



**REPORT IN SUPPORT OF REVOCATION OF
CHAPELHALL AQMA, NORTH
LANARKSHIRE**

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1. BACKGROUND

1.1 Introduction

Air pollution is associated with several adverse health impacts including exacerbating respiratory conditions and heart disease. There is also a strong correlation with equalities issues because areas with poor air quality are often the less affluent areas. North Lanarkshire Council is committed to reducing the exposure of people in North Lanarkshire to poor air quality to improve health.

1.2 Legislation and policy

To prevent, control and minimise atmospheric emissions that are harmful to human health and the environment, legislation and policies at European, national and regional levels have been put in place.

European Legislation

The European Union (EU) published a Directive on Ambient Air Quality Assessment and Management which came into force in September 1996 (Union Council of the European Union, 1996). This Directive was intended as a strategic framework for tackling air quality in a consistent manner, through setting European wider air quality limit values in a series of daughter directives, superseding and extending European legislation. The first four daughter directives were placed into national legislation. A new EU air quality directive (European Parliament and the Council of the European Union, 2008) came into force in June 2008 and was transposed into the Air Quality Standards Regulations in England, Wales, Scotland and Northern Ireland in June 2010). The directive merged the four daughter directives and one Council decision into a single directive on air quality. The Directive requirements have been retained in domestic legislation following the UK's exit from the EU.

National Legislation

The Environment Act 1995 (HM Government, 1995) required the preparation of a national air quality strategy setting Air Quality Objectives (AQOs) for specified pollutants and outlining measures to be taken by local authorities through the system of Local Air Quality Management (LAQM). Local authorities are required to review and assess air quality within their areas under LAQM and to work in pursuit of the achievement of the statutory AQOs.

Air Quality is a devolved matter and the AQOs which are relevant to LAQM have been set into regulations, namely

Air Quality (Scotland) Regulations 2000

Air Quality (Scotland) (Amendment) Regulations 2002

Air Quality (Scotland) (Amendment) Regulations 2016

A summary of the relevant AQOs for this revocation report, namely Nitrogen Dioxide (NO₂) and Particulate Matter, PM₁₀ is outlined in Table 1.1

Table 1.1 – Summary of AQOs for NO₂ and PM₁₀ in Scotland

Pollutant	AQO Concentration	AQO Measured as	Date to be achieved by
Nitrogen Dioxide (NO ₂)	40 µg/m ³	Annual Mean	31.12.2005
	200 µg/m ³ not to be exceeded more than 18 times per year	1-hour Mean	31.12.2005
Particulate Matter (PM ₁₀)	18 µg/m ³	Annual Mean	31.12.2010
	50 µg/m ³ not to be exceeded more than 7 times per year	24-hour Mean	31.12.2010

Cleaner Air for Scotland Strategy

Cleaner Air for Scotland 2 – Towards a Better Place for Everyone (CAFS2) is Scotland’s second air quality strategy. CAFS2 sets out how the Scottish Government and its partner organisations propose to further reduce air pollution to protect human health and fulfil Scotland’s legal responsibilities over the period 2021-2026. CAFS2 was published in July 2021 and replaces Cleaner Air for Scotland – The Road to a Healthier Future (CAFS), which was published in 2015. CAFS2 aims to achieve the ambitious vision for Scotland “to have the best air quality in Europe”. A series of actions across a range of policy areas are outlined, a summary of which is available on the Scottish Government website.

Local Air Quality Management

The aforementioned AQOs have been set down in regulation for the purposes of the LAQM process. The Environment Act 1995 requires that local authorities undertake a tiered appraisal of air quality within their area to establish compliance or non-compliance with the targets detailed in the UK National Air Quality Strategy, and report on an annual basis. Where the AQOs are not met or are not likely to be met within the stated timescales for compliance the local authority must designate an Air Quality Management Area (AQMA). The boundary of the AQMA is set by the governing local authority and can be as large or as small as preferred, however it must include the area of exceedance, usually as determined through air quality monitoring.

Where an AQMA has been declared the local authority must thereafter prepare an Air Quality Action Plan setting out the measures it intends to put in place in pursuit of the objectives. North Lanarkshire Council has three AQMAs – Coatbridge, Chapelhall and Motherwell Town Centre. This revocation proposal report focuses on the Chapelhall AQMA. The Coatbridge AQMA is also being revoked and this is the subject of a separate report.

Following a minimum of three years of compliance with the AQOs, an AQMA may be revoked. Section 4 of Part IV of the Environment Act 1995 states that local authorities can amend or revoke an AQMA at any time as set out under section 83(2) of the 1995 Act. Where an authority considers it necessary to do this, the Scottish Government expects the authority to prepare a revocation

proposal report containing all available supporting information to justify the revocation. This report must be approved by the Scottish Government prior to any changes taking effect. On completion of the AQMA revocation all statutory consultees, SEPA, businesses, members of the public and other interested parties in the vicinity of the AQMA will be notified.

1.3 Summary of proposal

Monitored concentrations of the pollutants NO₂ and PM₁₀ at the monitoring locations within and adjacent to the Chapelhall AQMA have complied with the statutory AQOs for at least nine years. As such it is proposed that the Chapelhall AQMA is revoked in its entirety for both pollutants. Monitoring in this area will continue for a period of at least a year following the revocation.

2. Description of Chapelhall AQMA

The Chapelhall AQMA was originally declared in December 2005 because of air monitoring which identified likely breaches of the AQO for levels of PM₁₀ at the automatic air monitoring station in Chapelhall at the junction of Main Street/Lauchope Street. Following this AQMA declaration an Emissions Inventory exercise was undertaken in 2007. This, combined with monitoring carried out over subsequent years indicated exceedances of NO₂ as well as PM₁₀ along the M8 at Coatbridge (Shawhead to Kirkshaws areas) and at Chapelhall. Monitoring reinforcing this was also reported in the 2011 Progress Report and the 2012 Updating and Screening Assessment. In the 2013 Progress Report it was suggested that a Detailed Assessment (including dispersion modelling) of the area was undertaken, and the Monklands Detailed Assessment (covering Coatbridge, Airdrie and Chapelhall areas) was carried out in 2013/14. This confirmed continued likely exceedances of the annual mean statutory air quality objectives for both PM₁₀ and NO₂ in the Chapelhall and Coatbridge AQMAs. Consequently, the Chapelhall AQMA was amended in 2014 to be declared for NO₂ in addition to PM₁₀. The geographical boundary of the Chapelhall AQMA is illustrated in Figure 2.1

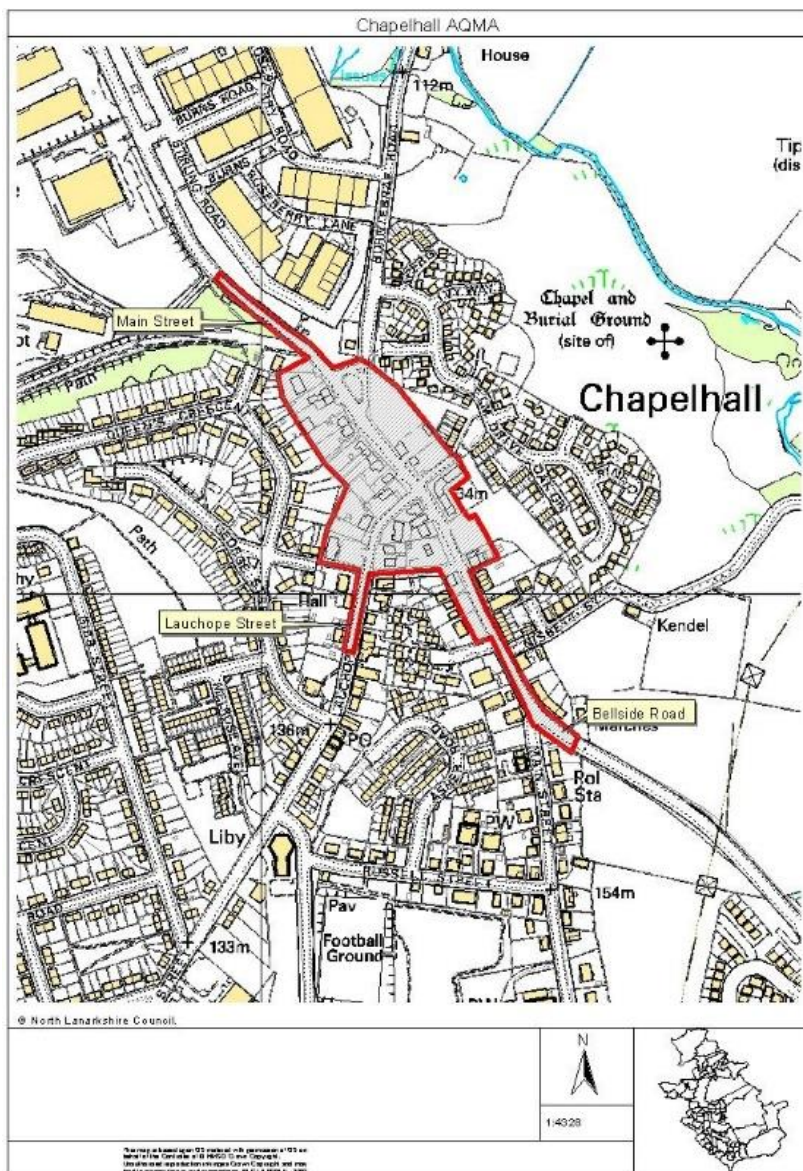


Figure 2.1 – Boundary Map of Chapelhall AQMA

3.0 Local Sources of air pollution in Chapelhall AQMA

A source apportionment exercise was carried out by North Lanarkshire Council in 2018 with reference to the 2017-based National Atmospheric Emissions inventory (NAEI). The data was used to evaluate the emissions contributions from multiple source types within 1km x 1km grid squares covering the AQMAs. For each grid square, the road sources emissions were further analysed to identify contributions from motorcycles, cars, light goods vehicles (LGVs), buses and heavy goods vehicles (HGVs) using emissions factors and vehicle split information from Department of Transport data. Dispersion modelling was used to calculate the contribution to ambient annual mean concentrations of each pollutant from the main source groups at roadside receptors at different locations within each AQMA.

The 1km x 1km grid square emissions were updated for expanded regional modelling studies in 2021 and 2022 using updated versions of the NAEI with no significant variation in the dominant sources. The modelled contributions to concentrations at roadside receptors within the AQMAs are therefore dominated by the same principal sources. Table 3.1 illustrates the source apportionment for each pollutant monitored in the Chapelhall AQMA.

Table 3.1 Source apportionment in Chapelhall AQMA

Pollutant	Emissions Source Apportionment (NAEI 2020)				Average Contribution to Annual Mean Concentration at Roadside Receptors in the AQMA		
	Roads	Other mobile (inc. air and rail) & Machinery	Combustion Plant	Other including Rural/Long Range Transportation	Traffic	Rural Background	Other
NO ₂	73%	10%	8%	9%	50% (c.80%/20% Cars, Motorbikes & LGV/Buses, Taxis & HGV)	35%	15%
PM ₁₀	37%	8%	0%	55%	13% (c.75%/25% Cars, Motorbikes & LGV//Buses, Taxis & HGV)	85%	2%

It can be seen from Table 3.1 that the main sources of average contribution to annual mean concentrations of NO₂ at roadside receptors in the Chapelhall AQMA are 50% from traffic, 35% from the rural background and 15% from other sources.

For PM₁₀ the predominant source of annual mean concentrations is the rural background (85%) with a further 13% from road traffic emissions.

4.0 Monitoring Equipment in Chapelhall AQMA

North Lanarkshire has operated an automatic air monitoring station for more than 20 years. This is situated at the junction of Main Street and Lauchope Street, in the village of Chapelhall, and is in the centre of the Chapelhall AQMA. Additional monitoring using Diffusion Tubes to monitor NO₂

are also located in/adjacent to the Chapelhall AQMA. Figure 4.1 shows the monitoring locations within/adjacent to the Chapelhall AQMA and Table 4.1 outlines details of all monitoring sites within/adjacent to the Chapelhall AQMA.

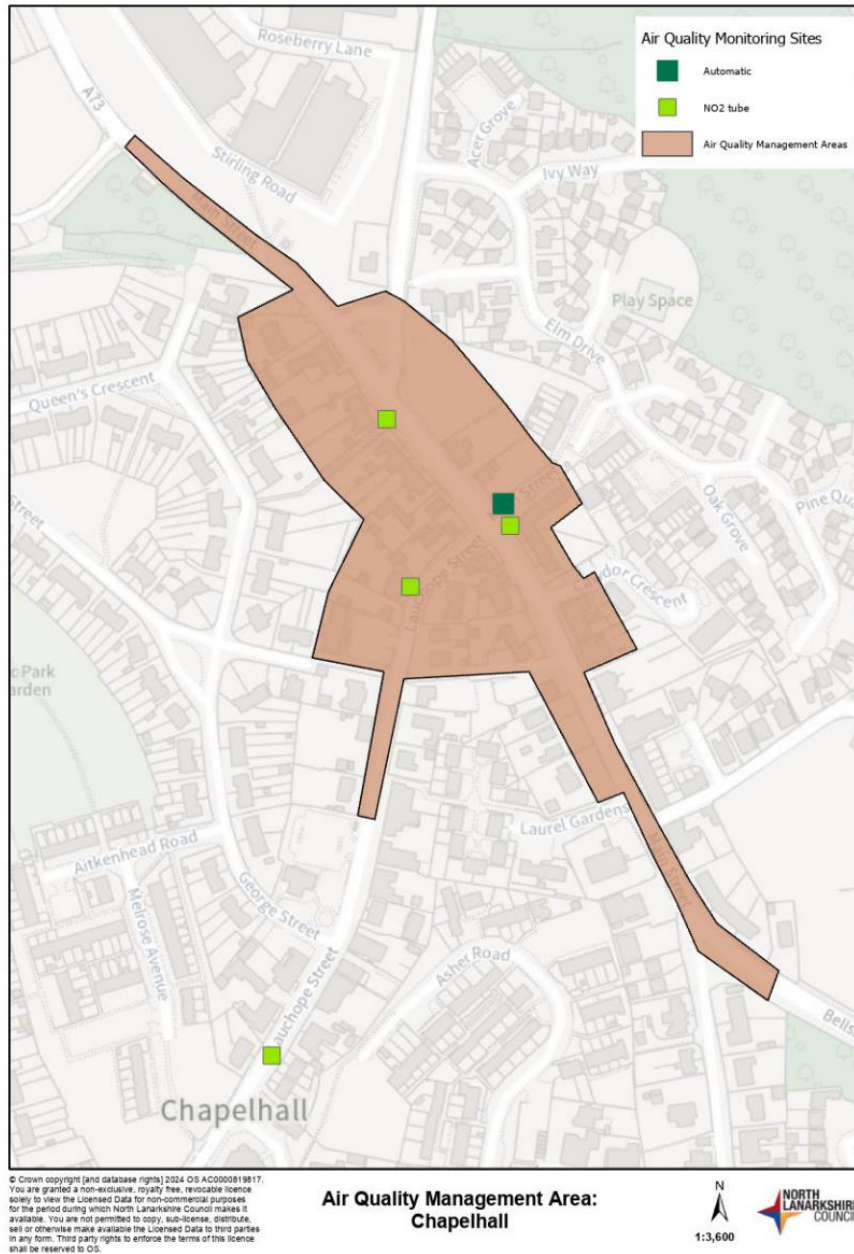


Figure 4.1 – Monitoring locations within/adjacent to Chapelhall AQMA boundary

Table 4.1 – Details of Monitoring Sites within/adjacent to Chapelhall AQMA

Site Name/ID	Site Type	Type of Monitoring	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	Distance to Relevant Exposure (m)	Distance to kerb of nearest road (m)
CM1 – Chapelhall	Roadside	Automatic	278174	663124	NO ₂ PM ₁₀ PM _{2.5}	20	10
DT138 – Main St, Chapelhall (near shops)	Roadside	Diffusion Tube	278037	662798	NO ₂	10	2
DT139 – Main St/Lauchope St Junction, Chapelhall	Roadside	Diffusion Tube	278178	663111	NO ₂	10	2
DT148 – lamp post R32, Main St, Chapelhall	Kerbside	Diffusion Tube	278105	663174	NO ₂	15	2
DT149 – lamp post R33 – Main St, Chapelhall	Kerbside	Diffusion Tube	278119	663075	NO ₂	15	2

The automatic monitor in Chapelhall has been in place for a long period of time which has enabled trend data to be established over a long period. Similarly, the NO₂ diffusion tubes have also been in place for an extended period of time. This monitoring will remain in place for a period of at least a year following the revocation of the Chapelhall AQMA.

5.0 Local Monitoring Data – Chapelhall AQMA

Monitoring data for the period 2014 to 2023 from both the automatic and non-automatic air monitoring sites in/adjacent to the Chapelhall AQMA is presented in the tables below.

Table 5.1 – Annual Mean NO₂ Monitoring Results – Chapelhall AQMA

Monitoring Site	Monitoring Type	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
CM1 – Chapelhall	Automatic	32.7	33.5	32	33.8	27.7	21.7	18.0	14.8	13.8	18.2
DT138 – Main St, Chapelhall (near shops)	Diffusion Tube	23.6	26.9	24.3	25	22.7	23.1	12.3	16.7	13.7	12.5
DT139 – Main St/Lauchope	Diffusion Tube	35.6	33.8	30.1	39	29.4	28.1	18.1	22.8	21.1	17.0

St junction, Chapelhall											
DT148 – lamp post R32, Main St, Chapelhall	Diffusion Tube	29.8	35.4	28.7	28.8	31.2	28.0	17.6	20.6	19.1	13.9
DT149 – lamp post R33, Main St, Chapelhall	Diffusion Tube	34.4	26.8	31.9	31	26.9	29.1	17.2	20.7	16.4	14.3

It can be seen from the annual mean NO₂ monitoring data that all levels have complied with the statutory AQO for annual mean NO₂ for a considerable period. Although there has been a rise in measured concentrations at the automatic air monitoring station from 2022 to 2023 the levels are still well below pre-pandemic levels, and still comfortably below the AQO for annual mean NO₂. This slight rise in annual mean has not been noted in diffusion tube results for 2022 to 2023.

Table 5.2 – Annual Mean PM₁₀ Monitoring Results – Chapelhall AQMA

Monitoring Site	Monitoring Type	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
CM1 – Chapelhall	Automatic	19.2	18.5	15.4	12	10.2	10.0	9.0	9.4	9.9	9.7

Annual mean PM₁₀ results at the automatic air monitoring station within the Chapelhall AQMA have shown a steady and sustained reduction in the period 2014 to 2023. In recent years, post-pandemic, the levels have remained stable, and comfortably below the AQO for annual mean PM₁₀.

Following the revocation of the Chapelhall AQMA monitoring of PM₁₀ and NO₂ will continue for at least one year at the existing monitoring locations.

6.0 Actions taken to improve air quality in Chapelhall AQMA

With the declaration of AQMAs there is a subsequent requirement for the local authority to prepare and publish an Air Quality Action Plan (AQAP). An AQAP outlines a range of measures that the Council pledges to take to improve air quality in the AQMAs. North Lanarkshire Council has fulfilled this duty and published three AQAPs since the original declaration of the Chapelhall AQMA in 2005. The first AQAP was published in 2007. This was updated by the 2010-2013 AQAP, the 2013-2018 AQAP, the 2018-2021 AQAP and the current AQAP 2023-2028. All the AQAPs contained a range of general measures aimed at the improvement of air quality across the whole North Lanarkshire area, including the AQMAs, as well as measures bespoke to the individual AQMAs where appropriate. Measures undertaken specifically in relation to the Chapelhall AQMA include:

- Anecdotal evidence suggested that HGV traffic was leaving the M8 motorway and using the route through the Chapelhall AQMA (A73) to join the M80 in the north. The declassification of the B799 Lauchope Street took place in 2012 in order that this road did not appear as a potential route on sat nav equipment, and was regarded as suitable for use by local traffic only. The nearby Lancaster Avenue re-named the B799 to reduce congestion in the area. This had the effect of reducing congestion through the Chapelhall AQMA.
- A Detailed Assessment, including dispersion modelling was carried out on the A73 corridor in 2013/14 and again in 2019 to identify and quantify localised hot spots of elevated levels of pollution along the route, which runs through the Chapelhall AQMA.
- Several different engineering solutions have been tried on Lauchope Street, Chapelhall, aimed at reducing inappropriate traffic such as HGVs as well as speeding traffic through the village. Speed restrictions and chicanes were installed in 2019 however they were removed after two years, in 2021 due their inefficacy and unpopularity with the residents. These were replaced with speed tables which have been more effective in slowing traffic through the village which has in turn led to less of a bottleneck at the main junction of Lauchope Street and Main Street at the centre of the Chapelhall AQMA.

7.0 Conclusions and Recommendations

Data from the monitoring located in and adjacent to the Chapelhall AQMA has indicated sustained and ongoing compliance with the annual mean statutory air quality objectives for both NO₂ and PM₁₀ for which the Chapelhall AQMA was declared. As such, in line with Section 83(2) of the Environment Act 1995 and statutory air quality guidance made in respect of this legislation, it is concluded that there is no longer a requirement for an AQMA in this area. As such it is concluded that the Chapelhall AQMA will be revoked in its entirety but that monitoring of NO₂ and PM₁₀ will continue for at least a year within this area following the revocation process.

The current AQAP for North Lanarkshire will remain in place until its expiry in 2028.