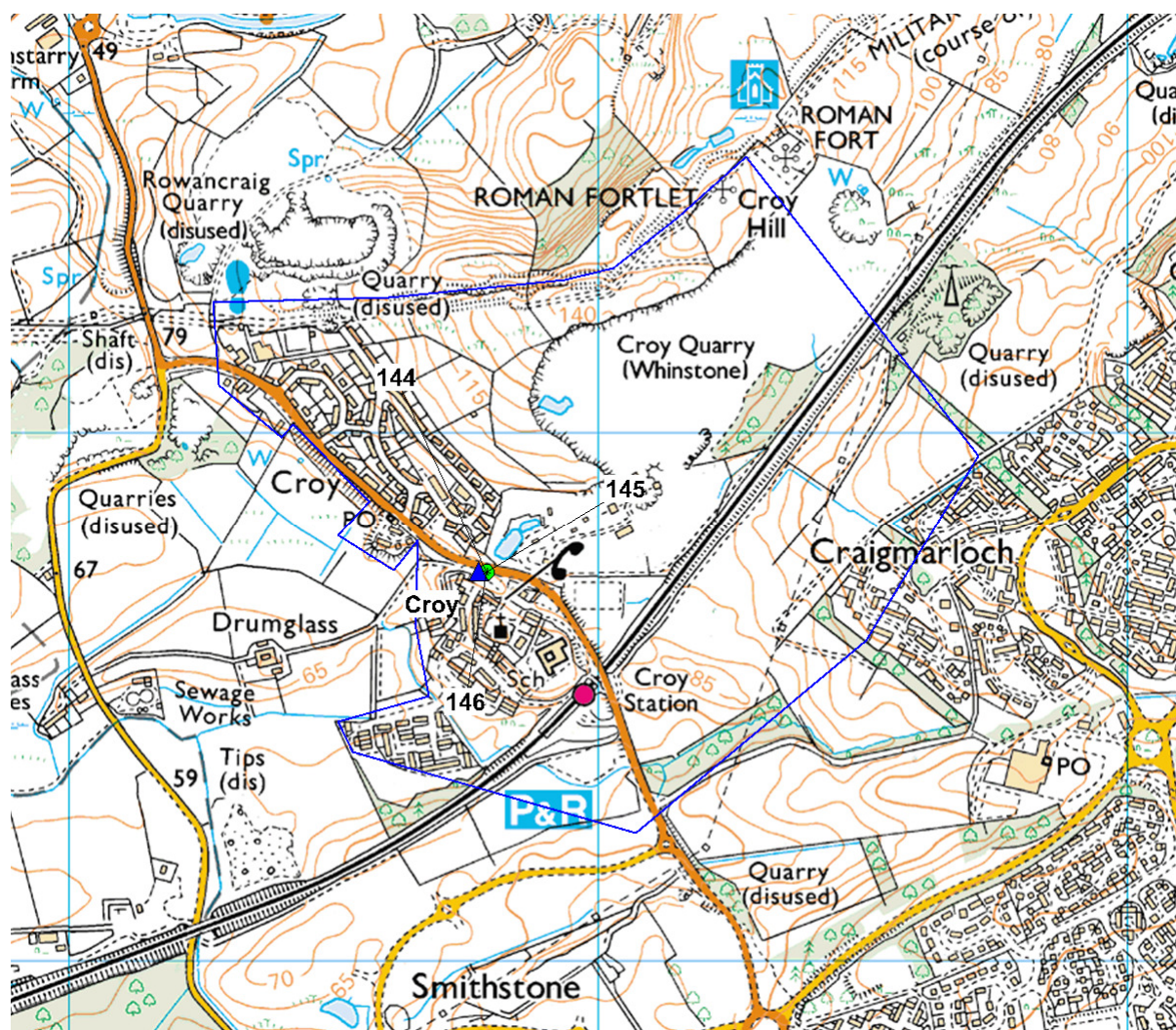




Figure 1.5 Map of Croy AQMA Boundary



## 2 New Monitoring Data

During 2012 the Council monitored ambient PM<sub>10</sub> and NO<sub>2</sub> concentrations at several locations throughout the Council area using both automatic and passive sampling methods.

All automatic monitoring NO<sub>2</sub> and PM<sub>10</sub> data have been fully ratified by AEA Technology on behalf of the Scottish Government. Diffusion tube data have been corrected using the Glasgow Scientific Services laboratory bias correction factor. Details of the quality control and data correction processes carried out are reported in Appendix A.

### 2.1 Summary of Monitoring Undertaken

#### 2.1.1 Automatic Monitoring Sites

North Lanarkshire Council currently conduct automatic monitoring at eight locations. An inventory of the monitoring sites and the pollutants measured are presented in **Table 2.1**. Maps annotating the locations of the automatic sites are included in Appendix B.

The automatic monitoring results for NO<sub>2</sub> and PM<sub>10</sub> are presented in **Tables 2.3, 2.4, 2.8 & 2.9**.

Table 2.1: Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Pollutants Monitored	In AQMA?	Monitoring Technique	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?
CM1	Chapelhall	Roadside	278174	663124	NO <sub>2</sub> , PM <sub>10</sub>	Yes (PM <sub>10</sub> )	Chemiluminescence, TEOM	Y (20m)	5m	No
CM2	Croy	Special – By Quarry	272775	675738	NO <sub>2</sub> , PM <sub>10</sub> , SO <sub>2</sub>	Yes (PM <sub>10</sub> )	Chemiluminescence, TEOM	Y (30m)	10m	No
CM3	Coatbridge Whifflet	Urban Background	273674	663927	PM <sub>10</sub>	Yes (PM <sub>10</sub> )	TEOM	N (20m)	30m	No
CM4	Cumbernauld	Roadside	274240	674158	NO <sub>2</sub> , PM <sub>10</sub> , SO <sub>2</sub>	No	TEOM	Y (50m)	2m, 50m to A80	No
CM5	Motherwell	Roadside	275458	656792	PM <sub>10</sub>	Yes (PM <sub>10</sub> )	TEOM	Y (20m)	10m	No
CM6	Moodiesburn	Roadside	269921	670389	NO <sub>2</sub> , PM <sub>10</sub>	Yes (PM <sub>10</sub> )	Chemiluminescence, BAM	N (50m)	5m	No
CM7	Shawhead Coatbridge	Roadside	273411	662997	NO <sub>2</sub> , PM <sub>10</sub>	No	Chemiluminescence, BAM	Y (22m)	9m	Yes
<b>Ceased operation on 1/07/2012</b>	New Edinburgh Road	Roadside	269152	661491	NO <sub>2</sub>	No	Chemiluminescence	Y (30m)	10m	No



### 2.1.2 Non-Automatic Monitoring Sites

North Lanarkshire Council operates a network of seventy five NO<sub>2</sub> diffusion tube sites, located across the council area. The monitoring sites represent public exposure and areas of high pollution concentrations at a variety of kerbside, roadside and urban background locations. The site details are presented in **Table 2.2**.

The NO<sub>2</sub> concentrations measured within the Council area since the 2012 Updating and Screening Assessment are presented in **Table 2.5**

The Quality Assurance/Quality Control (QA/QC) procedures followed by the Council and the laboratory and details of the bias correction factors used are presented in Appendix A. Maps annotating the locations of the diffusion tube sites are included in Appendix B.

Table 2.2: Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	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?
100	Civic Centre, Motherwell	Roadside	275820	656208	NO <sub>2</sub>	Yes (PM <sub>10</sub> )	N	Y 10m (hospital)	2m	Y
101	Shields Road, Motherwell	Roadside	276594	655113	NO <sub>2</sub>	No	N	Y 15m	2m	Y
102	Emily Drive, Motherwell	Urban Background	275437	655696	NO <sub>2</sub>	No	N	Y 15m	2m	N
103	Kethers Lane, Motherwell	Urban Background	273986	656985	NO <sub>2</sub>	No	N	Y 10m	2m	N
104	Coursington Road, Motherwell	Urban Background	276178	657344	NO <sub>2</sub>	No	N	Y 20m	2m	N
105	Craigneuk Road, Carfin	Urban Background	277244	658415	NO <sub>2</sub>	No	N	Y 10m	2m	N
106	Camp Street, Motherwell	Urban Background	275654	656342	NO <sub>2</sub>	Yes (PM <sub>10</sub> )	N	Y 10m	2m	N
107	Braehead Farm, Bargeddie	Roadside	270929	663464	NO <sub>2</sub>	No	N	N	50m to A8	Y
108	Shawhead, MSA Factory	Roadside	273830	662676	NO <sub>2</sub>	No	N	N	50m to A8	Y
109B	Carnboe Landfill, A8 East	Roadside	274274	662961	NO <sub>2</sub>	No	N	Y 0m	10m	Y

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<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
110	New Edinburgh Road (1), M74 Uddingston	Roadside	272789	675735	NO <sub>2</sub>	No	N	Y 30m to 40m to nearest house	2m to Hamilton Road 30m M74	Y
111	New Edinburgh Road (2), M74 Uddingston	Roadside	272789	675735	NO <sub>2</sub>	No	N	Y 15m	2m	Y
112	New Edinburgh Road (3), M74 Uddingston	Roadside	272789	675735	NO <sub>2</sub>	No	N	Y 10m	2m	Y
113	Tinkers Lane, Motherwell	Roadside	274305	656466	NO <sub>2</sub>	No	N	Y 20m	2m	Y
114	Main Street, Overtown	Roadside	280370	653072	NO <sub>2</sub>	No	N	Y 15m	2m	Y
115	Ravenscraig By-Pass	Urban Background	276868	657027	NO <sub>2</sub>	No	N	N	2m	N
116	Delburn Street, Motherwell	Urban Background	275981	656111	NO <sub>2</sub>	Yes (PM <sub>10</sub> )	N	Y 80m	2m	Y
117	Hamilton Road Motherwell	Roadside	275091	656968	NO <sub>2</sub>	No	N	Y 20m (house)	2m	Y

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<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
118	Shawhead roundabout, Coatbridge	Roadside	273432	662965	NO <sub>2</sub>	No	N	Y 50m	2m	Y
119	Kirkshaws Road, Coatbridge	Roadside	271939	663179	NO <sub>2</sub>	No	N	Y 25m	2m	N
120	Watsonville, Motherwell	Urban Background	275237	656662	NO <sub>2</sub>	Yes (PM <sub>10</sub> )	N	Y 10m	2m	Y
121	Flannigan Grove, Bellshill	Roadside	273180	660350	NO <sub>2</sub>	No	N	Y 30m	30m	Y
122	Main Street, Mossend	Roadside	274082	660308	NO <sub>2</sub>	No	N	Y 50m	2m	Y
123	Hamilton Road, Orbiston, Bellshill	Roadside	272687	659512	NO <sub>2</sub>	No	N	Y 20m	2m	N
124	Scotmid, Tannochside	Roadside	270073	661870	NO <sub>2</sub>	No	N	Y 20m	2m	N
125	Main Street, Near Bellshill Academy	Roadside	273767	660281	NO <sub>2</sub>	No	N	Y 5m	5m	Y
126	Main Street, Near/at Motherwell Rd Junction	Roadside	273133	660117	NO <sub>2</sub>	No	N	Y 20m	5m	N

**North Lanarkshire Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
127	Main Street, near/at Tesco delivery road	Roadside	273541	660339	NO <sub>2</sub>	No	N	Y 1m	2m	Y
128	Matalan, Wishaw	Roadside	278059	655368	NO <sub>2</sub>	No	N	Y 10m	2m	Y
129	Newmains Police Station	Roadside	282392	656016	NO <sub>2</sub>	No	N	Y 7m	2m	Y
130	Main Street (Bottom), Wishaw	Roadside	279118	655327	NO <sub>2</sub>	No	N	Y 5m	2m	Y
133	Coatbridge 1, Bank Street	Roadside	272887	664991	NO <sub>2</sub>	No	N	Y 2m	2m	Y
134	Coatbridge 2, Whifflet Court	Roadside	273655	664003	NO <sub>2</sub>	No	N	Y 10m	20 m	N
135	Grahamshill Street, Airdrie	Roadside	277276	665615	NO <sub>2</sub>	No	N	N	2m	Y
136	Airdrie 3, Springwells Crescent	Roadside	277162	665650	NO <sub>2</sub>	No	N	Y 10m	2m	N
137	Auchenkilns, Cumbernauld	Roadside	274164	674130	NO <sub>2</sub>	No	N	Y 30m	2m	Y
138	Chapellhall Main street, (Near shops)	Roadside	278037	662798	NO <sub>2</sub>	Yes (PM <sub>10</sub> )	N	Y 10m	2m	Y
139	Lauchope Street, Chapelhall Junction	Roadside	278178	663111	NO <sub>2</sub>	Yes (PM <sub>10</sub> )	N	Y 10m	2m	Y

**North Lanarkshire Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
140	Coatbridge, Dundy Van Rd	Roadside	273293	664120	NO <sub>2</sub>	No	N	Y 5m	1m	Y
141	Harthill Main Street(1), (Near shops)	Roadside	290652	664493	NO <sub>2</sub>	No	N	Y 10m	2m	Y
142	Salsburgh, (house number 337), R15.	Roadside	283850	663082	NO <sub>2</sub>	No	N	Y 15m	30m	N
143	Harthill Main Street(2), (Near shops)	Roadside	290482	664386	NO <sub>2</sub>	No	N	Y 10m	2m	Y
144	Lab 1 Constarry Road, Croy 1	Co - Location	272789	675735	NO <sub>2</sub>	No	Y	Y 100m	5m	Y
145	Lab 2 Constarry Road, Croy 2	Co - Location	272789	675735	NO <sub>2</sub>	No	Y	Y 100m	5m	Y
146	Lab 3 Constarry Road, Croy 3	Co - Location	272789	675735	NO <sub>2</sub>	No	Y	Y 100m	5m	Y
147	Bank St, Coatbridge (Nearest house)	Roadside	272947	665037	NO <sub>2</sub>	No	N	Y 15m	0m	Y

**North Lanarkshire Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
148	Main Street, Chapelhall R32	Roadside	278105	663174	NO <sub>2</sub>	Yes (PM <sub>10</sub> )	N	Y 15m	2m	Y
149	Main Street, Chapelhall R33	Roadside	278119	663075	NO <sub>2</sub>	Yes (PM <sub>10</sub> )	N	Y 15m	2m	Y
150	Eastfield Road, Cumbernauld. (Lamppost R6P783)	Urban Background	275160	676210	NO <sub>2</sub>	Yes (PM <sub>10</sub> )	N	Y 25m	2m	N
151	Holytown, Main Street	Roadside	276635	660569	NO <sub>2</sub>	No	N	Y 10m	2m	Y
152	Coatbridge Road shops, Townhead	Roadside	272391	665824	NO <sub>2</sub>	No	N	Y 10m	2m	Y
153	House Number 72, Townhead Road, Coatbridge	Roadside	271720	666053	NO <sub>2</sub>	No	N	Y 20m	2m	N
154	Sunnyside Road, Coatbridge	Roadside	273042	665176	NO <sub>2</sub>	No	N	Y 20m	2m	Y
156	Stirling Street, Airdrie	Roadside	276005	665406	NO <sub>2</sub>	No	N	N	2m	Y

**North Lanarkshire Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
157	31 Station Road, Muirhead	Roadside	268442	669262	NO <sub>2</sub>	No	N	Y 15m	2m	Y
158	Croftmoraig Crescent, Moodiesburn	Roadside	270281	671715	NO <sub>2</sub>	No	N	Y 15m	2m	Y
159	Croftmoraig Avenue	Urban background	270311	671702	NO <sub>2</sub>	Yes	N	Y 10m	2m	N
160	Glenview Crescent	Urban Background	270391	671505	NO <sub>2</sub>	Yes	N	Y 10m	2m	N
47	Layby in Stand	Roadside	276538	668899	NO <sub>2</sub>	No	N	Y 10m	2m	Y
48	Bus Stop, Bron Way, Cumbernauld	Roadside	275920	674203	NO <sub>2</sub>	No	N	Y 10m	2m	N
49	Swimming Pool, Kilsyth	Roadside	271514	678040	NO <sub>2</sub>	No	N	Y 50m	2m	Y
50	House No 1791, Cumbernauld Road, Stepps	Roadside	265198	668024	NO <sub>2</sub>	No	N	Y 25m	2m	Y
51	House No 131, Cumbernauld Road, Stepps	Roadside	265971	668567	NO <sub>2</sub>	No	N	Y 30m	2m	Y



**North Lanarkshire Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
52	Traffic Lights, A 80 Eastbound, Moodiesburn	Roadside	269966	670412	NO <sub>2</sub>	Yes (PM <sub>10</sub> )	N	Y 30m	30m	Y
53	Moodiesburn Lights, Cumbernauld Rd, Westbound	Roadside	269986	670400	NO <sub>2</sub>	Yes (PM <sub>10</sub> )	N	Y 10m	2m	Y
54	Gartcosh Lochend Rd & Cb Jct A752	Urban Background	269828	668354	NO <sub>2</sub>	No	N	Y 20m	2m	Y
55	Glenboig Whitelaw Road End	Urban Background	272614	668138	NO <sub>2</sub>	No	N	Y 50m	2m	Y
56	Glenboig Garnqueen Ave 1st Post Left Side	Urban Background	271751	668432	NO <sub>2</sub>	No	N	Y 50m	2m	Y
57	Glenboig Main St Jct Carrick view L/H First Post	Roadside	272030	668564	NO <sub>2</sub>	No	N	Y 10m	2m	Y
58	Glenboig Road Post Nr House No 115	Urban Background	272743	668103	NO <sub>2</sub>	No	N	Y 2m	2m	Y

**North Lanarkshire Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
59	Mount Ellen Coronation Place Adjacent House Nos 10-16	Urban Background	269356	669173	NO <sub>2</sub>	No	N	Y 20m	2m	Y
10	Castlecarrey court castlecarry	Roadside	278528	677864	NO <sub>2</sub>	No	N	Y 10m (house)	2m	Y
61	Under Bridge Central Way East Bound Cumbernauld	Roadside	275778	674440	NO <sub>2</sub>	No	N	Y 10m	2m	Y
62	Central Way West Bound Cumbernauld	Roadside	275920	674511	NO <sub>2</sub>	No	N	Y 10m	2m	Y
63	Central Way West Bound Cumbernauld	Roadside	275642	674271	NO <sub>2</sub>	No	N	Y 10m	2m	Y

## **2.2 Comparison of Monitoring Results with Air Quality Objective**

### **2.2.1 Nitrogen Dioxide (NO<sub>2</sub>)**

#### **Automatic Monitoring Data**

Ambient NO<sub>2</sub> concentrations were measured at all of the automatic monitoring sites during 2012.

The annual mean and 1-hour mean NO<sub>2</sub> automatic monitoring data for 2011 and previous years are presented in **Tables 2.3** and **2.4** respectively

Measured annual mean NO<sub>2</sub> concentrations were below the 40 µg/m<sup>3</sup> objective at all automatic monitoring locations. In general, there appears to be no significant trend in annual mean concentrations at automatic monitoring sites.

Analysis of the measured data indicates that there was one recorded exceedence of the 1-hour mean, 200 µg/m<sup>3</sup> short-term objectives at the Cumbernauld monitoring site during 2012. There were no exceedences of the 1-hour mean objective recorded at the other monitoring sites.

**Table 2.3: Results of Automatic Monitoring for NO<sub>2</sub>: Comparison with Annual Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2012 % <sup>b</sup>	Annual Mean Concentration (µg/m <sup>3</sup> )				
					2008* <sup>c</sup>	2009* <sup>c</sup>	2010* <sup>c</sup>	2011* <sup>c</sup>	2012 <sup>c</sup>
Chapelhall	Roadside	Y	97.6	97.6	36.4	<b>40</b>	37.6	<b>41</b>	35
Croy	Special – By Quarry	Y	96.9	96.9	24.7	24	30.8 <sup>\$</sup>	21	23
Cumbernauld		N	95.8	95.8	Commenced 2012				31
Moodiesburn	Roadside	Y	99.1	99.1	<b>43.5</b>	37	<b>42.8</b>	25	25
Shawhead	Roadside	Y	99.8	99.8	N/A	37	<b>40.7</b>	36	35
New Edinburgh Rd	Roadside	N	100	50	N/A	N/A	<b>45.6</b>	32	33

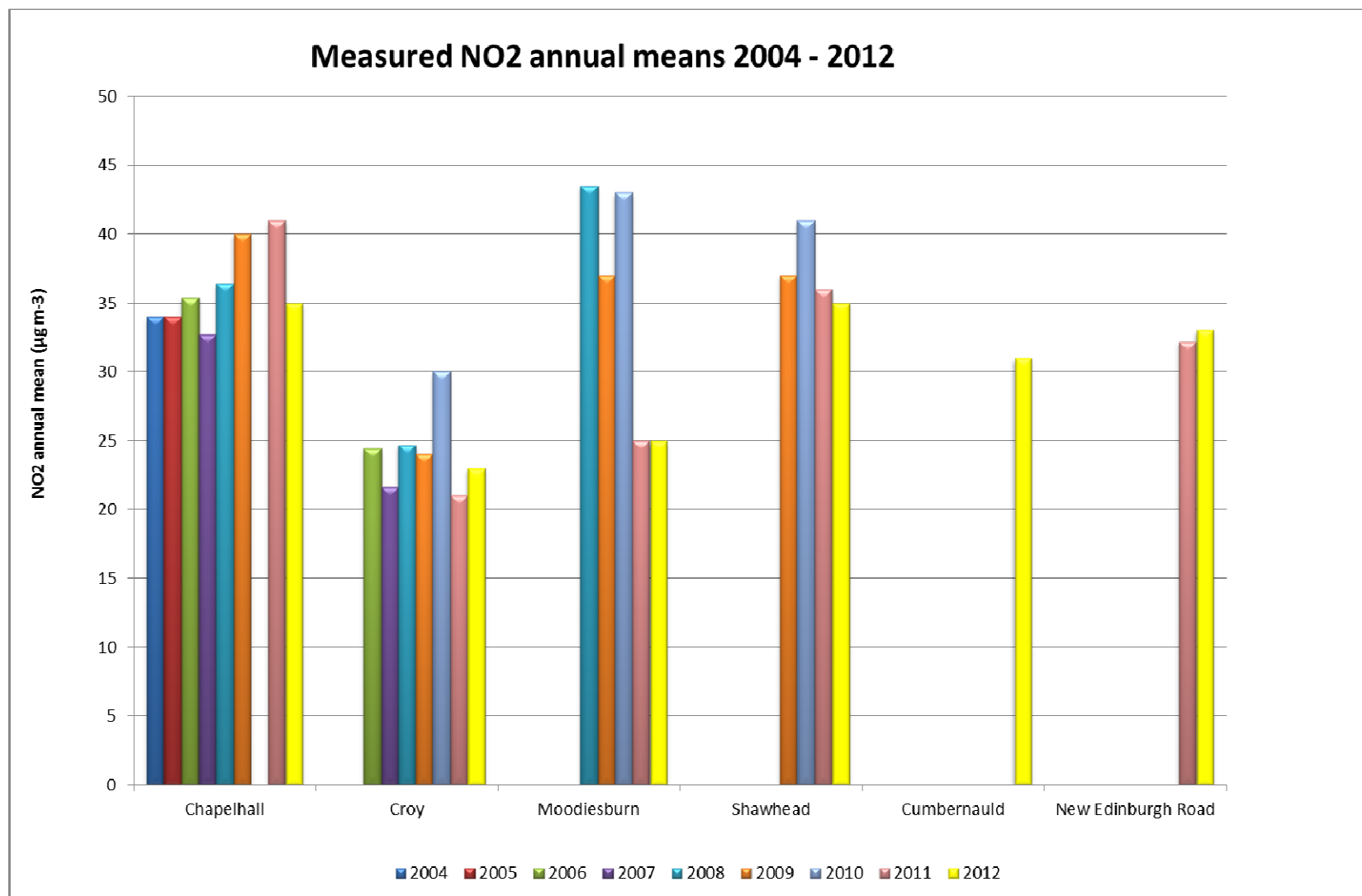
In bold, exceedence of the NO<sub>2</sub> annual mean AQS objective of 40µg/m<sup>3</sup>

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

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

<sup>c</sup> Means should be “annualised” [as in Box 3.2 of TG\(09\)](http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38>), if valid data capture is less than 75%

\* Annual mean concentrations for previous years are optional

**Figure 2.1 Trends in Annual Mean NO<sub>2</sub> Concentrations Measured at Automatic Monitoring Sites**

**Table 2.4: Results of Automatic Monitoring for NO<sub>2</sub>: Comparison with 1-hour Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2012 % <sup>b</sup>	Number of Hourly Means > 200µg/m <sup>3</sup>				
					2008* <sup>c</sup>	2009* <sup>c</sup>	2010* <sup>c</sup>	2011* <sup>c</sup>	2012 <sup>c</sup>
Chapelhall	Roadside	Yes	97.6	97.6	0	<b>1</b> (145)	<b>6</b> (170)	<b>2</b>	0
Croy	Special – By Quarry	Yes	96.9	96.9	0	0 (120)	0 (172)	0	0
Cumbernauld			95.8	95.8	N/A	N/A	N/A	N/A	<b>1</b>
Moodiesburn	Roadside	Yes	99.1	99.1	<b>1</b>	0 (130)	0 (151)	0	0
Shawhead Coatbridge	Roadside	No	95.7	95.7	N/A	0 (109)	0 (149)	0	0
New Edinburgh Rd	Roadside	No	100	50	N/A	N/A	0	0	0

In bold, exceedence of the NO<sub>2</sub> hourly mean AQS objective (200µg/m<sup>3</sup> – not to be exceeded more than 18 times per year)

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

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

<sup>c</sup> If the data capture for full calendar year is less than 90%, include the 99.8<sup>th</sup> percentile of hourly means in brackets

\* Number of exceedences for previous years is optional

## Diffusion Tube Monitoring Data

Measured NO<sub>2</sub> concentrations across the diffusion tube network from 2008 to 2012 are presented in **Table 2.6**. Measured concentrations in excess of the NAQS objective of 40 µg/m<sup>3</sup> are in bold.

Trend charts of historic diffusion tube data at urban background, roadside and kerbside sites are presented in **Figures 2.2, 2.3** and **2.4** respectively.

For sites where the data capture was below 75% the measured concentrations have been annualised following the method described in technical guidance. Further detail of the annualisation and laboratory bias adjustment and QA/QC is provided in Appendix A.

Table 2.5: Results of NO<sub>2</sub> 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 %) <sup>a</sup>	2012 Annual Mean Concentration (µg/m <sup>3</sup> ) - Bias Adjustment factor = 0.96
100	Civic Centre, Motherwell	Roadside	No	No	100	30.0
101	Shields Rd, Motherwell	Roadside	No	No	100	26.7
102	Emily Drive, Motherwell	UB	No	No	92	13.7
103	Kethers Lane, Motherwell	UB	No	No	100	15.8
104	Coursington Road, Motherwell	UB	No	No	100	13.0
105	Craigneuk Road, carfin	UB	No	No	92	16.1
106	Camp street, Motherwell	UB	No	No	83	22.2
107	Braehead Farm, Bargeddie	Roadside	No	No	92	<b>40.9</b>
108	Shawhead, MSA Factory	Roadside	No	No	100	38.2
109B	Carnboe Landfill, A8 East	Roadside	No	No	83	<b>50.1</b>



Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months or %) <sup>a</sup>	2012 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.96
110	New Edinburgh Rd (1), M74 Uddingston	Roadside	No	No	92	38.1
111	New Edinburgh Rd (2) M74 Uddingston	Roadside	No	No	92	38.6
112	New Edinburgh Rd (3) M74 Uddingston	Roadside	No	No	92	39.6
113	Tinkers Lane	Roadside	No	No	100	24.3
114	Castlehill Rd, Overtoun	Kerbside	No	No	92	23.3
115	Ravenscraig By-pass	Roadside	No	No	92	19.5
116	Delburn St, Motherwell	UB	Yes ( $\text{PM}_{10}$ )	No	100	24.6
117	Hamilton Road, Motherwell	UB	Yes ( $\text{PM}_{10}$ )	No	83	39.0
118	Shawhead roundabout	Kerbside	No	No	100	34.2
119	Kirkshaws Rd, Coatbridge	Roadside	No	No	100	<b>41.5</b>
120	Watsonville (ASDA) Motherwell	Kerbside	Yes ( $\text{PM}_{10}$ )	No	92	28.5

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months or %) <sup>a</sup>	2012 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.96
121	Flannigan Grove, Bellshill	UB	No	No	100	24.1
122	Main Street Mossend	Roadside	No	No	92	34.3
123	Hamilton Rd, Orbiston, Bellshill	Kerbside	No	No	100	27.0
124	Scotmid, Tannochside	Kerbside	No	No	100	30.2
125	Main Street, Near Bellshill Academy	Kerbside	No	No	58	21.1*
126	Main Street Near / at Motherwell Rd	Roadside	No	No	92	25.6
127	Main Street, near /at Tesco delivery road	Roadside	No	No	75	24.1
128	Matalan Wishaw	Roadside	No	No	92	31.1
129	Newmains Police Station	Roadside	No	No	92	29.6
130	Main St (Bottom) Wishaw	Roadside	No	No	100	19.6

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months or %) <sup>a</sup>	2012 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.96
133	Coatbridge 1, Bank Street	Roadside	No	No	100	34.3
134	Coatbridge 2, Bank Street	Kerbside	No	No	83	28.9
135	Grahamshill Street Airdrie	Kerbside	No	No	100	38.3
136	Airdrie 3, Springwells Cres	Roadside	No	No	100	24.5
137	Auchenkilns, Cumbernauld	Roadside	No	No	92	25.0
138	Chapelhall Main Street	Roadside	Yes (PM <sub>10</sub> )	No	75	29.8
139	Lauchope Street, Chapellhall	Roadside	Yes (PM <sub>10</sub> )	No	100	34.3
140	Coatbridge, Dundyvan Rd	Kerbside	No	No	100	31.4
141	Harthill main Street (1)	Kerbside	No	No	100	21.4
142	Salsburgh (House no 337), R15	Roadside	No	No	92	23.6
143	Harthill Main Street (2)	Roadside	No	No	100	22.6
144	Constarry Road, Croy 1	Roadside	No	Yes	100	20.2
145	Constarry Road, Croy 2	Roadside	No	Yes	100	20.7
146	Constarry Road, Croy 3	Roadside	No	Yes	100	19.4

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months or %) <sup>a</sup>	2012 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.96
147	Bank St, Coatbridge	Roadside	No	No	100	36.1
148	Main St, Chapelhall R32	Kerbside	No	No	92	37.2
149	Main St, Chapelhall R33	Kerbside	No	No	100	34.8
150	Eastfield Rd, Cumbernauld	Kerbside	No	No	100	28.7
151	Holytown Main Street	UB	No	No	100	25.1
152	Coatbridge Road Shops Townhead	Roadside	No	No	100	33.6
153	House Number 72, Townhead Rd	Roadside	No	No	75	26.9
154	Sunnyside Road Coatbridge	Roadside	No	No	100	32.9
156	Stirling Street Airdrie	Roadside	No	No	100	39.4
157	31 Station Road Muirhead	Roadside	No	No	83	27.1
158	Croftmoraig Avenue	Roadside	No	No	75	24.2
159	Glenview Crescent	Roadside	No	No	83	21.5

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months or %) <sup>a</sup>	2012 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.96
160	The Cuillins	Roadside	No	No	75	21.5
47	Layby in Stand	Roadside	No	No	92	23.0
48	Bus Stop, Bron Way, Cumbernauld	Kerbside	No	No	83	32.4
49	Swimming Pool, Kilsyth	Kerbside	No	No	92	24.5
50	House No 1791, Cumbernauld Road, Stepps	Kerbside	No	No	92	27.1
51	House No 131, Cumbernauld Road, Stepps	Kerbside	No	No	92	30.2
52	Traffic Lights, A80 Eastbound, Moodiesburn	Kerbside	No	No	92	28.5
53	Moodiesburn Lights, Cumbernauld Rd, Westbound	Kerbside	No	No	92	22.6
54	Gartcosh lochend rd	UB	No	No	92	30.8
55	Glenboig Whitelaw Rd	UB	No	No	92	16.2

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months or %) <sup>a</sup>	2012 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.96
56	Glenboig Garnqueen Ave	UB	No	No	92	17.0
57	Glenboig main St	UB	No	No	92	20.4
58	Glenboig Cb Road post nr house no 115	UB	No	No	92	18.4
59	Mount Ellen Coronation Place	UB	No	No	92	24.7
10	Castle Court, Castlecary	Roadside	No	No	83	29.0
61	Under bridge Central Way E	Roadside	No	No	92	<b>47.2</b>
62	A Central Way West Bound	Roadside	No	No	92	<b>40.8</b>
63	B Central Way West Bound	Roadside	No	No	83	34.7

\* Diffusion Tube 125 adjusted from short-term to long-term using short-term to long-term adjustment factor (0.949) calculated as detailed in technical guidance TG 09 and Appendix A

Table 2.6: Results of NO<sub>2</sub> Diffusion Tubes (2008 to 2012)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m <sup>3</sup> ) - Adjusted for Bias <sup>a</sup>				
			2008 (Bias Adjustment Factor = 1.11)	2009 (Bias Adjustment Factor = 1.07)	2010 (Bias Adjustment Factor = 1.1)	2011 (Bias Adjustment Factor = 1.02)	2012 (Bias Adjustment Factor = 0.96)
100	Roadside	N	<b>44</b>	39.3	37.1	32.9	30.0
101	Roadside	N	22	19.5	29.6	29.2	26.7
102	UB	N	13	13.7	14.4	13.6	13.7
103	UB	N	14	17.5	16.5	17.1	15.8
104	UB	N	13	13	14.1	12.4	13.0
105	UB	N	18	16.6	18	17.9	16.1
106	UB	N	23	21.7	22.3	22.8	22.2
107	Roadside	N	<b>57</b>	<b>41.2</b>	<b>43</b>	<b>40.8</b>	<b>40.9</b>
108	Roadside	N	<b>50</b>	<b>44.7</b>	<b>43.2</b>	<b>48.9</b>	38.2
109B	Roadside	N	<b>Commenced 2010</b>			<b>75.8</b>	<b>50.1</b>
110	Roadside	N			<b>40.0</b>	<b>43.4</b>	38.1
111	Roadside	N	<b>Commenced 2010</b>		38.6	35.2	38.6
112	Roadside	N			<b>44.8</b>	38.6	39.6
113	Roadside	N	24	23.8	26.9	28.3	24.3
114	Kerbside	N	<b>Commenced 2010</b>		37.8	22.4	23.3
115	Roadside	N	23	17.3	20.5	20.7	19.5
116	UB	N	31	24.2	30.2	28.8	24.6
117	UB	N	<b>59</b>	36.2	<b>41.1</b>	<b>44</b>	39.0
118	Kerbside	N	<b>40</b>	37.6	38.3	37.5	34.2
119	Roadside	N	<b>43</b>	39.5	<b>40.3</b>	<b>46.2</b>	<b>41.5</b>
120	Kerbside	N	32	22.4	27	25.3	28.5
121	UB	N	29	24.8	31.6	26.6	24.1
122	Roadside	N	<b>42</b>	29.5	37.5	38.7	34.3
123	Kerbside	N	31	30.1	30.5	26.2	27.0
124	Kerbside	N	<b>42</b>	32.2	33	33.8	30.2
125	Kerbside	N	<b>Commenced 2010</b>		31.7	26.9	21.1
126	Roadside	N			35.8	28.9	25.6
127	Roadside	N			26.6	24.4	24.1

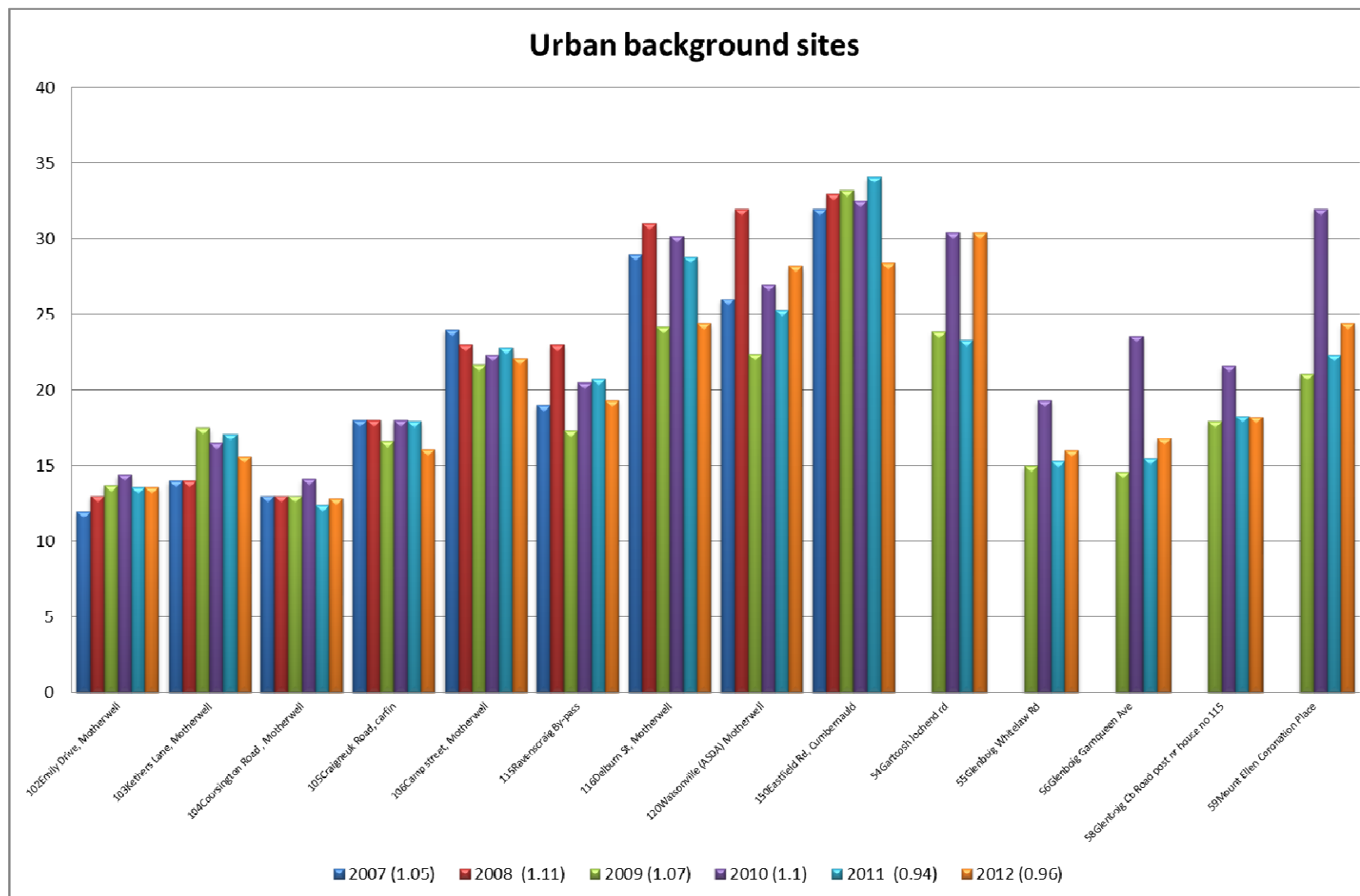
Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m³) - Adjusted for Bias <sup>a</sup>					
			2008 (Bias Adjustment Factor = 1.11)	2009 (Bias Adjustment Factor = 1.07)	2010 (Bias Adjustment Factor = 1.1)	2011 (Bias Adjustment Factor = 1.02)	2012 (Bias Adjustment Factor = 0.96)	
128	Roadside	N			31.1	31.2	31.1	
129	Roadside	N			36.3	37.6	29.6	
130	Roadside	N			35.6	18.5	19.6	
133	Roadside	N	52	49.5	39.7	44.3	34.3	
134	Kerbside	N	31	33.1	30	28.5	28.9	
135	Kerbside	N	29	26	41	45.9	38.3	
136	Roadside	N	22	21.6	20.2	22.2	24.5	
137	Roadside	N	44	33.5	30.4	25.9	25.0	
138	Roadside	N	Commenced 2010		46.3	33	29.8	
139	Roadside	N	53	46.2	45.5	48.2	34.3	
140	Kerbside	N	N/A	29.8	28.5	31.7	31.4	
141	Kerbside	N	Commenced 2010		23.1	22.1	21.4	
142	Roadside	N	31	23.6	27.7	27.4	23.6	
143	Roadside	N	Commenced 2010		22.7	23.1	22.6	
144	Roadside	N	23	25.8	27.6	23.5	20.2	
145	Roadside	N	26	26.2	24.2	23.9	20.7	
146	Roadside	N	26	25.7	24.2	20.9	19.4	
147	Roadside	N	59	50.4	45.1	51.3	36.1	
148	Kerbside	N	40	36.7	37.6	48.3	37.2	
149	Kerbside	N	46	33.2	33.7	39.6	34.8	
150	Kerbside	N	33	33.2	32.5	34.1	28.7	
151	UB	N	Commenced 2010		28.2	26.2	25.1	
152	Roadside	N			40.4	36.3	33.6	
153	Roadside	N	28	28.7	30.9	32.4	26.9	
154	Roadside	N	Commenced 2010		42.1	42.6	32.9	
156	Roadside	N			47.4	46.4	39.4	
157	Roadside	N			38.0	30.2	27.1	
158	Roadside	N	Commenced 2011			39.5	24.2	
159	Roadside	N				32.5	21.5	
160	Roadside	N	Commenced 2012					21.5

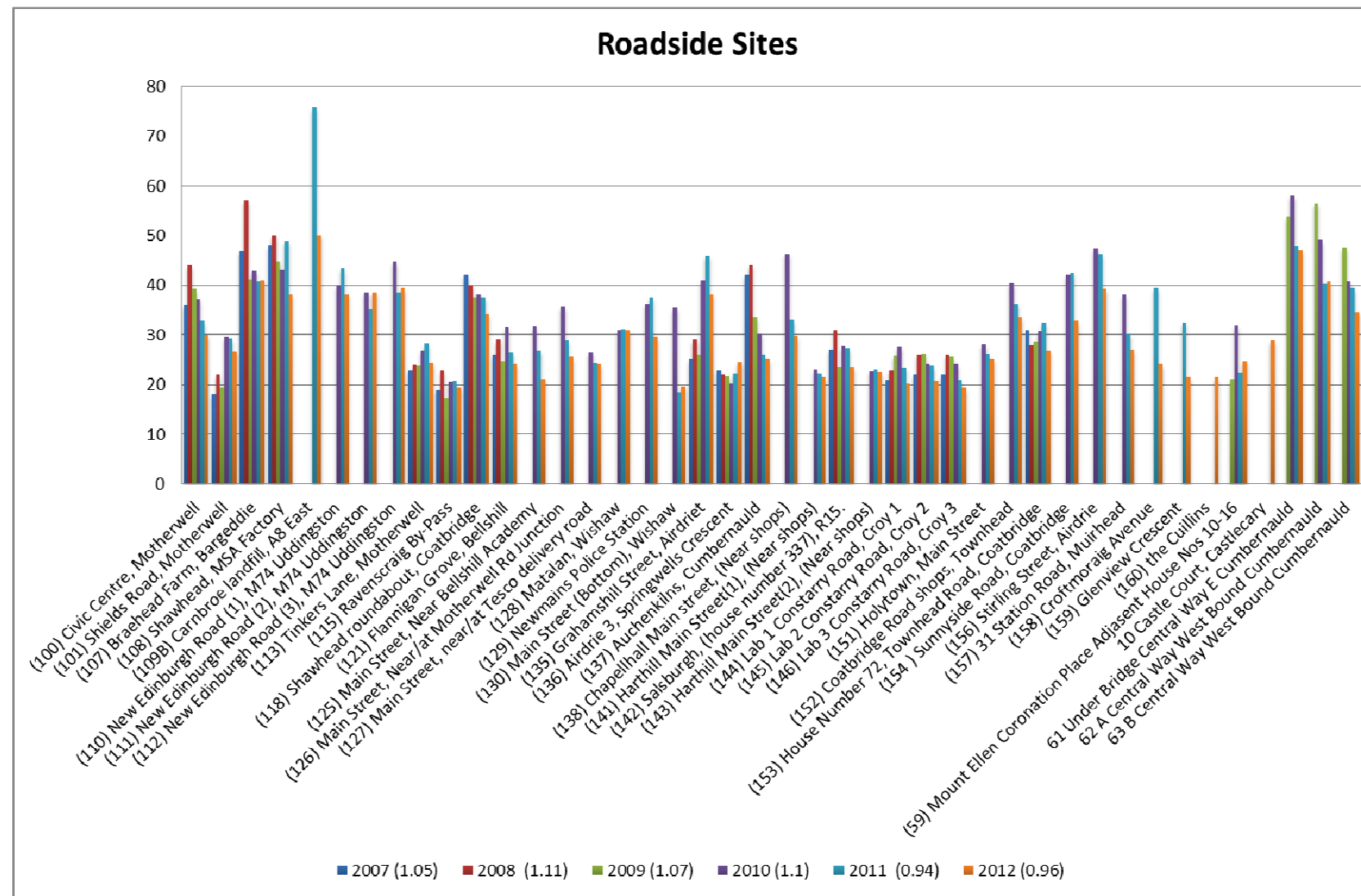


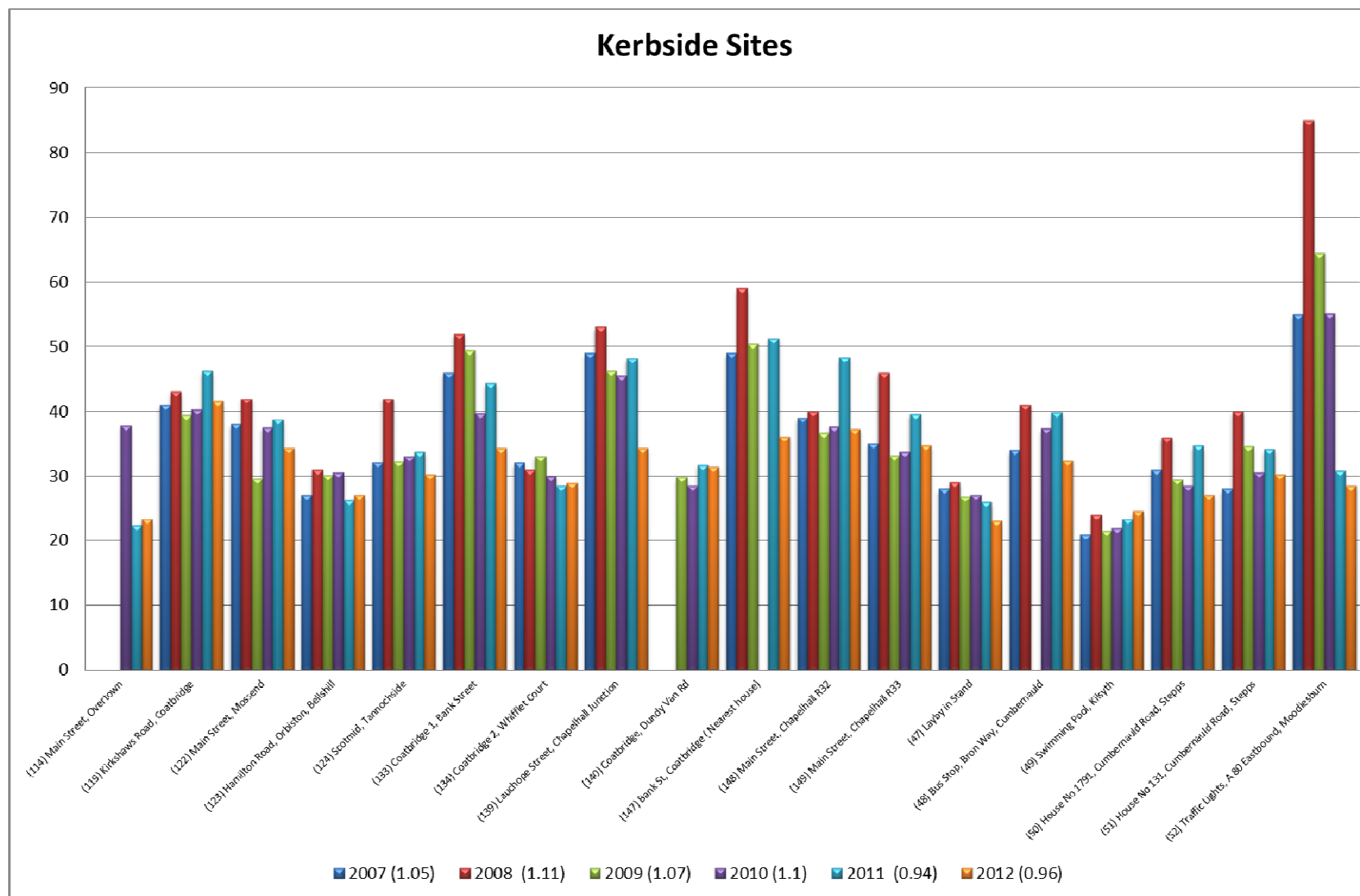
Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m <sup>3</sup> ) - Adjusted for Bias <sup>a</sup>					
			2008 (Bias Adjustment Factor = 1.11)	2009 (Bias Adjustment Factor = 1.07)	2010 (Bias Adjustment Factor = 1.1)	2011 (Bias Adjustment Factor = 1.02)	2012 (Bias Adjustment Factor = 0.96)	
47	Roadside	N	29	26.8	27	25.9	23.0	
48	Kerbside	N	41	35.8	37.4	39.8	32.4	
49	Kerbside	N	24	21.5	21.9	23.3	24.5	
50	Kerbside	N	36	29.4	28.5	34.7	27.1	
51	Kerbside	N	40	34.5	30.6	34.1	30.2	
52	Kerbside	N	85	64.4	55.2	30.8	28.5	
53	Kerbside	N	Commenced August 2008	59.5	52	28.4	22.6	
54	UB	N	Commenced 2009	23.9	30.4	23.3	30.8	
55	UB	N		15.0	19.3	15.3	16.2	
56	UB	N		14.6	23.6	15.5	17.0	
57	UB	N		15.8	23.5	16.3	20.4	
58	UB	N		17.9	21.6	18.3	18.4	
59	UB	N		21.1	32.0	22.3	24.7	
10	Roadside	N	Commenced 2012					29.0
61	Roadside	N	Commenced 2009	53.8	57.9	47.8	47.2	
62	Roadside	N		56.5	49.1	40.2	40.8	
63	Roadside	N		47.7	40.8	39.6	34.7	

In bold, exceedence of the NO<sub>2</sub> annual mean AQS objective of 40 $\mu\text{g}/\text{m}^3$

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



**Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Roadside Diffusion Tube Monitoring Sites**

**Figure 2.4 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Kerbside Diffusion Tube Monitoring Sites**

The results indicate that the overall trends in measured annual mean NO<sub>2</sub> concentrations are:

- No overall trends in measured concentrations at Urban Background sites between 2011 and 2012;
- Decreases in measured concentrations at Kerbside sites between 2011 and 2012; and
- Decreases in measured concentrations at Roadside sites between 2011 and 2012.

Measured annual mean NO<sub>2</sub> concentrations in excess of the objective were recorded at five diffusion tube monitoring locations. These can be summarised within the following areas:

- Coatbridge, at Bargeddie (107), Carnbroe (109) and Kirkshaws Road (119). All sites are located within 50 m of the edge of the A8, between Ballieston and Eurocentral; and
- Cumbernauld, at diffusion tubes located under the bridge over Central Way (61) and on the westbound carriageway on Central Way (62). .

### **2.2.2 NO<sub>2</sub> Drop Off with Distance**

There were five diffusion tube monitoring locations where the measured annual mean was above the objective and not located at relevant public exposure.

The results have been corrected using "[NO<sub>2</sub> fall-off with distance](http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html)" calculator (<http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>) and the results are presented in **Table 2.7**

Monitoring site 107 is located 50m from the A8 and does not have an appropriate receptor within close proximity and consequently has not been considered a relevant exposure and assessed by the "NO<sub>2</sub> fall-off with distance" calculator.

Monitoring site 109B is located within 2m of Sweethill Terrace and 30m of the M8. However the location of the worst case sensitive receptor lies between Sweethill Terrace and the M8 and is within 3m of the M8. It would therefore not be appropriate to use this calculator for this location.

The location of monitoring site 119 is within 2m of Kirkshaws Road and 30m of the M8. However the location of the worst case sensitive receptor lies between Kirkshaws Road and the M8 and is within 10m of the M8. It would therefore not be appropriate to use this calculator for this location.

**Table 2.7: Results of NO<sub>2</sub> drop off correction.**

Site ID	Distance Monitoring Location to Kerb (m)	Distance Receptor to Kerb (m)	2012 Background NO <sub>2</sub> (µg/m <sup>3</sup> )	2012 Annual Mean (µg/m <sup>3</sup> )	Corrected for Drop Off 2012 Annual Mean (µg/m <sup>3</sup> )
107	50	N/A	20.8	<b>40.9</b>	N/A
109B	10	N/A	24.7	<b>50.1</b>	N/A
119	N/A	N/A	N/A	<b>41.5</b>	N/A
61	2	10	15.9	<b>47.2</b>	35.4
62	2	10	15.9	<b>40.8</b>	31.4

Two sites (61 and 62) have undergone correction for drop off and no longer remain above the annual mean NO<sub>2</sub> objective after correction.

Diffusion tubes (107, 109B and 119) remain above the annual mean NO<sub>2</sub> objective.

### **2.2.3 Particulate Matter (PM<sub>10</sub>)**

PM<sub>10</sub> was measured at all of the Council's automatic air quality monitoring sites during 2012. All measured data were ratified by Ricardo-AEA on behalf of Scottish Government. Particulate measurements recorded using TEOM instruments were corrected to account for the volatile component using the VCM method. Particulate measurements recorded using the BAM have been corrected to be gravimetric equivalent, all corrections were calculated by Ricardo-AEA on behalf of Scottish Government.

**Table 2.8: Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with Annual Mean Objective**

Site ID	Site Type	Within AQMA ?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2012 %	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m <sup>3</sup> )				
						2008	2009	2010	2011	2012
Chapelhall	Roadside	Y	79.5	79.5	Y	20.8	19	19	19	16*
Croy	Special – By Quarry	Y	89.9	89.9	Y	19.0	19	20.5	15	13
Cumbernauld		N	96.7	96.7	Y					13
Motherwell	Roadside	Y	77.6	77.6	Y	17.6	17	19.3	19	15*
Moodiesburn	Roadside	Y	68.2	68.2	Y	19.5	20.5	20.2	17	16*
Shawhead	Roadside	N	68.9	68.9	Y	N/A	18	18.5	19	11*
Calder Court	Urban Background	Y	92.5	92.5	Y	15	14	14.6	15	13

\*Data have not been annualised due to sporadic data loss.

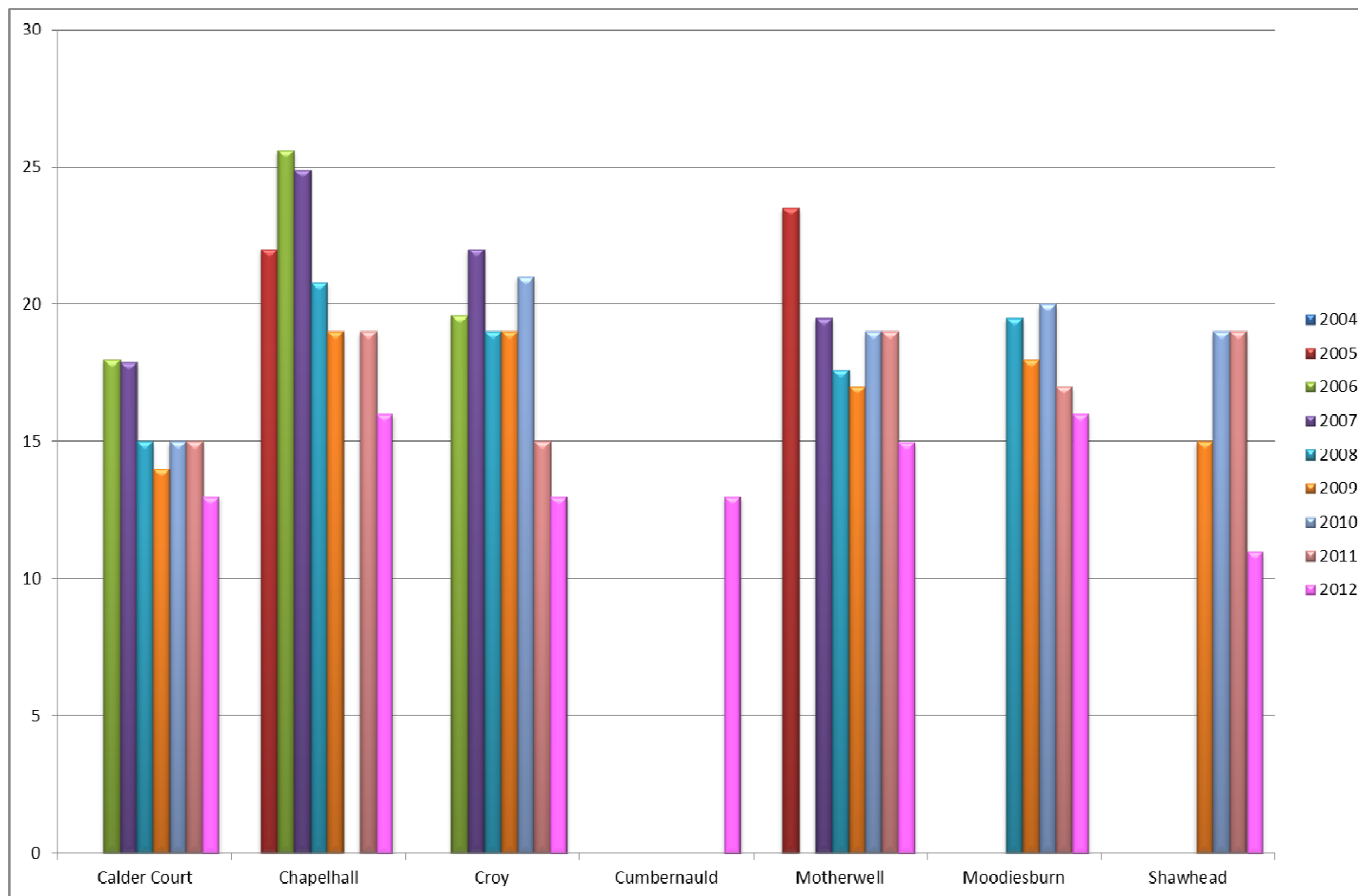
**Figure 2.5 Trends in Annual Mean PM<sub>10</sub> Concentrations**



Table 2.9: Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with 24-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2012 % <sup>b</sup>	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m <sup>3</sup>				
						2008* <sup>c</sup>	2009* <sup>c</sup>	2010* <sup>c</sup>	2011* <sup>c</sup>	2012 <sup>c</sup>
Chapelhall	Roadside	Y	79.5	79.5	Y	7	4 (45)	0 (41)	6	0 (46)
Croy	Special – By Quarry	N	89.9	89.9	Y	<b>17</b>	<b>15</b> (60)	<b>9</b>	1 (36)	1 (39)
Cumbernauld		N	96.7	96.7						1
Motherwell	Roadside	Y	77.6	77.6	Y	4	2	0	5 (49)	0 (35)
Moodiesburn	Roadside	Y	68.2	68.2	Y	2	2 (37)	3	4 (45)	3 (38)
Shawhead	Roadside	N	68.9	68.9	Y	-	0 (39)	4	3 (43)	0 (31)
Calder Court	Urban Background	Y	92.5	92.5	Y	2	0	0	1	1

In bold, exceedence of the PM<sub>10</sub> daily mean AQS objective (50µg/m<sup>3</sup> – not to be exceeded more than 7 times per year)

Measured annual mean concentrations at all monitoring sites fell below the objective in 2012.

Data Capture at Chapelhall, Moodiesburn, Motherwell and Shawhead was well below the 90% data capture target. This was due to a number of operational difficulties.

At Shawhead, measured annual mean PM<sub>10</sub> concentrations fell 8 µg/m<sup>3</sup> between 2012 and 2011. This reduction in measured annual mean PM<sub>10</sub> concentrations is much greater than that seen at the remaining North Lanarkshire Council monitoring sites.

#### **2.2.4 Sulphur Dioxide (SO<sub>2</sub>)**

North Lanarkshire Council undertake automatic monitoring of sulphur dioxide (SO<sub>2</sub>) concentrations at two locations, namely Croy and Cumbernauld. The results are presented in **Table 2.10**. All measured SO<sub>2</sub> concentrations are significantly below the NAQS objectives.

**Table 2.10: Results of Automatic Monitoring for SO<sub>2</sub>: Comparison with Objectives**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2012 % <sup>b</sup>	Number of: <sup>c</sup>		
					15-minute Means > 266µg/m <sup>3</sup>	1-hour Means > 350µg/m <sup>3</sup>	24-hour Means > 125µg/m <sup>3</sup>
Croy	Special – By Quarry	N	98.5	98.5	0	0	0
Cumbernauld		N	93.5	93.5	0	0	0

In bold, exceedence of the relevant AQS objective (15-min mean = 35 allowed/year; 1-hour mean = 24 allowed/year; 24-hour mean = 3 allowed/year)

### 2.2.5 Benzene

North Lanarkshire Council do not currently monitor Benzene

### 2.2.6 Carbon Monoxide

Carbon monoxide concentrations are measured at the Croy automatic monitoring site, the results for 2012 are presented in **Table 2.11**. The maximum rolling 8-hour mean concentration is significantly below the NAQS objective value of 10 mg m<sup>-3</sup>.

**Table 2.11: CO Automatic Monitoring: Comparison with running 8 hour mean Objective**

Site ID	Location	Within AQMA?	Data Capture for monitoring period %	Data Capture for full calendar year 2012 %	Maximum running 8 hour mean mg/m <sup>3</sup>
Croy	Special – By Quarry	N	99.1	99.1	1.0

### 2.2.7 Summary of Compliance with AQS Objectives

Measured PM<sub>10</sub> concentrations were below the objective at all monitoring sites. At Shawhead the measured annual mean PM<sub>10</sub> concentration fell to 11 µg/m<sup>3</sup>, a reduction of 8 µg/m<sup>3</sup>. Data capture was well below the target 90%.

Annual mean NO<sub>2</sub> concentrations recorded at all automatic monitoring locations were below the annual mean objective.

Measured annual mean NO<sub>2</sub> concentrations in excess of the objective were recorded at five diffusion tube monitoring locations. These can be summarised within the following areas:

- Coatbridge, at Bargeddie (107), Carnbroe (109) and Kirkshaws Road (119). All sites are located within 50 m of the edge of the A8, between Ballieston and Eurocentral; and
- Cumbernauld, at diffusion tubes located under the bridge over Central Way (61) and on the westbound carriageway on Central Way (62) measured exceedences of the objective.

Exceedences at Cumbernauld are addressed by the use of the “NO<sub>2</sub> fall-off with distance” calculator and the three remaining sites at Coatbridge will need to be considered in the 2013 Detailed Assessment of the wider Airdrie-Coatbridge area looking at potential exceedences of both NO<sub>2</sub> and PM<sub>10</sub>.

North Lanarkshire Council has measured concentrations of NO<sub>2</sub> above the annual mean objective at relevant locations outside of the AQMA(s), and **will need to proceed to a Detailed Assessment**, for the A8 corridor.

### 3 New Local Developments

Updated data on local emissions sources were collated from Planning and Roads Services of North Lanarkshire Council, the Scottish Environmental Protection Agency (SEPA) and Transport Scotland.

#### 3.1 Road Traffic Sources

North Lanarkshire Council Roads department advised that there were no significant changes to road traffic sources.

Updated traffic count data for 2012 were obtained from Transport Scotland and the data were reviewed to identify any roads with significant increases or new sections of road that have not previously been assessed that fit the screening criteria. It was determined that there have been no significant changes to emissions from traffic sources within the North Lanarkshire Council area during 2012.

#### 3.2 Other Transport Sources

There have been no newly identified emissions from rail, shipping or aircraft operations within the North Lanarkshire Council area since the 2011 Updating and Screening Report.

#### 3.3 Industrial Sources

The Scottish Environment Protection Agency (SEPA) were contacted to determine if there have been any new or significantly changed industrial processes in the area which may impact on air quality.

Presented in **Table 3.1** is a list of new Permits or Variation of Permits that were granted during 2012.

**Table 3.1: New PPC installations identified in North Lanarkshire**

Site Name	Permit Number	Application Type	Authorized Activity
Auchinlea Landfill Site, Bellside, Cleland, Motherwell	PPC/A/1000113	Variation	5.2(a) – Landfill
Mossband Farm Landfill & Materials Recovery	PPC/A/1035042	Suspension	5.2(a) – Landfill
Healthcare Environmental, Calderhead Rd, Shotts	PPC/A/1019535	Variation	5.3(a) – Waste disposal (autoclave)
Petrol Filling Station, John Street, Bellshill	PPC/B/1004295	Variation	1.2(c)(ii) & (d) – PVR
Auld Cross Service Stn, 28 High ST, Airdrie	PPC/B/1004482	Variation	1.2(c)(ii) & (d) – PVR
Kirk Road Service Station, Wishaw	PPC/B/1004483	Variation	1.2(c)(ii) & (d) – PVR

Site Name	Permit Number	Application Type	Authorized Activity
228-232 Hamilton Road, Motherwell	PPC/B/1004497	Variation	1.2(c)(ii) & (d) – PVR
Wm Morrison Service Stn, Gartlea Road Airdrie	PPC/B/1004582	Variation	1.2(c)(ii) & (d) – PVR
Craigmarloch Fill Station, 15 Auchinbee Way	PPC/B/1004728	Variation	1.2(c)(ii) & (d) – PVR
PPC/B/1015874 - Mobile Plant Riskend Aggregate	PPC/B/1015874	Variation	3.5(a) & (c) – Mobile Crusher
Asda Petrol St, 2 Morningside Road, Newmains	PPC/B/1020638	Variation	1.2(c)(ii) & (d) – PVR
Tesco Filling Station, Belhaven Road, Wishaw	PPC/B/1025921	Variation	1.2(c)(ii) & (d) – PVR
Tesco Bellshill Filling Station 12 North Road	PPC/B/1079205	Variation	1.2(c)(ii) & (d) – PVR
Stopfire Offsite Coating Limited	PPC/B/1096900	New	6.4(a) – Coating Plant
PPC/B/1102074 - Mobile Plant	PPC/B/1102074	New	3.5(b)(i) – Mobile Crusher
PPC/B/1102108 - Mobile Plant	PPC/B/1102108	New	3.5(a)(ii) – Mobile Crusher
PPC/B/1103424 - Mobile Plant	PPC/B/1103424	New	3.5(b)(i)(ii)(iii) – Mobile Crusher
PPC/B/1103433 - Mobile Plant	PPC/B/1103433	New	3.5(b)(i)(ii)(iii) – Mobile Crusher
Cemex UK Materials Ltd	PPC/B/1105918	New	3.5(a) – Mobile Crusher

### 3.4 Commercial and Domestic Sources

North Lanarkshire Council Planning Services were consulted with regards to any new or changed commercial and domestic sources. No new commercial biomass combustion sources were identified. No new areas of domestic fuel burning were identified.

### 3.5 New Developments with Fugitive or Uncontrolled Sources

SEPA were consulted in relation to any changed waste, landfill or quarry processes identified in the public registers. There have been no significant changes to existing process emissions and no new fugitive sources identified.

North Lanarkshire 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.

## **4 Local / Regional Air Quality Strategy**

North Lanarkshire Council does not have a local or regional air quality strategy.



## **5 Planning Applications**

A review of planning applications granted since the 2012 Updating and Screening Report were carried out in order to identify any developments which may have a significant impact upon the local air quality.

No applications were identified which may have a significant impact on local air quality.

## **6 Air Quality Planning Policies**

There has been no change to the Council's Air Quality Planning Policy since the 2012 Updating and Screening Assessment.

## **7 Local Transport Plans and Strategies**

There has been no change to the Council's Local Transport Plan since the 2012 Updating and Screening Assessment.

## **8 Implementation of Action Plans**

North Lanarkshire Council are in the process of producing an update to their Air Quality Action Plan. This update should be available in 2014.

## 9 Conclusions and Proposed Actions

### 9.1 Conclusions from New Monitoring Data

Annual mean concentrations of PM<sub>10</sub> fell below the objective at all monitoring locations in 2012.

Annual mean NO<sub>2</sub> concentrations recorded at all automatic monitoring locations were below the annual mean objective.

Measured annual mean NO<sub>2</sub> concentrations in excess of the objective were recorded at five diffusion tube monitoring locations. These can be summarised within the following areas:

- Coatbridge, at Bargeddie (107), Carnbroe (109) and Kirkshaws Road (119). All sites are located within 50 m of the edge of the A8, between Ballieston and Eurocentral; and
- Cumbernauld, at diffusion tubes located under the bridge over Central Way (61) and on the westbound carriageway on Central Way (62) measured exceedences of the objective.

Exceedences at Cumbernauld are addressed by the use of the “NO<sub>2</sub> fall-off with distance” calculator and the three remaining sites at Coatbridge will need to be considered in the 2013 Detailed Assessment of the wider Airdrie-Coatbridge area looking at potential exceedences of both NO<sub>2</sub> and PM<sub>10</sub>.

**Table 9.1: Tabulated results of exceeding diffusion tubes and proposed action**

<b>Diffusion Tube Site ID</b>	<b>2012 Annual Mean (µg/m<sup>3</sup>)</b>	<b>Corrected for Drop Off 2012 Annual Mean (µg/m<sup>3</sup>)</b>	<b>Proposed Action</b>
107	<b>40.9</b>	N/A	To be included in Detailed Assessment of Airdrie-Coatbridge area
109B	<b>50.1</b>	N/A	To be included in Detailed Assessment of Airdrie-Coatbridge area
119	<b>41.5</b>	N/A	To be included in Detailed Assessment of

			Airdrie-Coatbridge area
61	<b>47.2</b>	35.4	Continued monitoring
62	<b>40.8</b>	31.4	Continued monitoring

## 9.2 Conclusions relating to New Local Developments

There are currently no new local developments that will have an impact on air quality.

## 9.3 Proposed Actions

The following actions are proposed by the Council in 2013-14, in response to the analysis of local monitoring data:

- The AQMA in Moodiesburn will be revoked on the basis of the reduction in measured concentration since the by-pass road was opened; and
- A Detailed Assessment of Airdrie-Coatbridge will be conducted for NO<sub>2</sub> and PM<sub>10</sub>, to include all monitoring locations that exceed annual mean objectives and assess the need to include PM10 in any existing AQMA declarations, and be submitted by March 2014.

# Appendices

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

Appendix B: Monitoring Location Maps

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

### Data

#### Diffusion Tube Bias Adjustment Factors

The laboratory analysis of the passive diffusion tubes used by the Council is undertaken by Glasgow Scientific Services. Glasgow Scientific Services is a UKAS accredited laboratory with documented Quality Assurance/Quality Control (QA/QC) procedures for diffusion tube analysis. The laboratory prepares the diffusion tubes using the 20% triethanolamine (TEA) in water method.

Glasgow Scientific Services public analyst participates in the AEA inter-comparison scheme, with bias correction factors calculated and applied annually. The laboratory analyses results from co-location studies at various locations.

The laboratory co-location factors are presented in **Table A.1**.

**Table A.1: Glasgow Scientific Services co-location studies bias correction factors**

Site Name	Study duration	Tube precision	Bias correction factor
Glasgow City Council	11	P	<b>1.14</b>
Glasgow City Council	10	P	<b>0.87</b>
Glasgow City Council	11	P	<b>1.02</b>
East Dunbartonshire Council	11	G	<b>0.98</b>
East Dunbartonshire Council	12	P	<b>1.01</b>
East Dunbartonshire Council	12	P	<b>0.84</b>
East Dunbartonshire Council	12	P	<b>0.93</b>
Marylebone Road Intercomparison	12	G	<b>0.89</b>
West Dunbartonshire Council	12	P	<b>0.92</b>
West Dunbartonshire Council	12	P	<b>0.95</b>
East Ayrshire Copuncil	10	G	<b>1.03</b>
Overall factor from Glasgow Scientific Services co-location studies			<b>0.96</b>

\*Diffusion\_Tube\_Bias\_Factors-v03\_12

#### Factor from Local Co-location Studies (if available)

North Lanarkshire Council undertake co-location measurements at Croy automatic monitoring site. The results of this colocation study produces a bias correction factor of 1.09.



## Discussion of Bias Correction Factor used

It was felt that the bias correction factor obtained from the Local Air Quality Management Diffusion Tube Bias Correction spreadsheet was more representative of the wider area and utilised a larger sample size to create what was judged to be a more appropriate bias correction factor. This bias correction factor (0.96) has been applied to local diffusion tube monitoring data.

## PM Monitoring Adjustment

North Lanarkshire Council monitor PM<sub>10</sub> using two types of analyser:

- Beta-attenuation monitor (BAM); and
- Tapered Element Oscillating Microbalance (TEOM) with a Filter Dynamics Measurement System(FDMS).

Both the BAM and TEOM analysers are maintained by Horiba and undergo regular calibration

The beta-attenuation monitors (BAMs) used by the Council have a heated inlet which has been found to cause evaporation of some semi-volatile particles thereby reducing the measured PM<sub>10</sub> concentration. All data have been provided ratified and gravimetric equivalent by AEA technology

The TEOM FDMS is equivalent to the European Reference Sampler and the results are therefore fully comparable to the AQS objectives, with no need for adjustment.

## Short-term to Long-term Data adjustment

The Council has not undertaken any short-term monitoring of pollutants which require adjustment to calculate long-term mean concentrations.

For diffusion tube sites where the data capture is below 75% the measured concentrations have been annualised following the method described in technical guidance and adjustment factors are detailed in **Table A.2**. All appropriate diffusion tube data were used to calculate the Am/Pm ratio for adjustment.

**Table A.2: Short-term to Long-term data adjustment factors**

Diffusion Tube Site ID	Data Capture	Adjustment Factor
125	58%	0.949

Although annual mean PM<sub>10</sub> data capture at the automatic mentoring site Moodiesburn and Shawhead fell below 75% no annualisation has been undertaken due to the data loss being sporadic in nature and therefore not appropriate for annualisation.

## QA/QC of Automatic Monitoring

Quality Assurance/Quality Control (QA/QC) audits are carried out by Ricardo-AEA twice a year at all automatic monitoring sites.

## QA/QC of Diffusion Tube Monitoring

[illegible]

WASP Round	WASP R113	WASP R114	WASP R115	WASP R116	WASP R117	WASP R118	WASP R119	WASP R120
Round conducted in the period	April - June 2011	July - September 2011	October - December 2011	January – March 2012	April – June 2012	July – September 2012	October – December 2012	January – March 2013
Aberdeen Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Bristol City Council [4]	100 %	100 %	100 %	-	-	-	-	-
Cardiff Scientific Services	100 %	100 %	75 %	100 %	100 %	100 %	100 %	100 %
Edinburgh Scientific Services	100 %	100 %	0 %	100 %	100 %	100 %	100 %	100 %
Environmental Services Group, Didcot (formerly Bureau Veritas Laboratories, Glasgow and Harwell Scientifics) [1] [2]	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Exova (formerly Clyde Analytical)	100 %	0 %	75 %	0 %	0 %	100 %	25 %	75 %
Glasgow Scientific Services	100 %	100 %	100 %	100 %	50 %	100 %	100 %	50 %

**Appendix B**

**Monitoring location maps**



