Annual Progress Report (APR)

2022 Air Quality Annual Progress Report (APR) for North Lanarkshire Council

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

August 2022

Information	**North Lanarkshire Council**
Local Authority Officer	Fiona Maguire
Department	Regulatory Services and Waste Solutions
Address	Civic Centre, Windmillhill Street, Motherwell, ML1 1AB
Telephone	01236 856300
E-mail	maguiref@northlan.gov.uk
Report Reference Number	NorthLanAPR2022
Date	August 2022

Executive Summary: Air Quality in Our Area

Air Quality in North Lanarkshire

North Lanarkshire Council is Scotland's fourth largest (by population) local authority, situated in Central Scotland. Traditionally an area associated with heavy industry, this has significantly declined in recent years and the economy of the area now focuses on commerce and light industry. Due to its geographical location many of Scotland's trunk roads pass through North Lanarkshire, including the M8/A8, M74, M73 and M80/A80. There is also substantial cross-boundary travel with neighbouring local authority areas, particularly Glasgow, South Lanarkshire, Falkirk and West Lothian, for employment, education and leisure activities. The main source of air pollution within North Lanarkshire is road traffic emissions, with a small element attributable to small-scale quarrying activities.

North Lanarkshire Council operate an extensive network of air monitoring equipment comprising ten real-time automatic monitoring stations measuring Nitrogen Dioxide (NO_2) and fine Particulate Matter (PM_{10} and $PM_{2.5}$) as well as a comprehensive network of 81 passive diffusion tubes monitoring NO_2. Our monitoring locations, both automatic and diffusion tubes are reviewed on a regular basis to ensure we target the most appropriate locations in terms of air pollution sources and the potential for receptor exposure. The reporting period 2021 saw some changes in our automatic monitoring locations, with the decommissioning of the Sunnyside Rd, Coatbridge and the Calder St, Whifflet sites. Two new, more representative automatic sites were installed – at Whifflet Cross, A725 and also at Ravenscraig. The Whifflet site is closer to the source of pollution in the area (road traffic emissions) and receptors. The Ravenscraig site will serve to provide meaningful air monitoring data as the site is developed over the coming years. New air monitoring equipment was also purchased in 2021 using Scottish Government air quality grant funding, one Particulate Analyser (FIDAS) and two Nitrogen Dioxide analysers installed in existing sites to replace ageing equipment. In 2022 grant funding has been awarded to purchase further Nitrogen Dioxide analysers to replace further existing equipment, and thus ensure the highest integrity air monitoring data in North Lanarkshire.

In 2021 Scotland was in the second year of the Covid-19 pandemic and the level of road traffic was significantly lower than in pre-pandemic years due to ongoing infection control restrictions and work from home advice. All automatic and non-automatic (passive diffusion

tube) monitoring of NO_2, PM_{10} and $PM_{2.5}$ indicated levels below the annual mean and short-term statutory objectives. A slight increase on 2020 monitored levels was noted, but still comfortably meeting the statutory objectives. It is highly likely that the reduced levels of road traffic as a result of the Covid-19 pandemic is the reason for the reduced air pollution levels. A key task in 2022 will be to compare both automatic and diffusion tube monitoring for 2021 with that of 2019 – the last representative year, prior to the Covid-19 pandemic.

There are a number of major developments planned in the North Lanarkshire Council area over the coming years. City Deal projects including the Pan Lan access to Ravenscraig routes, and the East Airdrie Link Road, not to mention the NHS Lanarkshire New Monklands Hospital and active travel improvements in Motherwell Town Centre. We will strive to ensure air quality is considered at the earliest possible stage in both major and smaller scale developments.

In line with the commitments within the Air Quality Action Plan North Lanarkshire Council has continued to promote sustainable travel, in particular walking and cycling and have been successful in obtaining Scottish Government air quality grant funding for a number of initiatives over the past few years. In 2021 funding was obtained to contribute towards active travel improvements in Motherwell Town Centre, close to Motherwell train station. In 2022 similar funding has been secured to contribute towards cycling infrastructure within Strathclyde Park. We also worked alongside South Lanarkshire Council to promote walking and cycling in and around Strathclyde Park using our bespoke “A Breath of Fresh Air in Lanarkshire” map and APP.

In 2022 the revocation of the Croy AQMA will be completed and the North Lanarkshire Council’s Air Quality Action Plan will also be updated and published. This Action Plan will bring together various council services whose functions impact on air quality to create a plan to improve air quality in the North Lanarkshire Council area.

Actions to Improve Air Quality

2021 was the second year of the pandemic and various restrictions remained in place to reduce the spread of infection. While this did impact the work of the Pollution Control and Public Health Team at North Lanarkshire Council we are pleased to report that a number of actions were still able to be progressed in terms of local air quality management work in 2021. Several projects were able to be realised in line with the pledges within the Council’s Air Quality Action Plan.

In terms of air monitoring – using Scottish Government air quality grant funding the council was able to purchase one new particulate analyser (FIDAS) and two new Nitrogen Dioxide (NO_2) analysers to upgrade equipment in two of our existing air monitoring stations. In addition to this a low cost Zephyr air monitor was purchased for short-term air monitoring.

Work also continued on the promotion of sustainable travel methods, particularly walking and cycling, with funding from the air quality budget being provided for footpath share-use works and signage in Motherwell town centre linking into wider active travel improvements in the area. In a similar vein further work was carried out in conjunction with South Lanarkshire Council to further promote the “A Breath of Fresh Air in Lanarkshire” walking and Cycling map and APP for Strathclyde Park. This APP received a refresh and was launched on Clean Air Day in 2021.

The Eco Stars Fleet Recognition Scheme continued in 2021 and exceeded a total of 200 members. The planned Eco Stars bus operator workshop did not go ahead however, due to the Covid-19 pandemic restrictions.

Further information on actions taken to improve air quality in 2021 is detailed in Chapter 2 of the report.

Local Priorities and Challenges

In 2022/23 North Lanarkshire Council will continue to monitor air quality using our extensive network of automatic and passive air monitors. Subject to Scottish Government air quality grant funding and a robust procurement exercise further equipment will be purchased and installed in existing air monitoring stations to ensure the highest standard of equipment, and thus integrity of data that is possible.

We will take due cognisance of air monitoring in 2022/23 as we go through the third year of the Covid-19 pandemic and restrictions ease further. Comparisons will be made with 2019 (pre-pandemic) traffic levels and monitored levels of air pollutants in North Lanarkshire. Particular attention will be paid to monitoring at the two new automatic air stations at Whifflet A725, Coatbridge, and at Ravenscraig.

The low-tech Zephyr air monitor purchase in 2021 will be deployed at a suitable location and a further Zephyr purchased in 2022/23.

The recently completed regional dispersion modelling exercise undertaken will be used to undertake a comprehensive review of air quality monitoring locations in North Lanarkshire, for both automatic and non-automatic equipment to ensure monitoring is carried out in the most appropriate locations for both sources and potential receptor exposure. Further upgrade of automatic air monitoring equipment will also take place, subject to Scottish Government air quality grant funding.

The Eco Stars Fleet Recognition Scheme will continue to operate in North Lanarkshire in 2022 and a new, separate Eco Stars scheme for taxi operators will be established. Eco Stars workshops will also be run in conjunction with South Lanarkshire Council, for bus and taxi operators to encourage uptake in these sectors.

A significant task for 2022 will be the update of the Council's Air Quality Action Plan. This Action Plan will be strongly linked with the Cleaner Air for Scotland Strategy document, updated in 2021. Stakeholder events will be held to ensure input from all relevant service areas and to highlight the necessity of inter-departmental working in air quality action planning.

The revocation of the Croy Air Quality Management Area (AQMA) will also be completed in 2022.

We will also continue to promote and link in with sustainable travel initiatives within the Council where possible, recognising its importance in improving local air quality. In recent years we have been successful in obtaining air quality funding to contribute towards elements of larger projects. For 2022 we have obtained funding for footpath, access and signage work at Strathclyde Park to improve access for new cycling infrastructure that is being installed. We will also continue to work with South Lanarkshire Council to encourage greater levels of walking and cycling through our "A Breath of Fresh Air in Lanarkshire walking and cycling map/APP. Where possible we will strive to continue promotion and expansion of this resource.

How to Get Involved

Further information on air quality in North Lanarkshire can be found on the Council's website at http://www.northlanarkshire.gov.uk/pests-and-pollution/pollution/air-pollution or by contacting kildonanPS@northlan.gov.uk

Table of Contents

List of Tables

List of Figures

1 Local Air Quality Management

This report provides an overview of air quality in North Lanarkshire Council during 2021. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) 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 an exceedance is considered likely the local authority must 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. This Annual Progress Report (APR) summarises the work being undertaken by North Lanarkshire Council to improve air quality and any progress that has been made.

Table 1.1 – Summary of Air Quality Objectives in Scotland

Pollutant	Air Quality Objective Concentration	Air Quality Objective Measured as	Date to be Achieved by
Nitrogen dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
Nitrogen dioxide (NO_2)	40 µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
Particulate Matter (PM_{10})	18 µg/m^3	Annual mean	31.12.2010
Particulate Matter ($PM_{2.5}$)	10 µg/m^3	Annual mean	31.12.2021
Sulphur dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide (SO_2)	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide (SO_2)	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	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

2 Actions to Improve Air Quality

Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12 months, setting out measures it intends to put in place in pursuit of the objectives.

A summary of AQMAs declared by North Lanarkshire Council can be found in Table 2.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://www.northlanarkshire.gov.uk/pests-and-pollution/pollution/air-quality/air-quality-management-areas

In 2021, following approval from the Scottish Government and SEPA, North Lanarkshire Council began the formal process of revoking the Croy Air Quality Management Area (AQMA). The revocation process was completed in 2022.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town	Description	Action Plan
AQMA Chapelhall	NO_2 annual mean PM_{10} annual mean	Chapelhall	An area encompassing a number of properties at the junction of Main Street and Lauchope Street	http://www.northlanarkshire.gov.uk/pests-and-pollution/pollution/air-quality/air-quality-management-areas
AQMA Coatbridge	NO_2 annual mean PM_{10} annual mean	Coatbridge	Whifflet Street stretching from roundabout at McDonalds to Shawhead roundabout. Extended in 2015 to include Kirkshaws Road	http://www.northlanarkshire.gov.uk/pests-and-pollution/air-quality/air-quality-management-areas
AQMA Motherwell	PM_{10} annual mean	Motherwell	An area encompassing part of Motherwell Town Centre	http://www.northlanarkshire.gov.uk/pests-and-pollution/pollution/air-quality/air-quality-management-areas

Cleaner Air for Scotland 2

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's website.

Progress by North Lanarkshire Council against relevant actions for which local authorities are the lead delivery bodies within this strategy is demonstrated below.

2.1.1 Placemaking – Plans and Policies

Local authorities with support from the Scottish Government will assess how effectively air quality is embedded in plans, policies, City Deals and other initiatives, and more generally in cross departmental working, identifying and addressing evidence, skills, awareness and operational gaps.

North Lanarkshire Council submitted its draft Local Development Plan (LDP) to the Scottish Government for appraisal and has recently been granted approval that the Draft LDP can be formally adopted. The Draft LDP includes a section on Placemaking Policies which details Environment and Design Qualities (EDQ) for development. Category EDQ C2 includes air quality as a Special Feature for Consideration for proposed development.

In addition, within the EDQ3 Policy section of the Draft LDP there is reference to air quality as one of a number of considerations in relation to planned development. Particular note is made of proposed development within or adjacent to Air Quality Management Areas.

North Lanarkshire Council Pollution Control and Public Health Team are consulted by Development Control on any proposed developments that could potentially impact on air quality. Where deemed necessary an Air Quality Impact Assessment is requested in respect of the proposed development and thereafter reviewed before a response is made back to Planning to be included in their overall assessment of the planning application. This includes major infrastructure projects such as the City Deal projects. If appropriate pre-application discussions in respect of air quality will take place in respect of major development projects.

2.1.2 Transport – Low Emission Zones

Local authorities working with Transport Scotland and SEPA will look at opportunities to promote zero-carbon city centres within the existing LEZs structure.

North Lanarkshire Council has no Low Emission Zones and following a screening exercise has concluded that there are no areas where Low Emission Zones would be appropriate at this time.

2.1.3 Air Quality and Climate Change

The Climate Plan Act 2030 is the first in a series of documents which will form the climate strategy for North Lanarkshire. The council declared a climate emergency and committed itself and the area of North Lanarkshire to an accelerated target of net-zero greenhouse gas emissions by 2030, beyond the ambition of the Climate Change (Emission Reduction Targets)(Scotland) Act 2019. This has required a new approach to the council's own emission reductions as well as recognising the need for an area-based strategic approach to incorporate the full intent of the Climate Change (Scotland) Act 2009 [as amended]. Targeting transport emissions is key to the delivery of this ambitious target as within the North Lanarkshire area road emissions account for 36.3% of total local greenhouse gas emissions. Work is progressing in its development and is supported by current and future planned activity:

- The future workplace model has witnessed a transition for staff who were designated as home workers during COVID-19 restrictions to that of hybrid, requiring full time staff to work from the office a minimum of 6 days per month. This change will see an increase in commuting however will not revert back to the same level as pre-March 2020. Staff continue to be supported by the increased capacity and reliability of connections and digital technology at their workplace and home. This capability facilitates opportunities to reduce transport emissions and non-essential travel as meetings can be hosted via Microsoft Teams.

- Pool vehicles are now distributed to services as per demand. The use of pool vehicles continues to be encouraged in line with the council's business travel policy.

- The council has entered into a strategic partnership for electric vehicle charging infrastructure with Transport Scotland, Scottish Power EnergyNetworks and South

Lanarkshire Council. Project Pace installed community electric vehicle charging stations at 44 locations. Other than improving the vehicle charging provision, the council has no direct influence on consumer behaviour however a commitment has been made to increasing its Low Emission fleet and so are visibly supporting this agenda.

Progress and Impacts of Measures to address Air Quality in North Lanarkshire Council

North Lanarkshire Council has taken forward a number of measures during the current reporting year of 2021 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. More detail on these measures can be found in the air quality Action Plan relating to each AQMA. Key completed measures are:

- Consultation process undertaken on revocation of Croy AQMA
- Purchased new monitoring equipment – two new NOx analysers, one particulate analyser (FIDAS) and a low-cost Zephyr air monitor
- Decommissioned two air monitoring stations and set up two new stations in areas of more relevant exposure
- Updated all AQ pages on NLC website – the North Lanarkshire Council website was upgraded in 2021 and all pages relating to air pollution were updated
- Expanded Dispersion modelling study – the original dispersion modelling study was expanded in 2021 to include the Wishaw and Newmains areas in order to get a picture of modelled air pollution levels across the area.
- Funding awarded from the Scottish Government Air Quality Action Plan grant contributed towards the larger Motherwell Station Active Travel Links Project. Specifically this funding paid for widening and resurfacing a section of path alongside the Aquatec in Motherwell town centre for shared use and the installation of new shared use signage. This section of path will link into wider active travel improvements between Motherwell rail station, Motherwell town centre and Strathclyde Country Park.

Progress on the following measures has been slower than expected due to:

- The revocation of Croy AQMA did not progress as quickly as expected due to competing operational pressures as a result of the Covid-19 pandemic. This work will be completed in 2022
- The planned Eco Stars bus operator workshop that was being held in conjunction with South Lanarkshire Council did not go ahead because of the Covid-19 pandemic.
- No air quality work with schools was able to take place during 2021 due to access to schools being restricted because of the Covid-19 pandemic.

North Lanarkshire Council expects the following measures to be completed over the course of the next reporting year:

- One of the main pieces of work in 2022 will be the update of the Council's Air Quality Action Plan.
- Following the necessary consultation exercise the process of revoking the Croy AQMA will be completed.
- Subject to funding and following a robust procurement process the council intend to purchase up to eight NOx air monitors to replace ageing monitoring equipment in some of our existing air stations
- Following on from initiatives in recent years around cycling and walking in Strathclyde Park in 2022 we have been successful in obtaining Scottish Government air quality funding to contribute to a wider project involving the improvement of the cycling infrastructure at Strathclyde Park. Specifically for this year we are supporting footpath widening, signage etc. changes to link new cycling infrastructure in the north of Strathclyde Park with the existing cycle hire facilities at the Watersports Centre. This will have the benefit of improving access to cycling and promoting cycling as a preferred sustainable transport option rather than private vehicle use.
- Following on from the previous Strathclyde Park map/APP "A Breath of Fresh Air in Lanarkshire" project with South Lanarkshire Council. A new Treasure Trail route will be developed and added to the APP. This will be launched in the school summer holidays in 2022
- In 2022 we will undertake an extension of the regional air quality dispersion model to cover the whole remainder of the North Lanarkshire area. This would include the above Northern part of the district, and also the east of the district (Shotts, Harthill etc).

- A comprehensive review of North Lanarkshire Council's air monitoring equipment will be undertaken taking due cognisance of the dispersion modelling studies we have had carried out over the past couple of years. This will ensure that all monitoring, both automatic and non-automatic (passive diffusion tubes) will be sited in appropriate locations having regard to likely (modelled) levels and relevant receptor exposure.
- The Eco Stars Fleet Recognition Scheme will continue to run in 2022 with fleet operators in North Lanarkshire. In addition to the fleet scheme in 2022 a separate Eco Stars scheme for taxi operators will be launched. We also hope to run two Eco Stars workshops, in conjunction with South Lanarkshire Council, in 2022. One will be for bus operators and one for taxi operators.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
1	NLC Vehicle Fleet and Work Journeys • The Council will strive to reduce car journey for work purposes eg by teleconferencing. For instances where work travel is necessary the Council's car fleet will be utilised with electric/hybrid vehicles provided where possible. • Further consideration will be given to reducing the number of private vehicles used for Council business, introducing bus/sustainable transport where possible	Promoting Travel Alternatives	Workplace Travel Planning	NLC All Depts	2018/19	2019-2021	NA	Anticipated reduction in concentration, based on the result of quantitative appraisal (using dispersion modelling and/or screening tools)	Ongoing	Ongoing	Since the start of the Covid-19 pandemic there has been a reduction in use of pool cars due to home working and buildings, and issues surrounding the sanitisation of vehicles between uses. Working from home and remote meetings have meant a reduction in work-associated travel. Pool cars are now the responsibility of individual services within the council, and not operated centrally via Fleet and Transport. This is as a result of less demand for pool cars in the post-covid landscape.
2	Vehicle Fleet Efficiency • Tracking devices will continue to be fitted to NLC fleet vehicles in order to provide info on managing idling/speeding and unnecessary journeys	Vehicle Fleet/Efficiency/Traffic Management	Driver training and Eco driving aids	NLC Fleet and Transport	2018	2018-2021	NA	Anticipated reduction in NLC vehicle fleet contributions to poor air quality	Complete	Complete	In 2021 tracking devices were fitted on 308 fleet vehicles. Following a procurement exercise in 2022 this figure is expected to rise to 600 which will be all of the

	• Driver Certificate of Professional Competence training will be provided for all Council drivers, including modules on safe and efficient driving • The Council will introduce scheduling of Council vehicles eg by coordinating school bus/minibus/community transport vehicles										NLC fleet with tracking systems. Driver CPC training is ongoing for all NLC driving staff 2021-Optimal routing of NLC buses on hold due to pandemic however waste still use Fleetroute to manage their street routing and the efficiency of vehicles. It is hoped to introduce the use of Fleetroute for NLC buses.
3	Subject to Scottish Govt grant funding the Council will continue to operate the NLC Eco Stars fleet recognition scheme and use this to engage with certain vehicle sectors on route planning as appropriate to avoid AQMAs	Vehicle Fleet Efficiency	Fleet Efficiency and recognition schemes	NLC Protective Services and external consultant delivering Eco Stars	2018	2018-2021	NA	Targeted reduction of certain vehicle sectors in AQMAs leading to reduced emission in AQMAs	Ongoing	Ongoing	The North Lanarkshire Council Eco Stars fleet recognition scheme continued in 2021
4	The Council will continue to increase the provision of electric vehicle (EV) charging points, where possible ensuring that they are accessible to both NLC staff and the general public. The Council will engage with other public sector agencies (eg NHS Lanarkshire) to encourage similar provision to ensure adequate coverage of EV charging points across NLC area	Promoting low emission transport	Promotion of EV charging	NLC/other public bodies in the area	2018-2021	2018-2021	NA	Greater facilities for EV should encourage uptake, reducing vehicle emission in AQMAs	Ongoing	Ongoing	A further 40 EV charging points have been installed in NLC premises in 2021/22
5	The Council will abide by their statutory duty of sustainable procurement and sustainable section of the sourcing methodology documentation, which will consequently feed through into the specification/award criteria where appropriate	Promoting low emission transport	Public vehicle procurement – prioritising uptake of low	NLC Procurement	2018-19	2018 – 2021	NA	NA	In place	Ongoing	Procurement Strategy document includes info on sustainable procurement

			emission transport								
6	Increasing levels of sustainable travel • The Council will work with agencies such as SPT and Sustrans (among others) to develop and implement measures which will encourage modal shift to public transport and active travel • A programme of awareness raising and promotion initiatives will be progressed around walking and cycling in North Lanarkshire. This will incorporate information on routes to key destinations in the NLC area	Promoting travel alternatives	Intensive active travel campaign and infrastructure	NLC Protective Services, Roads, City Deal, external organisations on behalf of NLC	2018/19	2018-2021	NA	Unknown	Ongoing	Ongoing	The North Lanarkshire Council Active Travel Strategy was approved by the Council's Environment and Transportation Committee in August 2021. Currently the Council is working through the Active Travel strategy to prioritise future projects
7	The Council will engage with SPT and other relevant local authorities to develop common engine standards for all tendered school bus contracts	Promoting sustainable travel	Public vehicle procurement-promoting uptake of low emission vehicles	NLC, SLC, other neighbouring authorities	2018	2018-2021	NA	Improved emissions from buses travelling in AQMAs should improve overall AQ in AQMAs	Initial meeting held with SPT in early 2020, just prior to start of pandemic	Ongoing	No progress on this in 2021 due to the Covid-19 pandemic
8	The Council will continue to progress their Workplace Travel Plan especially in view of other relevant NLC policies, such as property rationalisation, home working policy etc.	Promoting sustainable travel	Workplace travel planning	NLC, all services	2018-2021	2019	NA	Unknown	Work started 2018/19.	Ongoing	A consultant was engaged in 2018/19 to undertake a Workplace Travel Survey. Because of the Covid-19 pandemic this WTS will require to be updated to reflect changed working practices once the pandemic is over. No further action was taken on this in 2021.

9	The Council will continue to run and publicise Vehicle Emission Testing and Vehicle Idling Enforcement campaigns in areas of known and suspected persistent idling.	Traffic management	Anti-idling enforcement /testing vehicle emissions	NLC Protective Services	2018/19	2018-2021	NA	Unknown	Ongoing	Ongoing	Vehicle Emission Testing and Vehicle Idling Enforcement continued in 2021 where possible
10	The Council will introduce car parking on-street enforcement in town centres in North Lanarkshire in order to reduce inappropriate parking in town centres and other areas	Traffic management	Parking enforcement	NLC	2018	2018-19	NA	Unknown, but aim is to be a deterrent to driving in town centres	Completed and ongoing	Completed and ongoing	Parking enforcement team is now fully staffed and operational in North Lanarkshire
11	The Council will investigate options for improving bus service provision in North Lanarkshire • Encourage partnership with SPT and bus operators to ensure major developments are fully connected from the outset • Investigate/implement better bus infrastructure, particularly bus priority measures to ensure greater uptake of bus travel and reduce emissions from buses, helping congestion • Work with bus operators (eg via Eco Stars) to improve emission standards for buses operating in North Lanarkshire and particularly within AQMAs	Transport planning and infrastructure Traffic management Vehicle Fleet Efficiency	Bus route improvement Bus priority Promoting low emission transport	NLC SPT	2018-2021	2019-2021	NA	Anticipated reduction in emissions	Ongoingv and complete	Ongoing and complete	Roads and Transportation have designed bus infrastructure improvements on bus corridor. The contractor is anticipated to commence works in Autumn 2022
12	Fully support and input to where possible the planned Strategic Travel Hub for Motherwell, ensuring project objectives include air quality indicators. Part of this will include taking forward the findings of the Motherwell Cycle Hire Feasibility Study recently undertaken for the town.	Transport planning and infrastructure	Public transport improvement-interchanges, stations and services. Also public cycle hire schemes	NLC City Deal	2018-2021	2019-2021	NA	Anticipated reduction in emissions in Motherwell through modal shift and greater options for sustainable travel	Ongoing, long term initiative	Ongoing, long term initiative	In 2021 Scottish Government air quality funding enabled works involved widening and resurfacing a section of path alongside the Aquatec in Motherwell town centre for shared use and installation of new shared use signage. This section of path will link into wider active travel link

											improvements between Motherwell Rail Station, Motherwell town centre and Strathclyde Country Park, which are being design at present. This is to complement the Strategic Travel Hub proposed for Motherwell.
13	The Council will investigate all potential options for the improvement of traffic flow, and therefore air quality, through the Chapelhall AQMA	Transport planning and infrastructure	Traffic management	NLC Roads	2019	2020	NA	Anticipated reduction in traffic and therefore emissions in Chapelhall	Complete	Complete	Works to install speed tables in Chapelhall were completed in March 2022. Post-implementation traffic surveys will be undertaken in Spring 2023
14	The Council will ensure that air quality issues are duly considered for proposed major infrastructure projects which have the potential to impact on the Council's AQMAs	Policy guidance and development control	Air Quality planning and policy guidance	NLC Planning and Place	2018	2019-2021	NA	Unknown	Ongoing	Ongoing	In 2021 North Lanarkshire Council has continued to ensure that air quality is appropriately considered in all proposed major infrastructure projects. Air quality continues to be recognised as a significant factor when assessing City Deal major road infrastructure projects.
15	The Council will ensure that all policies in relation to the Public Sector Climate Change responsibilities will take due cognisance of air quality implications as appropriate, particularly where there is potential for adverse air quality impacts.	Policy guidance and development control	Other policy	NLC	2018	2018-2021	NA	Unknown	In place	Ongoing	See update in section 2.1.3 of report
16	The Council will continue to ensure that air quality is appropriately considered in all	Policy guidance	Air quality	NLC planning	2018	2018-2021	NA	Unknown	In place	Ongoing	In 2021 the council has continued to ensure

	relevant planning applications and ensure that planning decisions and policy at both strategic and local level will take due cognisance of the Cleaner Air For Scotland (CAFS) Strategy and the Council's Air Quality Action Plan	and developme nt control	planning and policy guidance								that air quality is appropriately considered in all relevant planning applications and policy
17	The Council will endeavour to ensure the highest quality of air monitoring data is produced in order to provide robust evidence for air quality decision-making. Specifically:- • A revie, including a GIS-mapping exercise will be undertaken of all NLC-operated air quality monitoring sites (automatic and non-automatic) to ensure that monitoring is being carried out at the most appropriate locations. In terms of receptor exposure and sources of air pollution. • The automatic air monitoring unit at Civic Centre, Motherwell, will be relocated to a more representative location which will enable a comparison of air quality before and after the planned road infrastructure changes and other major developments in the area. • In line with new statutory requirements the council will set up a monitoring network for $PM_{2.5}$ • An updated dispersion modelling exercise will be undertaken of the A73, Monklands and Motherwell area in order to obtain an accurate picture of air quality levels in North Lanarkshire	Public information	Awarene ss raising	NLC Protective Services	2018	2019	NA	NA	Comp lete	Comp lete	In 2021 the following projects were completed:- The Calder Street, Whifflet air monitoring station was moved to Whifflet St, A725, which is a more representative location A new automatic monitoring station was set up at Ravenscraig The monitoring site at Sunnyside Rd, Coatbridge, was decommissioned. The monitoring site at Calder St, Coatbridge was decommissioned in favour of the new Whifflet site at Whifflet Cross A725. One new PM analyser (FIDAS) and two new NOx analysers were purchased and installed, as upgrades to equipment within existing monitoring stations An extension of the Dispersion Modelling study carried out in 2020 was expanded in 2021 to include Wishaw and Newmains

											areas which feed directly down past the ongoing Ravenscraig development site and into Motherwell at the AQMA
18	The Council will ensure that air quality is included in the Council's input to the NHS Lanarkshire Joint Health Protection Plan and carry out work with local health boards to raise awareness of air pollution as a public health issue	Public information	Other	NLC Protective Services	2018-2021	2018-2021	NA	NA	NA	NA	This information is requested by NHS Lanarkshire at the time they are preparing their Plan. No requests for information were received from NHS Lanarkshire in 2021
19	The Council commits to working with neighbouring authorities where appropriate on air quality projects to ensure consistency of approach, as well as raising awareness of air quality issues among a wider audience	Public information	Joint/partnership working	NLC and neighbouring authorities	2018	2018-2021	NA	Unknown	In place	Ongoing	In 2021 in conjunction with South Lanarkshire Council we completed and launched the Treasure Trail route may and APP for Strathclyde Park. We launched this on Clean Air Day and offered 5 prizes for the winners. We had also planned to run an Eco Stars bus operator workshop along with South Lanarkshire Council however this did not go ahead due to covid
20	The Council pledges to carry out awareness raising of air quality issues with communities and schools. Part of this will involve taking part in national Clean Air Day as well as other relevant air quality initiatives and events	Public information	Awareness raising	NLC protective services	2018	2018-2021	NA	Unknown	In place	Ongoing	With the ongoing covid-19 pandemic and restrictions around non-teaching staff going into schools it was not possible to undertake and school outreach work in 2021
21	Planning policy:- • The council pledges to develop planning policy to reflect the increasing demand/requirement for Electric Vehicle charging points in new public and private development	Policy guidance and development control	Low emission strategy/ air quality planning and	NLC planning and regeneration service	2018	2018	NA	NA	In place	Ongoing	The Council's updated Local Development Plan (LDP) has recently been updated and approved by the Scottish Government

	• Planning guidance for developers will be updated to reflect current best practice guidance on domestic wood burning, commercial heating and biomass		policy guidance								to be adopted. This LDP contains information on the importance of Air Quality and also of EV infrastructure provision within its Environment and Design Quality Policies. The update of NLC air quality planning guidance is nearing completion and a training event is planned to update relevant parties on this.
22	The Council will undertake a feasibility study into strategic planting of "green wall" structures in relevant areas of North Lanarkshire	NA	NA	NLC/external agency	2018-2021	2018-2021	NA	Unknown at this time	Completed	Completed	A desktop literature review study was carried out in 2020 into green wall infrastructure with regard to its suitability for use within North Lanarkshire

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how local concentrations of the main air pollutants compare with the objectives.

North Lanarkshire Council undertook automatic (continuous) monitoring at 10 sites during 2021. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at http://www.scottishairquality.scot

Maps showing the location of the monitoring sites are provided at http://www.scottishairquality.scot . Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

Two automatic monitoring sites were decommissioned in 2021, and two new automatic monitoring sites were installed. The Sunnyside Rd (Coatbridge) automatic monitoring site was decommissioned as monitored concentrations at this location were consistently low. In addition to this the long-standing Calder Court (Whifflet, Coatbridge) automatic monitoring station was decommissioned and a new monitoring site installed at Whifflet Cross, A725, closer to the road, and more representative of receptor exposure.

Also in 2021 a new automatic monitoring site was installed at Ravenscraig. This site was chosen having taken due cognisance of the Ravenscraig Masterplan and current knowledge of committed and proposed development planned for the site. The purpose of the new automatic monitoring station is to provide data for before and after development in the area. Data from the Ravenscraig monitoring station will not be active until 2022 and as such no data from Ravenscraig is included in this report.

3.1.2 Non-Automatic Monitoring Sites

North Lanarkshire Council undertook non- automatic (passive) monitoring of NO_2 at 81 sites during 2021. Table A.2 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided at http://www.scottishairquality.scot . Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

3.1.3 Other Monitoring Activities

Through the 2021/22 Scottish Government air quality monitoring grant funding North Lanarkshire Council was able to purchase one low cost Zephyr air monitor. This will be utilised for short-term, non-LAQM air quality monitoring projects.

Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for annualisation and bias. Further details on adjustments are provided in Appendix C.

3.1.4 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40 µg/m^3.

In 2021 the measured annual mean concentrations of NO_2 at all automatic monitoring sites in North Lanarkshire complied comfortably with the air quality annual mean objective of 40µg/m^3. The highest measured NO_2 concentration noted at an automatic monitoring site in 2021 was 14.8 µg/m^3.

The highest measured NO_2 concentrations in 2021 at the non-automatic monitoring sites (Passive Diffusion Tube sites) were 27.2 µg/m^3, recorded at Central Way, Cumbernauld (DT61) and 27.1 µg/m^3 at Grahamshill Street, Airdrie (DT135). At these recorded concentrations, both are still far below the air quality statutory objective of 40 µg/m^3.

For the duration of the reporting period (2021) Scotland was still in the midst of the Covid-19 pandemic with various restrictions on activities and Government advice such as working from home where possible to reduce transmission of the virus. Although not as strict as 2020 these restrictions and advice had an impact on the method and frequency of travel, which is evident in the monitoring results from 2021 and makes it difficult to determine trends. Of the 81 Diffusion Tubes operated in North Lanarkshire in 2021 the monitored concentrations were found to increase from 2020 levels in 50 Diffusion Tubes sites, but still remaining below

2019 measured concentrations. For the remaining 31 Diffusion Tube sites measured concentrations either remained the same or reduced slightly in 2021.

For diffusion tubes, the full 2021 dataset of monthly mean values is provided in Appendix B.

Table A.4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year. No exceedances of the hourly mean objective level were measured at the automatic air monitoring stations in 2021. In addition, there were no measured annual mean concentrations in excess of 60 µg/m^3 at non-automatic (diffusion tube) monitoring sites in 2021, indicating that exceedances of the 1-hour mean objective is also unlikely at these sites.

3.1.5 Particulate Matter (PM_{10})

Table A.5 in Appendix A compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 18µg/m^3.

In 2021 all automatic continuous monitoring sites measuring PM_{10} in North Lanarkshire complied comfortably with the annual mean air quality objective of 18 µg/m^3. The range of concentrations across all PM_{10} monitoring automatic sites was 8.5 – 10.2 µg/m^3 and all sites achieved a high level of data capture, with the exception of two monitoring stations (New Edinburgh Rd, CM7 and Kenilworth Drive, Airdrie, CM10). Both these stations measure PM_{10} using a Beta-Attenuation-Monitor (BAM) and there were several faults with these monitors in 2021. Utilising Scottish Government air quality grant funding the BAM at the New Edinburgh Road monitoring site was replaced with a FIDAS analyser.

As with NO_2 it is difficult to analyse trends in PM_{10} monitored concentrations due to the impact of the Covid-19 pandemic however measured PM_{10} levels in 2021 were slightly higher than in 2020. The increase, however, was not of the magnitude seen in the NO_2 monitoring results for 2021 when compared to 2020 and as such, the conclusion suggested last year that residual background PM_{10} remains the main component of total PM_{10} in North Lanarkshire at this time.

In 2021 using Scottish Government air quality grant funding and following a robust procurement exercise two of the BAM particulate analysers were replaced with FIDAS analysers. This was in the New Edinburgh Road, Uddingston monitoring station, and in the

Adele Street, Motherwell monitoring station. These new FIDAS monitor both PM_{10} and $PM_{2.5}$ at these sites.

As previously mentioned in Section 3.1.1 two automatic monitoring stations were decommissioned and two new sites installed in 2021 in North Lanarkshire. Sunnyside Rd, Coatbridge was decommissioned, as was Calder Street, Whifflet. A new automatic monitoring site was installed at Whifflet Cross, A725, which is closer to the road and more representative of receptor exposure. This new site at Whifflet Cross utilises a FIDAS analyser to monitor PM_{10} and $PM_{2.5}$. In addition to this a new monitoring site was installed at Ravenscraig. Ravenscraig is a large former industrial site which is being re-developed over a long number of years. It was felt that an automatic monitoring site should be installed to obtain monitoring data as the re-development of the site progresses. The new Ravenscraig automatic monitoring site utilises a FIDAS analyser to monitor concentrations of PM_{10} and $PM_{2.5}$.

Table A.6 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than seven times per year. There were no monitored exceedances of the air quality objectives for PM_{10} in 2021. In addition to this there were no measured annual mean concentrations in excess of 60 µg/m^3 at non-automatic monitoring sites in 2021, indicating that exceedance of the 1-hour mean objective is also unlikely at these sites.

3.1.6 Particulate Matter ($PM_{2.5}$)

Table A.7 in Appendix A compares the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years with the air quality objective of 10µg/m^3.

There were no exceedances of the annual mean objective for $PM_{2.5}$ recorded at any of the monitoring sites in North Lanarkshire in 2021. $PM_{2.5}$ concentrations measured in 2021 were similar to that measured in 2020, and slightly below that of 2019. In line with conclusions drawn in 2020 it is unclear if this is related to reduced road traffic in 2021 as a result of the Covid-19 pandemic.

Two new $PM_{2.5}$ monitoring sites were established in 2021. Whifflet Cross A725, and Ravenscraig. Details of these have been provided in section 3.1.5

3.1.7 Sulphur Dioxide (SO_2)

Following a number of years with no measured exceedances of SO_2 and with the agreement of the Scottish Government the monitoring of SO_2 in North Lanarkshire ceased at the beginning of 2018.

3.1.8 Carbon Monoxide, Lead and 1,3-Butadiene

Historically, CO monitoring was undertaken at one site, Croy, where measured concentrations were substantially below the CO objectives, with no exceedances of the air quality objectives noted. Monitoring was discontinued at the end of 2017. No monitoring was undertaken for Lead or 1,2-Butadiene concentrations within the Council area in 2021. No significant sources of these pollutants have been identified in the previous round of review and assessment. Should any sources become known to the Council then discussions around the monitoring of these pollutant would be undertaken to decide on the most appropriate course of action.

4 New Local Developments

4.1 Road Traffic Sources

North Lanarkshire Council Roads and Transportation Team were consulted in relation to changes in traffic flows on roads within North Lanarkshire in 2021 and the following information was reported.

- Narrow, congested streets with residential properties close to the kerb – there are no new/changed streets that meet this criteria
- Busy streets where people may spend one hour or more close to traffic – there are no new/changed streets that meet this criteria
- Roads with a high flow of buses and/or HGVs – there are no new/changed roads that meet this criteria
- Junctions –
    - A new junction has been created at Dimsdale Rd, Wishaw to accommodate a new housing development.
    - A new access has been created off the roundabout on A73 Holytown to accommodate additional development at Torrance Park
    - A71 Horsley Brae junction upgrade under construction with anticipated completion Autumn 2022
- New roads constructed or proposed – there are no new roads which meet the criteria, other than possibly internal roads within new residential developments
- Roads with significantly changed traffic flows – there are no new/changed roads that meet this criteria
- Bus or coach stations – there are no new/altered bus or coach stations

In addition to the above information the following projects are of interest in terms of air quality in North Lanarkshire.

- Calderbank – additional traffic calming measures have been introduced on the B802 Main Street, Calderbank
- Junction of A73 and South Biggar Road – a design has been finalised for the construction of two mini roundabouts at the Craigneuk Road and South Biggar Road

junctions. The tenders for the work are currently being assessed, and it is anticipated works will begin in Autumn 2022.

City Deal Road Infrastructure Projects Update

Glasgow City Region Deal is an agreement between the UK Government, Scottish Government and 8 local authorities, including North Lanarkshire Council. The City Deal consists of a £1.13 billion Infrastructure Fund to create economic growth by improving transport and regenerating or developing sites over the next 20 years. In North Lanarkshire, City Deal investment will provide major road infrastructure to support the redevelopment of Ravenscraig, as this is a nationally important development site. The main focus will be to deliver the Pan Lanarkshire Orbital Transport Corridor, or Pan Lan as it is known.

The Pan Lan is a £127 million pound project linking the M74 in the south with the M80 on a route through Ravenscraig. The Pan Lan will create a new and upgraded transport infrastructure in North Lanarkshire.

Pan Lan comprises three projects, as follows:-

<u>East Airdrie Link Road</u>

- Creating a new link road between Newhouse and Stand which will reduce traffic congestion;
- Will link in with the Ravenscraig access infrastructure;
- Will improve air quality in the Chapelhall AQMA by relieving congestion along the A73 and the Chapelhall AQMA;
- The road will have limited connections to the local road network in order to optimise traffic flow. It will be a new single carriageway road link from north of the M8 (A723/Newhouse Interchange) to the A73, north of Riggend;
- The current stage is that the Stage 2 Phase 2 Public Engagement outlining the options appraisal process and Strategic Environmental Assessment will take place in June 2022 and sharing the preferred route will take place over summer 2022;
- Following Stage 2, consultants will be appointed in Autumn 2022 to develop the design of the link road, with a view to submitting a planning application in Autumn 2023.

Ravenscraig Access Infrastructure North

- Plans for access to the north section of Ravenscraig involve upgrading 3km of the A723 to provide a dual carriageway and shared footway/cycleway from the New Craig Road junction at Ravenscraig to the M8 at Holytown;
- The current status is that an outline business case was approved by North Lanarkshire Council and Glasgow City Region City Deal in 2020. The delivery programme, as per the approved outline business case, is for works to start on site in Sept 2023 and be completed in Dec 2025. Consultants to carry out further design and project and contract manage the works will be appointed in late Summer 2022.

Ravenscraig Access South

- Creating a new road link and pedestrian and cycle paths into Ravenscraig from Airbles Road, and continuing to the Ravenscraig Regional Sports Facility;
- Planning permission has been granted for the new dual carriageway from Ravenscraig Regional Sports Facility to Motherwell, including a new bridge crossing under the West Coast Main Line railway, an improved junction at Airbles Rd/Windmillhill Street and improved walking and cycling routes;
- A contractor has been appointed to deliver the West Coast Main Line crossing and works commenced in May 2022 and is planned for completion in June 2023;
- It is anticipated that connection comprising a new dual carriageway and junction works at Windmillhill Street will commence subject to successful procurement and approval of a full business case in January 2023 and complete by June 2025.

In addition to the Pan Lan, City Deal are also involved in the following project.

M8/A8 Corridor Project

The City Deal Orchard Farm roundabout project involves a £2m funding contribution from City Deal towards the development of a new junction on the A8 for heavy goods vehicles, light commercial vehicles and cars to Mossend International Rail Freight Park and Mossend rail head, as well as to the former Shanks and McEwan site and Carnbroe Business Development. The roundabout will enable new industrial developments at these locations. The project relies on PD Stirling Ltd delivering the Mossend International Rail freight park. Further information can be viewed by searching the North Lanarkshire Council online

planning portal using the reference 19/00002/FUL. The Outline Business Case(OBC) which includes the Orchard Farm Roundabout was approved by the Glasgow City Region (GCR) Cabinet on 30th August 2022. The OBC also includes 10km of strategic Active Travel linking local communities with key employment sites along the A8/M8 to stimulate modal shift and address access barriers for local areas.

In addition to City Deal projects, the following works and planned infrastructure changes are included as they will have an impact on local air quality in North Lanarkshire over the coming years.

New Monklands Hospital

NHS Lanarkshire have purchased 161.5 acres of land at Wester Moffat, Airdrie. This is to be the site for the replacement Monklands Hospital. Aspiring to be a "woodland hospital" the chosen site is in a semi-rural location on the outskirts of Airdrie. The new hospital will be accessed via the City Deal East Airdrie Link Road. The current status for the replacement hospital is that a detailed planning application will be submitted to the council in late 2022.

Motherwell Town Centre Projects

Muir Street Travel Interchange, Motherwell

- Work is continuing on the creation of improved public transport interchange arrangements on Muir Street in Motherwell town centre (adjacent to AQMA).
- The work involves creating an expanded bus stop on Muir Street to help alleviate traffic congestion on Muir Street as it runs past Motherwell Rail Station. The bus stop capacity will increase to 4 buses.
- A new access road is also being created from the roundabout at West Hamilton Road to provide access to the station entrance for taxis, disabled parking and drop-off/pick-up. A new taxi rank will also be created. This will help to remove vehicle conflicts and congestion on Muir Street.
- The work is expected to be complete by Winter 2022/23.

Related planned projects (Motherwell Town Centre) Active Travel

- Work is planned to reconfigure the roundabout junction at Hope St/Muir St to a signalised junction to improve pedestrian and cyclist access to Motherwell Rail Station.
- Active travel routes are also planned from the station north along Muir Street to Braidhurst Industrial Estate and along Hope Street/Pollock Street into the town centre.
- These works will be delivered over 2022 and 2023, subject to funding being secured.
- The design of a further three active travel routes (Hamilton Road, Merry Street and Bellshill Road) is planned over 2022 and 2023. Delivery of the routes is subject to securing funding.

Other Transport Sources

North Lanarkshire Council considered the relevant criteria set out in the template and can confirm that there are no other significant transport sources to be considered in the report.

- Airports – there are no relevant sources in North Lanarkshire
- Locations were diesel or stream trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m – there are no relevant sources in North Lanarkshire
- Locations with large numbers of movements of diesel locomotives – no relevant sources in North Lanarkshire
- Ports for shipping – there are no relevant sources within North Lanarkshire

Industrial Sources

On consulting with SEPA for this section the following responses were provided for 2021.

- Industrial installations : new or proposed installations for which an air quality assessment has been carried out – SEPA advised that they were consulted on two such installations in 2021 –
    - 20/00452/FUL -Installation of one Combined Heat and Power (CHP) unit, waste heat boiler, transformer, lube oil tanks and gas booster with a 14m stack. Site – Warburtons Bakery, Sholto Cres, Righead Ind Est, Bellshill. SEPA presented no objections to this.

    - 19/01284/FUL – Energy Recovery Centre with associated infrastructure. Site – Greengairs Landfill Site, Meikle Drumgray Rd, Greengairs. Discharge of various planning conditions. Original application (which included an AQIA) considered in 2020.
- Industrial installations : existing installations where emissions have increased substantially or new relevant exposure has been introduced – SEPA responded that as the 2021 Scottish Pollutant Release Inventory (SPRI) data is currently undergoing quality checks SEPA are unable to provide information on any SEPA-regulated installations where annual emissions have increased. SEPA advises that 2021 emissions data will be available in Autumn 2022. Data up to 2020 is available on the SPRI website.
- Industrial installations : new or significantly changed installations with no previous air quality assessment – SEPA responded with one premises
    - PPC/A/1018364 – Woodhead, Eurocentral, ML1 4XL covering a substantial variation to existing authorisation, which included an expansion of the process on new land across the road and which was technically connected to the original installation.
- Major fuel storage depots storing petrol – SEPA responded that there were no new major fuel storage depots in North Lanarkshire area in 2021
- Petrol stations – our Trading Standards service advised that one new petrol station became operational in 2021. This was Airdrie Service Station, Alexander Street, Airdrie
- Poultry farms – SEPA responded that there were no poultry farms in North Lanarkshire area in 2021

Commercial and Domestic Sources

On consulting with SEPA for details of any new commercial and domestic sources they provided the following response:-

- Biomass combustion plant – SEPA has advised that no new Medium Combustion Plants (MCPs) were permitted for North Lanarkshire area in 2021.
- Areas where the combined impact of several biomass combustion sources may be relevant – there are no areas where levels of combined biomass combustion sources are relevant.

- Combined Heat and Power (CHP) Plant – SEPA responded that no new CHPs above 20MW were permitted in North Lanarkshire in 2021. One permit was issued in June 2021, however, for a site which could be considered a CHP. This was at Drumgray Energy from Waste plant and concerned a “high efficiency condensing steam turbine for the generation of electrical energy and allowing heat export. SEPA advises that the plant may not be built for several years, or at all.
- Areas where domestic solid fuel burning may be relevant – there are no areas in North Lanarkshire where domestic solid fuel burning is a relevant source of air pollution.

New Developments with Fugitive or Uncontrolled Sources

On consulting with SEPA the following information was provided:-

- Landfill sites – SEPA has advised that no new landfill sites were permitted in North Lanarkshire in 2021.
- Quarries – SEPA advised that they are currently unable to carry out radius searches of specific areas at present due to the 24th December 2020 cyber attack.
- Unmade haulage roads on industrial sites – SEPA has reported that 4 waste management licence exemptions (to enable the re-use of waste on sites for unmade roads) were granted in 2021.
    - WML/XC/SEPA 2021-5839 – West Torrance Farm, Shotts.
    - WML/XC/1194685 – land east of Main St, Newmains, ML2 9BG.
    - WML/XC/1175614 – Keepmoat Homes, Meadowhead Rd, Ravenscraig.
    - WML/XC/1143631 – Springbank Quarry, Airdrie.
- Waste transfer stations – SEPA response advised that they are currently unable to carry out radius searches of specific areas at present due to the 24th December 2020 cyber attack
- Other potential sources of fugitive particulate matter emissions - SEPA response advised that they are currently unable to carry out radius searches of specific areas at present due to the 24th December 2020 cyber attack

5 Planning Applications

North Lanarkshire Planning and Place service was consulted for details of any relevant planning applications under consideration and planning applications granted consent during 2021 that have the potential to impact on local air quality. All relevant information is presented in Table 5.1 below.

Table 5.1 – Relevant Planning Applications from 2021

Application Number	Brief Description of Development	AQ impact	Comments/Further Information
19/00274/PPP	Residential development at Heathfield Farm, Muirhead.	AQ Impact Assessment submitted and accepted. Not in/near AQMA	https://eplanning.northlanarkshire.gov.uk/online-applications
20/00412/PPP	Mixed use development, Westway Retail Park, Wardpark, Cumbernauld	AQ Assessment submitted and accepted. Not in/near AQMA	https://eplanning.northlanarkshire.gov.uk/online-applications
21/01443/FUL	Distribution centre, Condor Glen, Eurocentral	AQ Assessment submitted and accepted. Not in AQMA	https://eplanning.northlanarkshire.gov.uk/online-applications
21/01316/MSC and 21/00982/PPP	Residential development, care unit etc. Gowkthrapple	AQ Assessment submitted and accepted. Not in/near AQMA	https://eplanning.northlanarkshire.gov.uk/online-applications
21/01275/FUL	Roadside services area,	AQ Assessment submitted and	https://eplanning.northlanarkshire.gov.uk/online-applications

	Hornshill, Stepps (M80).	accepted. Not in/near AQMA	
21/00934/FUL	Construction of 5 warehouses, Bellshill Ind Est, Bellshill	No AQ Assessment requested. Not in/near AQMA	https://eplanning.northlanarkshire.gov.uk/online-applications
21/00436/FUL	Construction of primary school to replace existing 2 schools in same area, Paddock St, Coatbridge	AQ Assessment submitted and reviewed. Accepted. Near Coatbridge AQMA	https://eplanning.northlanarkshire.gov.uk/online-applications
21/00432/FUL	Construction of primary school, Community Health Centre and Hub, Muirhead	No AQ Assessment submitted. Not in/near AQMA	https://eplanning.northlanarkshire.gov.uk/online-applications
21/00372/PPP	Redevelopment of office for residential, St Mungos Rd, Cumbernauld	AQIA requested although no estimated increase in traffic. Not in/near AQMA	https://eplanning.northlanarkshire.gov.uk/online-applications
21/00335/FUL	Enabling works for residential development, Main St, Newmains	AQ Assessment submitted and accepted. Not in/near AQMA	https://eplanning.northlanarkshire.gov.uk/online-applications
21/00273/FUL	Rail freight terminal, distribution centre, associated infrastructure	AQ Assessment submitted. Still under consideration	https://eplanning.northlanarkshire.gov.uk/online-applications

21/00242/PPP	Residential development at Palacecraig St, Coatbridge	AQ Assessment submitted and accepted. In Coatbridge AQMA	https://eplanning.northlanarkshire.gov.uk/online-applications

6 Conclusions and Proposed Actions

Conclusions from New Monitoring Data

Conclusions from the 2021 monitoring data presented in this report can be summarised as follows.

- Measured NO_2 concentrations at all automatic monitoring sites in 2021 were well below the statutory air quality objectives for both annual mean and short-term statutory objectives. High levels of data capture were achieved at all sites. Measured levels of NO_2 at automatic monitoring stations remain around the same as 2020 levels, and below 2019 levels by approximately 30%. As with 2020, this is most likely attributable to the Covid-19 pandemic and subsequent reduction in road traffic emissions.
- In 2021 all passive Diffusion Tubes measured NO_2 below the statutory annual mean objective. The highest reading Diffusion Tubes recorded an annual mean of just over 27 µg/m^3 of NO_2 which is well below the statutory objective of 40 µg/m^3. Almost two thirds of Diffusion Tube sites in 2021 showed a greater rise towards 2019 levels than was seen in the 2020 results. This could possibly be explained by Covid-19 pandemic restrictions being less in 2021 than they were in 2020.
- No NO_2 monitoring sites breached the short-term statutory objective in 2021.
- All automatic PM_{10} monitoring undertaken in 2021 measured below the annual mean objective, with levels in the range 8.5 – 10.2 µg/m^3. Levels in 2021 were broadly consistent with 2019 and 2020 further reinforcing the 2020 suggestion that the measured level of PM_{10} mainly comprises the residual background level of PM_{10} in the area.
- In 2021 two of the Council's air monitoring stations were upgraded to enable the monitoring of $PM_{2.5}$ bringing the total number of $PM_{2.5}$ monitoring stations to nine. Monitoring of $PM_{2.5}$ in 2021 yielded results broadly similar to that of 2019 and 2020.
- Two automatic monitoring stations were decommissioned in 2021 – namely Sunnyside Rd, Whifflet and Calder Court, Whifflet. Two new automatic monitoring sites have been set up in 2021. One is Whiffle Cross, A725, which is within the Coatbridge AQMA and is closer to the road and more representative of relevant exposure. The other new site is in Ravenscraig – this is to obtain monitoring data for

before, during and following development of the Ravenscraig site over the coming years.

- Following the completion of a North Lanarkshire-wide dispersion modelling study it is the council's intention to conduct a comprehensive review of all monitoring sites, both automatic and non-automatic (Diffusion Tube). The purpose of this is to ensure all monitoring undertaken is in appropriate and relevant locations.
- In terms of air monitoring equipment – the council has been fortunate to be able to utilise Scottish Government air quality grant funding to upgrade almost all of our particulate analysers over the past several years. As our NO_2 monitoring equipment is now ageing it is our intention to work towards the replacement of this equipment over the next couple of years. This will ensure the integrity of air quality monitoring for NO_2 in North Lanarkshire.
- We also intend to continue automatic air monitoring at the Croy monitoring station, at least in the short-term, following the revocation of the Croy AQMA in 2022.

Conclusions relating to New Local Developments

North Lanarkshire Council's Pollution and Public Health Team has taken due cognisance of the information provided by the Council's Development Management and Strategic Planning Teams in relation to developments in 2021 and also in reviewing Air Quality Impact Assessments that were submitted in support of planning applications in 2021. In considering this we conclude that there are no significant issues in relation to new local developments. This is due to the developments not being located in areas where air quality levels are close to the statutory objective and/or the developments themselves did not lead to significant effects on air quality or result in exceedances of air quality objectives at nearby sensitive receptors.

The Pollution and Public Health Team will continue to work with Planning colleagues to identify any future developments that may present air quality issues and take any action deemed appropriate at that time.

We will also continue to have an input as required to City Deal projects and other major infrastructure projects in order to highlight any potential impact on local air quality at the earliest possible (pre-planning and Masterplanning) stage where possible.

Proposed Actions

The focus of air quality work in North Lanarkshire in 2022/23 will be as follows.

- The Council's Air Quality Action Plan will be updated and re-published. This will involve engaging with internal and external stakeholders to ensure appropriate involvement from all relevant services within the council. The updated action plan should be completed in early 2023.
- The revocation of the Croy AQMA will be completed in 2022, following the necessary consultation. No other changes to the remaining AQMAs are anticipated in 2022, however we will be closely observing the monitored pollutant levels across the area as we emerge from the Covid-19 pandemic and its associated restrictions are lifted.
- Following completion of a North Lanarkshire-wide dispersion modelling study we will undertake a comprehensive review of all our monitoring sites, both automatic and non-automatic. We will also pay close attention to the new automatic air monitoring stations at Whifflet Cross A725 and Ravenscraig.
- The Pollution Control and Public Health Team will continue to act as a consultee for development management, major infrastructure and City Deal planned projects, highlighting air quality where necessary at the earliest possible stage in the planning process.
- New air monitoring equipment will be purchased as necessary, subject to Scottish Government air quality funding, to replace ageing equipment in some of the existing air monitoring stations.
- The Eco Stars Fleet Environmental Recognition Scheme for freight/fleet operators will continue to be run in 2022/23. In addition to this a new, separate Eco Stars taxi operator scheme will be introduced. We will also strive to run two Eco Stars workshops in conjunction with South Lanarkshire Council. One for bus operators and one for taxi operators, to encourage uptake of relevant grants and membership of the Eco Stars scheme
- Subject to Scottish Government air quality funding we will continue to support projects relating to sustainable travel and the encouragement of walking and cycling as alternatives to car travel.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
CM1	Chapelhall	Roadside	278174	663124	NO_2 PM_{10} , $PM_{2.5}$	YES (Chapelhall AQMA)	Chemiluminescent; FIDAS	20	10	2
CM2	Croy	Special – by quarry	272775	675738	NO_2 PM_{10} , $PM_{2.5}$	NO (recently revoked AQMA)	Chemiluminescent FIDAS	30	10	2
CM3	Coatbridge (Whifflet)	Urban Background	273674	663927	NO_2 PM_{10}, $PM_{2.5}$	Y (Coatbridge AQMA)	FIDAS(3)	20	30	2
CM4	Motherwell	Roadside	275458	656792	NO_2 PM_{10} . $PM_{2.5}$	Y (Motherwell AQMA)	FIDAS	20	8	2
CM5	Shawhead, Coatbridge	Roadside	273411	662997	NO_2 PM_{10} , $PM_{2.5}$	Y (Coatbridge AQMA)	FIDAS	22	20	2
CM6	Kirkshaws	Roadside	272523	663030	NO_2 PM_{10} , $PM_{2.5}$	Y (Coatbridge AQMA)	FIDAS	20	8	2
CM7	New Edinburgh Rd, Uddingston	Roadside	269144	661496	NO_2 PM_{10}	N	Chemiluniescent; FIDAS	30	10	2
CM8(4)	Sunnyside Rd, Coatbridge	Roadside	273056	665234	NO_2 PM_{10}	N	Chemiluminescent; BAM gravimetric equivalent	30	10	2
CM9b(5)	Civic Centre, Motherwell (from 2015)N	Mobile Lab	275788	656219	PM_{10} $PM_{2.5}$	Y	Chemiluminescent; TEOM	50	15	3

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
CM10	Kenilworth Drive, Airdrie	Roadside	277385	665837	NO_2 PM_{10}	N	Chemiluminescent; BAM gravimetric equivalent	30	10	2
CM11	Adele Street, Motherwell	Roadside	275642	656148	NO_2 PM_{10} , $PM_{2.5}$	Y (Motherwell AQMA)	Chemiluminescent FIDAS	20	0.75	2
CM12	Whifflet Cross, A725	Roadside	273646	663867	NO_2 PM_{10} , $PM_{2.5}$	Y (Coatbridge AQMA)	Chemiluminescent FIDAS	16	20	2

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable.

(3) CM3 Whifflet Coatbridge – as stated in Annual Statistics Report for 2020, PM_{10} was monitored using Conventional TEOM Gravimetric Equivalent technique for the month of January. From 28th January 2020 onwards, PM_{10} was monitored using the FIDAS technique.

(4) CM8 Sunnyside Rd, Coatbridge was disconnected in September 2020 and equipment was relocated to CM12 Whifflet Cross A725 with new $PM_{2.5}$ analyser added.

(5) CM9b not utilised since 2020

Table A.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? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT10	Castle Court, Castlecary	Roadside	278528	677864	NO_2	N	10	2	N	2.5
DT47	Lay-by in Stand	Roadside	276538	668899	NO_2	N	10	2	N	2.5
DT48	Bus stop, Bron Way, Cumbernauld	Kerbside	275920	674203	NO_2	N	10	2	N	2.5
DT49	Swimming pool, Kilsyth	Kerbside	271514	678040	NO_2	N	50	2	N	2.5
DT50	1791 Cumbernauld Rd, Stepps	Kerbside	265198	668204	NO_2	N	25	2	N	2.5
DT51	131 Cumbernauld Rd, Stepps	Kerbside	265971	668567	NO_2	N	30	2	N	2,5
DT52	Traffic lights A80 Eastbound, Moodiesburn	Kerbside	269966	670412	NO_2	N	30	2	N	2.5
DT53	Traffic lights A80 Westbound Moodiesburn	Kerbside	269986	670400	NO_2	N	10	2	N	2.5
DT54 (Site renamed DT58 in 2018)	Lochend Rd/Coatbridge Rd, Gartcosh (A752)	Urban background	269828	668354	NO_2	N	20	2	N	2.5
DT55	Whitelaw Rd end, Glenboig	Urban background	272614	668138	NO_2	N	50	2	N	2.5
DT56	Garnqueen Cr, lamp post LHSO, Glenboig	Urban background	271751	668432	NO_2	N	50	2	N	2.5
DT57	Main St/ Carrick View jn, Glenboig	Urban background	272030	668564	NO_2	N	10	2	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT58 (site was DT54 until renamed DT58 in 2018)	Lochend Rd/Coatbridge Rd, Gartcosh (A752)	Urban background	269828	668354	NO_2	N	20	2	N	2.5
DT59	10-16 Coronation Pl, Mount Ellen	Urban Background	269356	669173	NO_2	N	20	2	N	2.5
DT61	Under bridge Central Way Eastbound, Cumbernauld	Roadside	275778	674440	NO_2	N	10	2	N	2.5
DT62	Central Way A Westbound, Cumbernauld	Roadside	275920	674511	NO_2	N	10	2	N	2.5
DT63	Central Way B Westbound, Cumbernauld	Roadside	275642	674271	NO_2	N	10	2	N	2.5
DT64	Under bridge Central Way, Westbound, Cumbernauld	Roadside	275666	674293	NO_2	N	10	2	N	2.5
DT100	Civic Centre, Motherwell	Roadside	275820	656208	NO_2	Y Motherwell	10	2	N	2.5
DT101	Shields Rd, Motherwell	Roadside	274594	655113	NO_2	N	15	2	N	2.5
DT102	Emily Dr, Motherwell	Urban background	275439	665696	NO_2	N	15	2	N	2.5
DT103	Kethers Lane, Motherwell	Urban background	273986	656985	NO_2	N	10	2	N	2.5
DT104	Coursington Rd, Motherwell	Urban background	276178	657344	NO_2	N	20	2	N	2.5
DT105	Craigneuk Rd, Carfin	Urban background	277244	658415	NO_2	N	10	2	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT106	Camp St, Motherwell	Urban background	275654	656342	NO_2	N	10	2	N	2.5
DT107	Braehead Farm, Bargeddie	Roadside	270929	663464	NO_2	N	500	50m to A8	N	2.5
DT108	MSA Factory, Shawhead, Coatrbridge	Roadside	273830	662676	NO_2	N	500	50m to A8	N	2.5
DT110	New Edinburgh Rd(1), M74, Uddingston	Roadside	272789	675735	NO_2	N	30	2	N	2.5
DT111	New Edinburgh Rd(2), M74, Uddingston	Roadside	272789	675735	NO_2	N	15	2	N	2.5
DT112	New Edinburgh Rd(3), M74, Uddingston	Roadside	272789	675735	NO_2	N	10	2	N	2.5
DT113	Tinkers Lane, Motherwell	Roadside	274305	656466	NO_2	N	20	2	N	2.5
DT114	Main St, Overtown	Kerbside	280370	653072	NO_2	N	15	2	N	2.5
DT115	Plantation Rd/Ravenscraig Spine Rd	Kerbside	277282	657607	NO_2	N	15	2	N	2.5
DT116	Delburn St, Motherwell	Urban background	275981	656111	NO_2	Y Motherwell	10	2	N	2.5
DT117	Hamilton Rd, Motherwell	Urban background	275091	656986	NO_2	N	20	2	N	2.5
DT118 (site changed number in 2017 to newDT119 see later in table)	Shawhead Roundabout	Kerbside	273432	662965	NO_2	Y Coatbridge	30	2	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT119	Kirkshaws Rd, Coatbridge	Kerbside	273436	662982	NO_2	Y Coatbridge	30	2	N	2.5
DT120	Watsonville, Motherwell	Kerbside	275237	656662	NO_2	Y Motherwell	10	2	N	2.5
DT121	Flannigan Rd, Bellshill	Urban background	273180	660350	NO_2	N	30	2	N	2.5
DT122	Main St, Mossend	Roadside	274082	660308	NO_2	N	60	2	N	2.5
DT123	Hamilton Rd, Orbiston Bellshill	Kerbside	272687	659512	NO_2	N	20	2	N	2.5
DT124	Scotmid, Tannochside	Kerbside	270073	661870	NO_2	N	20	2	N	2.5
DT125	Main St nr Motherwell Rd, Bellshill	Kerbside	273767	661281	NO_2	N	25	2	N	2.5
DT126	Main St nr Tesco, Bellshill	Kerbside	273541	660339	NO_2	N	2	2	N	2.5
DT129	Newmains Police Station	Roadside	282392	656016	NO_2	N	7	2	N	2.5
DT130	Main St (bottom), Wishaw	Roadside	279118	655327	NO_2	N	5	2	N	2.5
DT131	Brandon Pl, Bellshill	Roadside	272302	659237	NO_2	N	5	2	N	2.5
DT132	Airdrie Rd, Caldercruix	Roadside	281713	667517	NO_2	N	10	2	N	2.5
DT133	Coatbridge 1, Bank Street	Roadside	272887	664991	NO_2	N	2	2	N	2.5
DT134	Coatbridge 2, Whifflet Court	Kerbside	273655	664003	NO_2	Y Coatbridge	10	20	N	2.5
DT135	Grahamshill St, Airdrie	Kerbside	277276	665615	NO_2	N	10	2	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT136	Airdrie 3, Springwells Cres	Roadside	274162	674130	NO_2	N	30	2	N	2.5
DT137	Auchenkilns, Cumbernauld	Roadside	274164	674130	NO_2	N	30	2	N	2.5
DT138	Main St (near shops), Chapelhall	Roadside	278037	662798	NO_2	Y Chapelhall	10	2	N	2.5
DT139	Lauchope St/Main St jn, Chapelhall	Roadside	278178	663111	NO_2	Y Chapelhall	10	2	N	2.5
DT140	Dundyvan rd, Coatbridge	Kerbside	273293	664120	NO_2	N	5	1	N	2.5
DT141	Main St(1), Harthill(nr shops)	Kerbside	290652	664493	NO_2	N	10	2	N	2.5
DT142	Salsburgh house no 337, R15	Roadside	283850	663082	NO_2	N	15	30	N	2.5
DT143	Main St(2), Harthill(nr shops)	Roadside	290482	664386	NO_2	N	10	2	N	2.5
DT144	Lab 1, Constarry Rd, Croy	Roadside	272789	675735	NO_2	N	100	5	Y	2.5
DT145	Lab 2, Constarry Rd, Croy	Roadside	272789	675735	NO_2	N	100	5	Y	2.5
DT146	Lab 3, Constarry Rd, Croy	Roadside	272789	675735	NO_2	N	100	5	Y	2.5
DT147	Bank St, Coatbridge (nearest house)	Roadside	272947	665037	NO_2	N	15	0	N	2.5
DT148	Main St (R22), Chapelhall	Kerbside	278105	663174	NO_2	Y Chapelhall	15	2	N	2.5
DT149	Main St (R33), Chapehall	Kerbside	278119	663075	NO_2	Y Chapelhall	15	2	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT150	Eastfield Rd, Cumbernauld	Kerbside	275160	676210	NO_2	N	25	2	N	2.5
DT151	Main St, Holytown	Urban background	276635	660569	NO_2	N	10	2	N	2.5
DT152	Coatbridge Rd (shops), Townhead	Roadside	272391	665824	NO_2	N	10	2	N	2.5
DT153	72 Townhead Rd, Coatbridge	Roadside	271720	666053	NO_2	N	20	2	N	2.5
DT154	Sunnyside Rd, Coatbridge	Roadside	273042	665176	NO_2	N	20	2	N	2.5
DT156	Stirling St, Airdrie	Roadside	276005	665406	NO_2	N	50	2	N	2.5
DT157	31 Station Road, Muirhead	Roadside	268442	669262	NO_2	N	15	2	N	2.5
DT158a	Croftmoraig Ave, Moodiesburn	Kerbside	270281	671715	NO_2	N	15	2	N	2.5
DT158b	Deedes St, Airdrie	Roadside	274819	665005	NO_2	N	7	2	N	2.5
DT159	Glenview Cres, Moodiesburn	Roadside	270391	671505	NO_2	N	10	2	N	2.5
DT160	The Cuillins, Moodiesburn	Roadside	270067	671604	NO_2	N	10	2	N	2.5
DT161	Bridgend Cres, Moodiesburn	Roadside	269071	670889	NO_2	N	1	1	N	2.5
DT162	Auchingeoch Rd, Moodiesburn	Roadside	269022	670979	NO_2	N	2	1	N	2.5
DT163	12 Inchwod Rd, Westfield, Cumbernauld	Roadside	273098	673321	NO_2	N	10	1	N	2.5
DT164	12 Leckethill Ct, Westfield, Cumbernauld	Roadside	272634	672994	NO_2	N	10	1	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT165	Kildonan St, Coatbridge	Roadside	273727	665285	NO_2	N	20	2	N	2.5
DT166	22 Cumbernauld Rd, Chryston	Roadside	268392	669502	NO_2	N	10	2	N	2.5
NewDT54	Columba Ct/Old Edinburgh Rd, Viewpark	Roadside	271259	661016	NO_2	N	15	2	N	2.5
NewDT55	Old Edinburgh Rd, Viewpark	Roadside	270463	661441	NO_2	N	15	2	N	2.5
NewDT56	Bargeddie	Roadside	270201	664281	NO_2	N	10	2	N	2.5
NewDT102	Windmillhill St (1), Motherwell	Roadside	275738	656400	NO_2	Y Motherwell	50	1	N	2.5
NewDT103	Windmillhill St(2), Motherwell	Roadside	275733	656439	NO_2	Y Motherwell	20	1	N	2.5
NewDT106	Civic Centre(1), Motherwell	Roadside	275911	656237	NO_2	Y Motherwell	100	30	N	2.5
NewDT107	Civic Centre(2), Motherwell	Roadside	275911	656237	NO_2	Y Motherwell	100	30	N	2.5
NewDT108	Civic Centre(3), Motherwell	Roadside	275911	656237	NO_2	Y Motherwell	100	30	N	2.5
NewDT116	Airbles Rd (Electric Bar), Motherwell	Roadside	274814	656147	NO_2	N	15	5	N	2.5
NewDT118	Merry St/Dalziel St, Motherwell	Roadside	275444	657312	NO_2	N	15	5	N	2.5
NewDT119 (long-standing site, re-numbered from DT118 to DT119 in 2017)	Shawhead Roundabout, Coatbridge	Kerbside	273432	662965	NO_2	Y Coatbridge	30	2	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
NewDT120	Kirkshaws Rd, Coatbridge	Roadside	271939	663179	NO_2	Y Coatbridge	10	2	N	2.5
NewDT127	Matalan, Wishaw	Kerbside	278059	655368	NO_2	N	10	2	N	2.5
NewDT128	Wishaw Cross/Stewarton St, Wishaw	Roadside	279587	655125	NO_2	N	30	2	N	2.5
NewDT137	Main St, Village, Cumbernauld	Roadside	276710	676098	NO_2	N	10	2	N	2.5
NewDT141	Station Rd, Shotts	Roadside	286840	656978	NO_2	N	20	2	N	2.5
NewDT142	Stane Gdns, Shotts	Roadside	287954	659620	NO_2	N	20	2	N	2.5
NewDT157a	Swing Park, Castlecary	Roadside	278470	677901	NO_2	N	30	2	N	2.5

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results ($\mu g/m^3$)

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2021 (%) [2]	2017	2018	2019	2020	2021
CM1-Chapelhall	Roadside	Automatic	99.5%	99.5%	33.8	27.7	21.7	18.0	14.8
CM2 - Croy	Special-by quarry	Automatic	99.3%	99.3%	20.4	17.5	19.0	12.0	10.0
CM3-Calder Ct, Whifflet	Urban background	Automatic	93.6%	96.6%	-	-	17.2	12.0	11.5
CM4-Menteith Rd, Motherwell	Roadside	Automatic	93.6%	93.6%	-	-	-	12.6	10.8
CM5-Shawhead, Coatbridge	Roadside	Automatic	91.1%	91.1%	28.5	20.7	20.3	16.0	14.2
CM6-Kirkshaws, Coatbridge	Roadside	Automatic	96.2%	96.2%	22.0	18.3	20.3	13.0	13.6
CM7-New Edinburgh Rd, Uddingston	Roadside	Automatic	98.3%	98.3%	-	-	24.4	17.0	16.6
CM8 – Sunnyside Rd, Coatbridge	Roadside	Automatic	-	-	-	-	22.6	-	-
CM10-Kenilworth Dr, Airdrie	Roadside	Automatic	96.5%	96.5%	-	-	16.9	14.0	11.9
CM11-Adele St, Motherwell	Roadside	Automatic	78.8%	78.8%	-	-	-	-	9
CM12-Whifflet Cross A725	Roadside	Automatic	89.5%	60.0%					13.9
DT10- Castle Ct, Castlecary	Roadside	Diffusion Tube	-	-	34.2	-	-	-	
DT47-Lay by in Stand	Roadside	Diffusion Tube	100%	100%	21	21.7	21.4	14.7	14.0
DT48-bus stop, Bron Way, Cumbernauld	Kerbside	Diffusion Tube	100%	100%	28.9	27.3	25.7	17.8	16.9
DT49- Swimming Pool, Kilsyth	Kerbside	Diffusion Tube	100%	100%	17.4	22.5	18.3	11.2	13.0
DT50-1791 Cumbernauld Rd, Stepps	Kerbside	Diffusion Tube	100%	100%	22.4	21.9	20.2	12.4	16.0
DT51- 131 Cumbernauld Rd, Stepps	Kerbside	Diffusion Tube	100%	100%	24.7	27.4	21.0	14.6	16.8

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2021 (%) [2]	2017	2018	2019	2020	2021
DT52 – Traffic lights A80 Eastbound, Moodiesburn	Kerbside	Diffusion Tube	100%	100%	17.4	25.4	22.6	14.6	14.2
DT53-traffic lights A80 Westbound, Moodiesburn	Kerbside	Diffusion Tube	100%	100%	20.9	22.9	18.3	10.5	11.1
DT54- Coatbridge Rd/Gartcosh Rd A752 Gartcosh (name changed to DT58 in 2018)	Urban background	Diffusion Tube	-	-	22.8	-	-	-	-
DT55-Whitelaw Rd end, Gartcosh	Urban background	Diffusion Tube	-	-	9.7	-	-	-	-
DT56-Garnqueen Cr, Glenboig	Urban background	Diffusion Tube	-	-	14.3	-	-	-	-
DT57-Main St/Garrick View, Glenboig	Urban background	Diffusion Tube	100%	100%	16.2	18.1	16.6	-	12.8
DT58-Lochend Rd/Coatbridge Rd (previously called DT54, changed in 2018)	Urban background	Diffusion Tube	100%	100%	-	25.8	22.9	9.8	17.9
DT59-10-16 Coronation Pl, Mount Ellen	Urban background	Diffusion Tube	100%	100%	17.2	19.8	17.7	14.3	12.5
DT61-under Central Way, Eastbound, Cumbernauld	Roadside	Diffusion Tube	100%	100%	51.3	43.6	40.5	12.6	27.2
DT62-Central Way Westbound (A), Cumbernauld	Roadside	Diffusion Tube	100%	100%	38.1	39.0	32.9	25.8	24.2
DT63-Central Way Westbound (B), Cumbernauld	Roadside	Diffusion Tube	100%	100%	26.7	45.7	37.5	17.9	26.6
DT64-Under Central Way, Westnound, Cumbernauld	Roadside	Diffusion Tube	100%	100%	-	32.2	28.7	21.2	21.8
DT100 – Civic Centre, Motherwell	Roadside	Diffusion Tube	100%	100%	-	36.9	36.9	15.6	22.1
DT101- Shields Rd, Motherwell	Roadside	Diffusion Tube	100%	100%	23.2	24.9	20.1	22.4	14.8`

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2021 (%) [2]	2017	2018	2019	2020	2021
DT102-Emily Dr, Motherwell	Urban background	Diffusion Tube	-	-	10.8	-	-	-	-
DT103-Kethers Lane, Motherwell	Urban background	Diffusion Tube	-	-	15.8	-	-	-	-
DT104-Coursington Rd, Motherwell	Urban background	Diffusion Tube	100%	100%	11.9	10.5	10.5	10.2	7.7
DT105-Craigneuk Rd, Carfin	Urban background	Diffusion Tube	92%	92%	13.5	16.4	12.6	11.5	10.3
DT106-Camp St, Motherwell	Urban background	Diffusion Tube	-	-	18.2	-	-	-	-
DT107-Braehead Farm, Bargeddie	Roadside	Diffusion Tube	-	-	23.7	-	-	-	-
DT108-MSA Factory, Shawhead	Roadside	Diffusion Tube	-	-	27.7	-	-	-	-
DT110-New Edinburgh Rd(1), Uddingston	Roadside	Diffusion Tube	100%	100%	33.7	33.8	28.9	20.2	23.9
DT111-New Edinburgh Rd(2), Uddingston	Roadside	Diffusion Tube	100%	100%	31.7	30.4	31.1	22.2	19.0
DT112-New Edinburgh Rd,(3), Uddingston	Roadside	Diffusion Tube	100%	100%	32.7	32.3	28.6	20.3	23.4
DT113-Tinkers Lane, Motherwell	Roadside	Diffusion Tube	100%	100%	21.8	22.0	17.9	14.1	14.4
DT114-Main St, Overtown	Kerbside	Diffusion Tube	100%	100%	19.6	17.7	15.0	14.1	9.9
DT115-Plantation Rd, Ravenscraig, Motherwell	Kerbside	Diffusion Tube	100%	199%	-	15.4	13.8	10.7	8.2
DT116-Delburn St, Motherwell	Urban background	Diffusion Tube	-	-	23.1	-	-	-	-
DT117-Hamilton Rd, Motherwell	Urban background	Diffusion Tube	100%	100%	30.3	27.4	26.8	18.6	19.5
DT118-Shawhead roundabout, Coatbridge (Changed to NewDT119 in 2018)	Kerbside	Diffusion Tube	-	-	28.2	-	-	-	-

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2021 (%) [2]	2017	2018	2019	2020	2021
DT119-Kirkshaws Rd (changed to NewDT119 in 2018))	Kerbside	Diffusion Tube	-	-	31.3	-	-	-	-
DT120- Watsonville, Motherwell	Kerbside	Diffusion Tube	-	-	14.8	-	-	-	-
DT121-Flannigan Grove, Bellshill	Urban background	Diffusion Tube	100%	100%	19.5	20.3	20.2	13.8	15.4
DT122-Main St, Mossend	Roadside	Diffusion Tube	92%	92%	28.2	27.5	24.0	17.1	15.2
DT123-Hamilton Rd, Orbiston, Bellshill	Kerbside	Diffusion Tube	100%	100%	25.2	23.9	21.4	16.7	17.1
DT124-Scotmid, Tannochside	Kerbside	Diffusion Tube	100%	100%	25.6	29.5	23.5	15.7	16.3
DT125-Main St/Motherwell Rd, Bellshill	Kerbside	Diffusion Tube	100%	100%	-	24.4	18.8	15.2	15.5
DT126-Main St, near Tesco delivery rd, Bellshill	Kerbside	Diffusion Tube	100%	100%	19.8	20.4	21.4	14.6	15.1
DT129-Newmains Police Station	Roadside	Diffusion Tube	100%	100%	26.5	27.7	27.3	17.7	21.5
DT130- Main St, Wishaw (bottom)	Roadside	Diffusion Tube	100%	100%	14.4	17.1	15.8	12.5	11.1
DT131- Brandon Pl, Bellshill	Roadside	Diffusion Tube	100%	100%	19.3	19.4	14.6	14.1	16.4
DT132 – Airdrie Rd, Caldercruix	Roadside	Diffusion Tube	100%	100%	14.3	16.8	15.8	10.2	9.9
DT133- Bank St (1), Coatbridge	Roadside	Diffusion Tube	92%	92%	33.4	30.4	30.1	17.5	23.5
DT134- Whifflet Ct (2), Coatbridge	Kerbside	Diffusion Tube	92%	92%	23	19.8	20.4	12.8	15.4
DT135 -Grahamshill St, Airdrie	Kerbside	Diffusion Tube	100%	100%	33	29.3	28.3	22.1	27.1
DT136- Airdrie 3, Springwell Cres	Roadside	Diffusion Tube	100%	100%	20.1	21.1	17.9	11.0	14.5
DT137 – Auchenkilns, Cumbernauld	Roadside	Diffusion Tube	-	-	24.8	-	-	-	-

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2021 (%) [2]	2017	2018	2019	2020	2021
DT138- Main St, Chapelhall (nr shops)	Roadside	Diffusion Tube	92%	92%	25	22.7	23.1	12.3	16.7
DT139- Lauchope St/MainSt, Chapelhall	Roadside	Diffusion Tube	92%	92%	39	29.4	28.1	18.1	22.8
DT140 – Dundyvan Rd, Coatbridge	Kerbside	Diffusion Tube	100%	100%	23.6	21.7	23.2	14.8	20.9
DT141- Main St,(1), Harthill, nr shops	Kerbside	Diffusion Tube	-	-	14.8	-	-	-	-
DT142 -house no 337, Salsburgh, R15	Roadside	Diffusion Tube	-	-	14.4	-	-	-	-
DT143- Main St(2), Harthill (nr shops)	Roadside	Diffusion Tube	83%	83%	15.9	17.8	15.4	11.6	11.6
DT144-Lab 1, Constarry Rd, Croy	Roadside	Diffusion Tube	33%	33%	17.2	17.9	16.7	9.5	9.7*
DT145-Lab 2, Constarry Rd, Croy	Roadside	Diffusion Tube	33%	33%	17	20.4	16.4	9.9	10.4*
DT146- Lab 3, Constarry Rd, Croy	Roadside	Diffusion Tube	33%	33%	16.7	22.9	15.8	11.6	9.5*
DT147- Bank St, Coatbridge (nearest house)	Roadside	Diffusion Tube	100%	100%	31.6	28.5	27.4	13.7	20.2
DT148- Main St, Chapelhall, R32	Kerbside	Diffusion Tube	92%	92%	28.8	31.2	28.0	17.6	20.6
DT149- Main St, Chapelhall, R33	Kerbside	Diffusion Tube	100%	100%	31	26.9	29.1	17.2	20.7
DT150- Eastfield Rd, Cumbernauld	Kerbside	Diffusion Tube	100%	100%	20.1	19.2	18.7	11.2	11.8
DT151- Main St, Holytown	Urban background	Diffusion Tube	92%	92%	24.7	24.3	17.5	12.0	14.0
DT152- Coatbridge Rd, (Townhead shops)	Roadside	Diffusion Tube	100%	100%	28.9	28.6	30.3	20.7	20.3
D153- 72 Townhead Rd, Coatbridge	Roadside	Diffusion Tube	92%	92%	17.7	20.9	19.5	13.1	17.3
DT154- Sunnyside Rd, Coatbridge	Roadside	Diffusion Tube	100%	100%	33.9	24.7	27.4	18.3	21.5

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2021 (%) [2]	2017	2018	2019	2020	2021
DT156- Stirling Rd, Airdrie	Roadside	Diffusion Tube	100%	100%	33.8	30.9	28.4	18.9	26.0
DT157- Station Rd, Muirhead	Roadside	Diffusion Tube	100%	100%	25.6	34.1	22.3	14.4	19.1
DT158a- Croftmoraig Cres, Moodiesburn	Roadside	Diffusion Tube	100%	100%	17.9	18.4	17.8	11.2	11.4
DT158b- Deedes St, Airdrie	Roadside	Diffusion Tube	92%	92%	34.4	29.5	30.3	22.0	23.4
DT159- Glenview Cres, Moodiesburn	Roadside	Diffusion Tube	100%	100%	15.7	17.7	18.4	11.1	12.2
DT160- The Cuillins, Moodiesburn	Roadside	Diffusion Tube	100%	100%	15.7	17.6	18.4	10.7	11.3
DT161- Bridgend Cres, Moodiesburn	Roadside	Diffusion Tube	100%	100%	14.6	16.8	15.7	10.4	10.9
DT162- Auchegeoch Rd, Moodiesburn	Roadside	Diffusion Tube	100%	100%	19.5	19.4	18.3	11.6	12.1
DT163- 12 Inchwood Rd, Westfield, Cumbernauld	Roadside	Diffusion Tube	100%	100%	22.8	22.8	21.7	14.2	15.6
DT164 – 12 Leckethill Ct, Westfield, Cumbernauld	Roadside	Diffusion Tube	100%	100%	18.2	19.5	19.0	11.2	9.9
DT165- Kildonan St, Coatbridge	Roadside	Diffusion Tube	83%	83%	-	23.4	23.2	14.5	16.3
DT166 – 22 Cumbernauld Rd, Chryston	Roadside	Diffusion Tube	100%	100%	-	28.7	26.0	14.7	16.8
NewDT54 – Columba Ct/Old Edinburgh Rd, Viewpark	Roadside	Diffusion Tube	100%	100%	22.9	25.6	23.6	14.0	16.4
NewDT55 – Old Edinburgh Rd, Viewpark	Roadside	Diffusion Tube	100%	100%	29.8	27.6	24.7	13.6	19.3
NewDT56 – Bargeddie	Roadside	Diffusion Tube	100%	100%	20.3	20.6	20.0	12.2	14.1
NewDT102 – Windmillhill St(1), Motherwell	Roadside	Diffusion Tube	100%	100%	17.9	20.4	18.3	14.1	12.1
NewDT103 – Windmilllhilll St(2), Motherwell	Roadside	Diffusion Tube	92%	92%	21.1	25.9	20.7	16.6	15.1

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2021 (%) [2]	2017	2018	2019	2020	2021
NewDT 106 – Civic Centre (1), Motherwell	Roadside	Diffusion Tube	-	-	19.6	20.7	15.8	8.7	-
NewDT 107 – Civic Centre (2), Motherwell	Roadside	Diffusion Tube	-	-	19.6	19.6	18.2	11.9	-
NewDT 108 – Civic Centre (3), Motherwell	Roadside	Diffusion Tube	-	-	17	17.9	19.8	11.4	-
NewDT 116 – Airbles Rd, (Electric Bar), Motherwell	Roadside	Diffusion Tube	92%	92%	17.7	22.3	17.2	13.3	14.3
NewDT 118 – Merry St/Dalziel St, Motherwell	Roadside	Diffusion Tube	92%	92%	27.7	28.3	24.1	17.1	17.6
NewDT119- Shawhead roundabout, Coatbridge (formerly DT118- changed in 2017)	Kerbside	Diffusion Tube	100%	100%	28.2	27.8	23.7	18.5	19.7
NewDT120- Kirkshaws Rd, Coatbridge (formerly DT119, changed in 2017	Roadside	Diffusion Tube	100%	100%	31.3	26.5	24.4	18.9	20.5
NewDT 127 – Matalan, Wishaw (formerly DT128, number changed in 2017)	Kerbside	Diffusion Tube	100%	100%	27.1	24.3	26.6	18.9	18.0
NewDT 128 – Wishaw Cross/Stewarton St, Wishaw	Roadside	Diffusion Tube	100%	100%	26.5	26.7	27.9	21.8	22.6
NewDT137 – Main St, Village, Cumbernauld	Roadside	Diffusion Tube	100%	100%	24	20.6	22.5	13.9	16.4
New DT141 – Station Rd, Shotts	Roadside	Diffusion Tube	92%	92%	15	14.0	12.7	9.6	10.2
NewDT142 – Stane Gdns, Shotts	Roadside	Diffusion Tube	92%	92%	14.8	18.4	16.9	11.8	12.8

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
NewDT157a	Roadside	Diffusion Tube	100%	100%	-	28.9	25.4	18.5	19.4

Notes:

Means for diffusion tubes have been corrected for bias.

*All means have been “annualised” as per LAQM.TG(16) if valid data capture for the full calendar year is less than 75%. See Appendix C for details. (Applies to DT144, 145 and 146, Croy)

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) CM8 decommissioned – relocated to new CM12.

Table A.4 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
CM1-Chapelhall	Roadside	Automatic	99.5%	99.5%	6	0(142)	0(112)	0	0
CM2-Croy	Special – by quarry	Automatic	99.3%	99.3%	0(104)	0(93)	0(77)	0(73)	0
CM3-Calder Ct, Whifflet	Urban background	Automatic	96.9%	96.9%	-	-	0(78)	0	0
CM4-Menteith Rd, Motherwell	Roadside	Automatic	93.6%	93.6%	-	0(125)	0(114)	0(113)	0
CM5-Shawhead	Roadside	Automatic	91.15	91.1%	0(125)	0(114)	0(113)	0	0
CM6-Kirkshaws	Roadside	Automatic	96.2%	96.2%	0	0(107)	0(114)	0	0
CM7-New Edinburgh Rd, Uddingston	Roadside	Automatic	98.3%	98.3%	-	-	0(87)	0	0
CM8-Sunnyside Rd, Coatbridge	Roadside	Automatic	-	-	-	-	9(105)	-	-
CM10Kenilworth Dr, Airdrie	Roadside	Automatic	96.5%	96.5%	-	-	0(83)	0	0
CM11-Adele St, Motherwell	Roadside	Automatic	78.8%	78.8%	-	-	-	-	0(75.1)
CM12-Whifflet Cross A725	Roadside	Automatic	89.5%	60.0%	-	-	-	-	0(71)

Notes:

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.5 – Annual Mean PM_{10} Monitoring Results (µg/m^3)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
CM1-Chapelhall	Roadside	99%	99%	12.0	10.2	10.0	9.0	9.4
CM2-Croy	Special – by quarry	100%	100%	11.3	12.2	11.0	8.0	8.5
CM3-Calder Ct, Whifflet, Coatbridge	Urban background	100%	100%	11.4	6.9	13.5	8.0	8.5
CM4-Menteith Rd, Motherwell	Roadside	89%	89%	13.0	9.7	11.0	9.0	9.6
CM5-Shawhead	Roadside	99%	99%	14.0	4.9	10.0	8.0	9.1
CM6-Kirkshaws	Roadside	100%	100%	9.0	9.6	20.0	9.0	8.9
CM7-New Edinburgh Rd, Uddingston	Roadside	11%	11%	-	-	13.5	9.0	9.5
CM10-Kenilworth Dr, Airdrie	Roadside	62%	62%	-	-	12.2	7.8	10.2
CM11-Adele St, Motherwell	Roadside	97%	97%	-	-	-	8.0	8.8
CM12-Whifflet Cross A725	Roadside	89.5%	60%	-	-	-	-	9.4

Notes:

All means have been “annualised” as per LAQM.TG(16), valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.6 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
CM1-Chapelhall	Roadside	99%	99%	0.0	0(24)	1	0	0
CM2-Croy	Special – by quarry	100%	100%	1(35)	0(42)	3	0(18)	0
CM3-Calder Ct, Whifflet, Coatbridge	Urban background	100%	100%	0(29)	0(27)	0(22)	0	0
CM4-Menteith Rd, Motherwell	Roadside	89%	89%	0.0	0(23)	2	0	0
CM5-Shawhead	Roadside	99%	99%	0.0	0(19)	2	0	0
CM6-Kirkshaws	Roadside	100%	100%	0(26)	0(21)	1	0	0
CM7-New Edinburgh Rd, Uddingston	Roadside	11%	11%	-	-	0(21)	0(15)	0(18.3)
CM10-Kenilworth Dr, Airdrie	Roadside	62%	62%	-	-	0(21)	0(23)	0(22.4)
CM11-Adele St, Motherwell	Roadside	97%	97%	-	-	-	0(18)	0
CM12-Whifflet Cross A725	Roadside	89.5%	60%	-	-	-	-	0(21.2)

Notes:

If the period of valid data is less than 85%, the 98.1st percentile of 24-hour means is provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.7 – Annual Mean $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
CM1-Chapelhall	Roadside	99%	99%	5.0	5.3	6.0	5.0	5.0
CM2-Croy	Special – by quarry	100%	100%	-	6.0	6.0	4.0	4.9
CM3-Calder St, Whifflet Coatbridge	Urban background	100%	100%	-	-	-	-	5
CM4-Menteith Rd, Motherwell	Roadside	89%	89%27	-	5.4	6.0	5.0	5.0
CM5-Shawhead	Roadside	99%	99%	-	5.6	6.0	5.0	4.8
CM6-Kirkshaws	Roadside	100%	100%	-	5.4	6.0	5.0	4.9
CM7-New Edinburgh Rd, Uddingston	Roadside	11%	11%	-	-	-	-	5.0
CM11-Adele St, Motherwell	Roadside	97%	97%	-	-	-	4.5	5.0
CM12-Whifflet Cross A725	Roadside	89.5%	60%	-	-	-	-	5.2

Notes:

Exceedances of the $PM_{2.5}$ annual mean objective of 10 µg/m^3 are shown in bold.

All means have been “annualised” as per LAQM.TG(16), valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Appendix B: Full Monthly Diffusion Tube Results for 2021

Table B.1 – NO_2 2021 Monthly Diffusion Tube Results (µg/m^3)

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Bias Adjusted (1)
DT47	27.9	1.5	7.9	13.5	13.4	13.6	12.0	2.0	17.4	21.5	20.2	22.9	14.5	14.0
DT48	<1.0	2.0	15.7	15.1	16.6	16.0	12.1	16.5	24.8	25.8	19.7	27.8	17.5	16.9
DT49	1.0	2.0	9.0	13.3	12.1	16.0	12.3	16.0	17.8	21.1	19.6	20.7	13.4	13.0
DT50	35.3	7.2	24.3	13.7	6.3	10.8	11.5	12.4	16.8	19.9	21.0	18.3	16.5	16.0
DT51	27.3	19.0	9.2	9.4	15.7	11.8	13.0	13.7	16.6	20.8	25.7	25.8	17.3	16.8
DT52	28.0	10.2	7.0	12.6	18.8	12.2	9.1	19.0	15.3	18.3	23.1	1.8	14.6	14.2
DT53	8.7	14.0	17.9	4.3	12.0	7.5	12.0	10.3	14.9	14.8	19.7	1.6	11.5	11.1
DT57	23.7	15.7	13.6	11.7	13.5	9.4	5.2	6.1	9.1	16.0	13.6	21.1	13.2	12.8
DT58	26.7	19.8	12.6	14.2	16.9	15.5	11.7	19.9	17.4	18.0	27.4	21.9	18.5	17.9
DT59	25.0	17.2	9.7	11.7	12.6	8.5	9.6	8.9	6.0	12.0	15.6	17.9	12.9	12.5
DT61	29.2	31.7	17.9	37.1	27.6	15.2	17.2	25.2	35.2	2.6	63.5	34.4	28.1	27.2
DT62	38.1	20.2	15.7	25.9	33.8	22.9	11.6	22.6	27.9	22.7	29.0	28.8	24.9	24.2
DT63	41.4	31.6	37.7	40.1	24.7	28.8	24.2	28.7	32.4	24.1	2.7	13.2	27.5	26.6
DT64	27.9	24.8	12.6	22.2	14.3	17.0	18.9	21.4	25.3	37.3	23.7	24.5	22.5	21.8
DT100	17.9	40.7	17.5	13.5	14.6	14.9	10.1	23.7	26.7	30.5	33.2	30.3	22.8	22.1
DT101	16.4	8.4	12.3	13.1	9.6	18.3	7.3	13.1	17.3	23.3	23.9	20.1	15.3	14.8
DT104	10.5	7.4	2.7	7.4	4.4	2.5	5.5	3.8	11.8	9.2	17.9	11.7	7.9	7.7
DT105	22.8	10.1	4.9	6.1	6.2	-	11.8	7.6	6.9	13.2	11.2	15.9	10.6	10.3
DT110	24.2	40.7	19.9	30.6	11.7	15.8	16.6	16.6	27.8	32.0	27.8	32.1	24.7	23.9
DT111	29.3	19.0	23.3	33.9	5.0	20.2	15.0	26.6	26.7	1.8	29.6	5.1	19.6	19.0
DT112	28.8	20.0	18.4	24.9	8.7	23.1	19.2	20.7	25.5	31.2	35.1	34.2	24.2	23.4
DT113	15.7	18.6	16.8	10.0	11.5	7.7	10.0	10.3	16.8	19.2	22.2	19.2	14.8	14.4
DT114	17.0	6.6	9.1	8.0	6.4	5.2	5.8	9.0	10.8	11.5	16.2	17.4	10.3	9.9
DT115	13.8	7.4	7.6	4.8	4.5	4.1	5.6	6.7	8.6	10.2	15.9	11.7	8.4	8.2
DT117	32.5	19.7	11.9	21.7	9.5	10.5	15.5	17.1	22.1	26.1	27.4	27.3	20.1	19.5
DT121	27.2	15.8	5.8	9.5	12.7	13.1	11.7	16.2	16.4	19.3	20.3	22.0	15.8	15.4
DT122	21.1	12.5	-	11.5	11.7	10.6	15.3	15.2	19.8	19.5	18.0	17.2	15.7	15.2
DT123	23.1	15.3	15.3	10.7	9.9	18.8	10.7	19.0	19.9	21.9	25.0	21.6	17.6	17.1

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Bias Adjusted (1)
DT124	27.1	8.3	7.3	23.7	3.3	12.0	7.5	18.9	21.1	23.8	26.0	22.4	16.8	16.3
DT125	24.5	16.1	8.9	13.2	10.6	16.2	9.6	15.8	18.4	18.6	20.6	19.6	16.0	15.5
DT126	25.6	15.1	8.6	18.3	9.0	8.9	12.8	13.6	18.1	16.3	20.8	19.6	15.6	15.1
DT129	28.9	20.5	18.3	16.7	18.9	22.4	17.3	27.1	25.2	21.4	26.1	23.7	22.2	21.5
DT130	22.3	12.3	7.3	12.1	8.3	12.1	7.4	11.0	10.8	14.9	17.4	1.6	11.5	11.1
DT131	23.8	11.5	14.3	16.8	10.1	14.2	13.4	14.4	16.7	21.7	26.9	18.6	16.9	16.4
DT132	22.5	3.8	9.0	11.3	9.7	5.9	6.9	5.0	8.9	13.2	14.6	12.1	10.3	9.9
DT133	33.7	46.7	16.0	20.6	11.6	16.0	17.6	23.6	27.4	28.8	-	24.0	24.2	23.5
DT134	24.3	14.4	16.5	13.0	7.6	-	11.8	10.7	14.5	19.2	23.4	19.3	15.9	15.4
DT135	36.6	11.8	25.8	26.1	17.8	18.4	23.7	21.7	30.4	33.8	39.8	49.8	28.0	27.1
DT136	19.3	11.8	10.3	11.0	7.3	1.6	9.8	13.6	15.5	21.3	39.2	18.8	15.0	14.5
DT138	25.4	12.7	14.9	15.0	12.7	14.2	-	9.8	17.7	20.3	24.7	22.4	17.3	16.7
DT139	34.0	24.5	24.9	16.6	14.1	20.5	25.2	23.6	2.1	37.3	35.3	-	23.5	22.8
DT140	31.3	14.2	11.4	20.4	11.8	10.2	15.1	15.7	16.3	51,5	26.9	34.0	21.6	20.9
DT143	13.1	9.0	10.6	13.0	-	-	7.7	11.2	12.5	14.6	13.4	14.3	11.9	11.6
DT144	18.8	-	8.3	-	-	-	-	-	-	14.2	-	14.9	14.1	13.6
DT145	19.4	-	11.3	-	-	-	-	-	-	14.4	-	15.2	15.1	14.6
DT146	14.1	-	8.7	-	-	-	-	-	-	15.0	-	17.3	13.8	13.4
DT147	29.0	22.7	15.4	22.4	13.9	16.2	8.5	20.0	25.5	17.1	31.1	27.6	20.8	20.2
DT148	21.3	19.0	17.9	22.3	8.8	14.2	-	23.5	25.1	28.5	24.7	28.2	21.2	20.6
DT149	23.5	13.2	16.0	24.9	17.8	16.5	20.4	20.7	23.8	24.5	26.9	28.4	21.4	20.7
DT150	13.4	9.4	9.2	13.7	7.4	9.8	9.8	12.4	13.9	13.8	14.6	18.1	12.1	11.8
DT151	23.1	8.1	14.2	17.5	8.9	-	11.1	11.3	15.6	18.9	21.4	18.7	15.3	14.9
DT152	29.4	23.5	19.9	20.6	13.4	13.1	14.8	19.0	19.1	23.9	27.5	27.0	20.9	20.3
DT153	27.0	-	15.8	16.8	11.4	10.5	16.2	13.4	17.0	21.2	23.9	22.9	17.8	17.3
DT154	24.0	18.1	15.8	25.3	15.9	16.9	18.9	22.4	26.0	28.2	30.4	24.5	22.2	21.5
DT156	27.0	29.0	19.0	25.3	16.1	20.1	16.3	27.5	833.0	34.8	51,4	22.2	26.8	26.0
DT157	31.8	19.4	21.2	21.2	10.2	15.5	23.1	13.5	22.7	28.2	27.5	1.5	19.7	19.1
DT158a	18.0	10.8	12.6	11.7	3.9	8.7	7.3	7.0	11.2	13.8	20.1	16.1	11.8	11.4
DT158b	26.5	10.3	23.3	21.4	24.1	-	23.1	24.7	30.0	33.1	23.5	25.3	24.1	23.4
DT159	18.6	9.7	8.7	12.5	12.3	7.0	10.5	11.9	15.3	14.4	14.2	16.1	12.6	12.2
DT160	19.3	8.0	5.6	11.9	5.4	11.9	10.6	5.3	12.9	13.9	16.8	17.6	11.6	11.3
DT161	18.5	16.3	8.2	5.6	11.2	8.7	11.9	7.2	11.0	11.8	12.0	12.0	11.2	10.9
DT162	13.3	21.2	8.6	10.9	8.9	11.9	8.5	8.8	15.2	15.3	14.1	11.8	12.5	12.1
DT163	21.8	11.1	19.2	17.2	10.1	12.6	10.5	14.6	15.1	16.1	19.8	24.4	16.0	15.6

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Bias Adjusted (1)
DT164	10.3	13.6	10.7	11.5	9.3	6.2	8.2	9.6	10.6	12.8	17.7	1.6	10.2	9.9
DT165	19.3	12.9	19.7	17.5	12.8	11.1	13.3	-	18.7	21.7	-	21.3	16.8	16.3
DT166	19.8	10.7	15.2	17.6	16.2	10.6	13.0	20.1	14.4	20.4	27.0	23.1	17.3	16.8
NewDT54	34.7	13.8	10.1	15.9	17.0	12.7	11.1	13.8	18.0	14.2	14.7	27.4	17.0	16.4
NewDT55	32.1	22.5	11.6	23.9	19.8	15.2	12.0	14.7	14.1	19.9	25.1	28.0	19.9	19.3
NewDT56	31.5	9.3	11.2	14.4	13.4	11.2	6.8	9.6	13.0	14.9	16.9	22.0	14.5	14.1
NewDT102	13.9	13.4	10.1	8.2	7.7	6.2	8.7	12.2	14.4	18.0	20.8	16.1	12.5	12.1
NewDT103	18.9	15.6	9.5	11.5	-	7.6	12.8	12.5	19.6	20.3	22.6	20.0	15.5	15.1
NewDT106	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NewDT107	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NewDT108	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NewDT116	24.2	13.9	10.1	9.3	14.2	8.1	12.4	12.1	17.0	19.9	20.6	-	14.7	14.3
NewDT118	23.6	20.4	9.5	12.3	8.7	14.9	17.9	20.9	22.2	26.4	23.3	-	18.2	17.6
NewDT119	32.0	18.4	18.5	11.5	10.7	21.7	13.1	20.7	26.4	32.9	1.5	35.8	20.3	19.7
NewDT120	31.8	20.6	14.8	12.5	8.5	15.9	14.6	20.4	27.8	29.7	26.4	30.2	21.1	20.5
NewDT127	33.9	10.4	18.0	19.6	14.6	15.8	16.0	21.5	17.5	26.0	28.2	1.7	18.6	18.0
NewDT128	29.3	20.5	16.3	24.2	15.7	19.8	11.3	24.7	28.3	29.3	33.9	26.7	23.3	22.6
NewDT137	26.8	16.8	6.3	17.0	9.6	13.8	12.5	19.0	18.7	19.4	20.7	22.6	16.9	16.4
NewDT141	16.3	11.2	7.2	13.2	7.7	7.6	-	8.3	08.4	9.3	14.2	12.0	10.5	10.2
NewDT142	14.0	10.8	13.9	14.9	10.2	11.5	11.2	13.5	-	12.7	17.3	15.5	13.2	12.8
NewDT157a	31.8	19.4	21.2	10.2	15.5	23.1	13.5	22.7	28.2	27.5	1.5	25.7	20.0	19.4

Notes:

(1) See Appendix C for details on bias adjustment

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

New or Changed Sources Identified Within North Lanarkshire During 2021

North Lanarkshire Council has not identified any new sources relating to air quality within the reporting year of 2021.

Additional Air Quality Works Undertaken by North Lanarkshire Council During 2021

In 2021 further work was carried out on the large-scale dispersion modelling work that was carried out in 2020. In 2021 this was expanded to include the Wishaw and Newmains areas of North Lanarkshire that feed directly down past the ongoing Ravenscraig development area and into Motherwell Town Centre and the Motherwell AQMA. The study took into account the major committed development, and their projected impact on the Motherwell AQMA. The study report includes verification of model-predicted concentrations within NLC monitoring data for the updated baseline year or 2019, and provides predictions of local air quality in the future years of 2022 and 2028 across the study.

Scottish Government air quality funding has been secured in 2022 to expand this study to include all other areas of North Lanarkshire not already covered by the 2020 and 2021 dispersion modelling studies.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes for the year 2021 were supplied and analysed by Glasgow Scientific Services (GSS). The tubes were prepared using the 20% TEA in water preparation method. All results have been bias adjusted and annualised (where required). GSS is a UKAS accredited laboratory and participates in the AIR-PT Scheme (a continuation of the Workplace Analysis Scheme for Proficiency (WASP) for NO_2 tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre.

The latest AIR-PT results are as follows:-

- AIR-PT AR040 (September to October 2020) – 100%
- AIR-PT AR042 (January to February 2021) – 50%
- AIR-PT AR043 (May to June 2021) – 100%
- AIR-PT AR045 (July to August 2021) – 100%
- AIR-PT AR046 (September to October 2021) – No results

Over a rolling five round AIR-PT window, it is expected that 95% of laboratory results should be greater than or equal to +2. If this percentage is substantially lower than 95% for a particular laboratory, within this five-round window, then one can conclude that the laboratory in question may have sources of error within their analytical procedure.

The AIR-PT AR042 results of 50% were investigated by the laboratory to the satisfaction of their accreditation body UKAS and no reprocessing was required.

Excluding this result, the results of all round results from 2021 were 100% demonstrating satisfactory performance of the laboratory.

The monitoring was largely carried out in adherence with the 2021 Diffusion Tube Monitoring Calendar, with the exception of one period of divergence as a result of staff holidays. DTs 40-49,50-166, 61-64 and 132 were changed on 18th August 2021 and not changed again until 28th September 2021. Glasgow Scientific Services laboratory were advised of this and have applied the appropriate correction to compensate for this.

Diffusion Tube Annualisation

Annualisation was required for three PDT monitoring sites co-located at Croy, namely DT 144, DT 145 and DT 146 as they had a data capture of 33%. It was not possible to use the Annualisation Tool or the Diffusion Tube Processing Tool to perform this task as it required the raw hourly data for the continuous monitoring sites used in the process. We did not have access to that and have therefore used the method from our annual reports as per Chapter 7: NOx and NO_2 Monitoring of the Technical Guidance LAQM. TG16. The calculation method is shown in Table C.2

All other diffusion tube monitoring locations within North Lanarkshire recorded data capture of above 75% therefore no further annualization was undertaken. In addition, any sites with a data capture below 25% do not require annualization.

Diffusion Tube Bias Adjustment Factors

North Lanarkshire Council have applied a national bias adjustment factor of 0.97 to the 2021 monitoring data. A summary of bias adjustment factors used by North Lanarkshire Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	06/22	0.97(1)
2020	National	06/21	0.89(1)
2019	National	06/20	0.87(1)
2018	National	03/19	0.92(1)
2017	National	06/18	0.90(1)

(1) Adjustment Factor was derived from using the average of the diffusion tubes with Good Precision only

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 06/22

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of September 2022

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List

If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List

If a year is not shown, we have no data[2]

Step 4:

Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[2] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[a]	Bias Adjustment Factor (A) (Cm/Dm)
Glasgow Scientific Services	20% TEA in water	2021	R	Glasgow City Council	12	26	25	4.1%	P	**0.96**
Glasgow Scientific Services	20% TEA in water	2021	R	Glasgow City Council	11	16	21	-22.1%	P	**1.28**
Glasgow Scientific Services	20% TEA in water	2021	R	Glasgow City Council	12	18	22	-19.8%	P	**1.25**
Glasgow Scientific Services	20% TEA in water	2021	KS	Glasgow City Council	12	37	44	-15.3%	P	**1.18**
Glasgow Scientific Services	20% TEA in water	2021	UB	Glasgow City Council	12	14	17	-19.3%	P	**1.24**
Glasgow Scientific Services	20% TEA in water	2021	KS	Marylebone Road Intercomparison	10	46	41	11.9%	G	**0.89**
Glasgow Scientific Services	20% TEA in water	2021	R	East Ayrshire Council	10	18	19	-5.9%	G	**1.06**
Glasgow Scientific Services	20% TEA in water	2021		**Overall Factor[3] (7 studies)**					**Use**	**1.11**

Figure C.1 Glasgow Scientific Services - National Average Bias Adjustment Factor Spreadsheet 06/22

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within North Lanarkshire required distance correction during 2021.

QA/QC of Automatic Monitoring

Automatic monitoring of NOx, PM_{10} and $PM_{2.5}$ is completed within North Lanarkshire Council using Chemiluminescence and FIDAS (PM_{10} and $PM_{2.5}$) analysers. All data is available in real-time and, following data dissemination, is ratified by Ricardo Energy and Environment to AURN standards.

The data from the automatic monitoring stations is checked by the Local Site Operator (in-house member of staff).

Live and historic data are available from http://www.scottishairquality.scot/

Details of the calibration, servicing etc. arrangements for the automatic air monitoring stations in North Lanarkshire are as follows.

- Automatic analysers are set up to calibrate themselves every 72 hours
- All automatic analysers are audited by Ricardo every six months
- Analysers are serviced by the maintenance contractor for the equipment every six months. Maintenance contracts are in place for the analysers to ensure this. this also covers attending faults as necessary.
- Our in-house LSO maintains the air station network in terms of filter changes, gas ordering, initial fault-finding and reporting of faults, as necessary. They also carry out visual checks on the monitors and ancillary equipment, enclosures etc.

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

All PM_{10} and $PM_{2.5}$ monitoring within North Lanarkshire is carried out using either the conventional TEOM gravimetric equipment monitoring technique or the FIDAS monitoring technique. All correction factors applied to monitoring data of PM_{10} and $PM_{2.5}$ within North Lanarkshire are detailed in the Annual Statistics Reports for the monitoring sites published by Ricardo Energy and Environment.

Automatic Monitoring Annualisation

All automatic monitoring locations within North Lanarkshire Council recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within North Lanarkshire Council required distance correction during 2021.

Table C.2 – Annualisation Summary for PDT sites DT144, DT145 and DT146 (concentrations presented in µg/m^3)

Background Site	Annual Mean NO_2 2021 (A_m)	Period Mean $NO_2$2021 (Jan, Mar, Oct, Dec) (P_m)	Ratio (A_m/P_m)
CM3 Coatbridge Whifflet (Urban Background)	11	16.5	0.67
Glasgow Townhead (Urban Background)	7	9.75	0.72
Waulkimillglen (Rural)	18	23.75	0.76
Average Ratio (R_a)			**0.71**

PDT Site	Raw Data Annual Mean	Raw Data Bias Adjusted (0.97)	Average Annualisation Factor	Annualised Annual Mean
DT144	14.1	13.6	0.71	9.7
DT145	15.1	14.6	0.71	10.4
DT146	13.8	13.4	0.71	9.5

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
APR	Air quality Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

LAQM Technical Guidance TG(16), Defra

Cleaner Air for Scotland : An Air Quality Strategy for Scotland, Scottish Government

North Lanarkshire Council Air Quality Action Plan 2018-2021

North Lanarkshire Council Annual Progress Report 2021