Annual Progress Report (APR)

2024 Air Quality Annual Progress Report (APR) for South Lanarkshire Council

In fulfilment of Part IV of the Environment Act 1995, as amended by the Environment Act 2021

Local Air Quality Management

Date (June, 2024)

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Annual Progress Report 2024

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Executive Summary: Air Quality in Our Area

Air Quality in South Lanarkshire Council

This Annual Progress Report provides a summary of the air quality measurements conducted across South Lanarkshire in 2023; it also considers any new potential sources of air pollution and if any further action is required to protect or improve air quality within South Lanarkshire.

All annual mean Nitrogen Dioxide (NO_2) concentrations measured at automatic and non-automatic monitoring sites within South Lanarkshire were below the annual mean objective of 40 µg/m^3 during 2023, with the highest automatic measurement recorded at Rutherglen with 22 µg/m^3 and at the non-automatic site 12 with 25.1 µg/m^3. The last five years' measurements indicate an overall downward trend in measured NO_2 concentrations at all automatic and non-automatic monitoring sites. Annual statistics for 2023 also show that concentrations of NO_2 have remained significantly lower than that measured in 2019 (i.e. pre-Covid19 pandemic).

No sites measured 1-hour mean NO_2 concentrations in excess of 200 µg/m^3 objective during 2023; all measurement sites were therefore compliant with the 1-hour short-term mean objective.

The 18 µg/m^3 Scottish PM_{10} annual mean objective was not exceeded at any of South Lanarkshire Council's eight automatic monitoring sites in 2023. The highest PM_{10} annual mean concentration recorded was at Cambuslang at 12.1 µg/m^3 (corrected). Measured PM_{10} concentrations in 2023 were similar to those measured in 2022.

No PM_{10} daily means greater than 50 µg/m^3 were measured at any monitoring site during 2023. All measurement sites were therefore compliant with the 24-hour short-term mean objective.

South Lanarkshire Council measured $PM_{2.5}$ concentrations at eight of their automatic sites in 2023. No exceedances of the Scottish $PM_{2.5}$ annual mean objective were measured, with the highest concentration occurring at Rutherglen at 6.4 µg/m^3 (corrected). Measured $PM_{2.5}$ concentrations in 2023 were similar to those measured in 2022.

Based on available information regarding planned developments, South Lanarkshire Council have not identified any locations where there may be a risk of the air quality objectives being exceeded.

Three Air Quality Management Areas (AQMA) have been declared in South Lanarkshire at Whirlies East Kilbride (PM_{10}), Lanark (NO_2) and Rutherglen (PM_{10}). Lanark AQMA was revoked in February 2024 following a Detailed Assessment[1] of the Lanark AQMA in 2022. No exceedances of the NO_2 annual mean objective have been measured in Lanark since 2013, and all measured annual means were well below the 40 µg/m^3 objective in 2019. The Detailed Assessment aimed to future proof the revocation of the AQMA by including sensitivity testing of inter-annual variability in meteorological conditions that could lead to increased pollutant concentrations and future traffic conditions with planned nearby developments in 2025. No exceedances of the NO_2 annual or short-term objectives were predicted at locations of relevant human exposure. South Lanarkshire Council are currently reviewing the Whirlies and Rutherglen AQMAs following the publication of the Scottish Government FIDAS equivalence study[2], with the aim of revoking these two AQMAs by the end of 2024.

South Lanarkshire Council is committed to working towards achieving compliance with health-based air quality objectives. The main source of localised air pollution in South Lanarkshire is road traffic emissions; and to a lesser extent, emissions from industrial processes and commercial/domestic fuel combustion. The main pollutants of concern are nitrogen dioxide (NO_2) and fine particulate matter (PM_{10} and $PM_{2.5}$).

Two air quality focused studies commenced in 2023. One of which was commissioned to investigate non-road-based source sources of pollution and their contribution to ambient

[1] Ricardo Energy & Environment (2022) Detailed assessment to the revocation of Lanark AQMA, South Lanarkshire; Report for South Lanarkshire Council; Ref ED12832128- Issue Number 1 28th January 2022

[2] Ricardo Energy & Environment (2023) Equivalence Study to Investigate Particulate Matter Monitoring in Scotland using the FIDAS 200; Report for the Scottish Government; Ref ED11195 Issue 1 10th May 2023; available to download here: https://www.scottishairquality.scot/news/local-authority-guidance-note-laqm-reporting-scottish-pm-data

air quality; the other was to evaluate the potential air quality benefits resulting from actions under consideration by the council to support climate action.

Hyperlocal sensor study, Stonehouse – From September 2023 to January 2024, South Lanarkshire Council commissioned a short-term monitoring study using low-cost sensors investigating non-road-based sources of pollution and their contribution to ambient air quality, in particular solid fuel combustion. The study utilised nine solar powered Airly Gas+PM sensors, one co-located at the South Lanarkshire Lanark automatic monitoring reference station, and eight more located in the rural village of Stonehouse. Directional analysis of the data indicated that for Nitrogen Dioxide (NO_2) the main sources were local and to the northeast, suggesting that both local traffic and that on the M74 had an influence on concentrations. For PM, this study suggests that non-traffic-based emission sources, namely solid fuel burning, were the major contributor to measured PM concentrations.

Air Quality and Climate Change Co-Benefits Evidence Base - South Lanarkshire Council was supported by Ricardo to develop an 'Air Quality and Climate Change Co-Benefits Evidence Base' in response to the council's Air Quality Actions and Climate Emergency Planning, to evaluate the potential air quality benefits resulting from actions under consideration by the council to support climate action.

In the delivery of the study, Ricardo and South Lanarkshire Council have gained invaluable insight into Climate Action Planning in South Lanarkshire, and how this may interact with and influence emissions of air quality pollutants, and importantly, potential opportunities for resulting co-benefits in terms of reductions in emissions of both greenhouse gases and air quality pollutants.

South Lanarkshire Council has invested significant effort in its plans to reduce greenhouse gas emissions and to support the communities of South Lanarkshire to respond to climate impacts. However, the research has outlined that in order to better assess the co-benefit impacts more effort to identify quantitative driven actions will benefit future years assessment and ability to achieve specific climate change and clean air targets.
In the absence of formal uptake %, default uptake scenarios were agreed with South Lanarkshire Council for the key sectors to enable the evaluation of the impact of these on emissions of the key air pollutants, NOx, PM_{10} and $PM_{2.5}$.

Due to a major improvement programme currently being implemented on the Scenario Modelling Tool (SMT) by DEFRA, unfortunately the plans to implement and evaluate the impacts of scenario and related measures using the SMT, and the generation of outputs and associated recommendations was halted temporarily. As a consequence, only an interim report can be produced for the information of South Lanarkshire Council, until the SMT is available for application.

The final report, including findings and recommendations from the scenario modelling will be issued to South Lanarkshire Council at the earliest opportunity. South Lanarkshire Council will provide an update in next year's APR.

Actions to Improve Air Quality

South Lanarkshire are currently updating the Air Quality Action Plan 2024 – 2029 (draft), which outlines the action the council will take to improve air quality in South Lanarkshire between April 2024 and March 2029. Projects delivered through the past action plan to improve air quality include:

Active travel

The WALKCYCLE4AIR App and competition was launched in partnership with North Lanarkshire Council. The App aims to encourage people out of their cars whilst enjoying fresh air and cutting their emissions at the same time. Since launch the App has been downloaded over 2,200 times. More information is available here: Treasure trail helps address air pollution - South Lanarkshire View (Air Quality Action Plan South Lanarkshire Council 2019: S15 – Investigate behaviour change initiatives)

'Love to Ride South Lanarkshire' was a tailored online behaviour change programme and platform which ran for eighteen months and has been proven to motivate and encourage more people on bikes. The project engaged with 35 workplaces and encouraged 18% of new riders to become occasional or regular riders and 9% of active occasional riders to become regular riders. More information is available here: Cycle for fun and prizes this September - South Lanarkshire View. (Air Quality Action Plan South Lanarkshire Council 2019: S15 – Investigate behaviour change initiatives)

'Beat the Street' projects have been delivered in South Lanarkshire since 2018. This is a sustainable active travel behaviour change initiative aimed at encouraging residents and

visitors to decrease journeys by car and increase journeys made using more active and sustainable means of travel. Projects have taken place in Lanark and Rutherglen, East Kilbride (EK)(twice), Hamilton and Blantyre, Cambuslang and Rutherglen and most recently within Clydesdale area. Over 53,000 people have taken part and community engagement has ranged between 10 – 17% of the local population. Participants have walked, cycled, or wheeled over 700,000 miles (28 times round the world). Some further information is available here:https://www.southlanarkshireview.scot/news/article/1542/beat_the_street_launched_in_east_kilbride (Air Quality Action Plan South Lanarkshire Council 2019: S15 – Investigate behaviour change initiatives)

'BetterPoints – Think, Move, Breathe' is an App based active and sustainable travel behaviour project that rewards participants for choosing active and sustainable ways of travelling across South Lanarkshire. More information is available here: BetterPoints - Think, Move, Breathe. (Air Quality Action Plan South Lanarkshire Council 2019: S15 – Investigate behaviour change initiatives)

South Lanarkshire Council (SLC) has worked in partnership with South Lanarkshire College to support the expansion of cycling uptake with students and staff. SLC supported the college in their purchase of a new e-cargo bike which will enable sustainable deliveries across campus as well as transporting materials for the horticultural department. Dr Bike sessions have also been supported to assist staff and students with bike maintenance. (Air Quality Action Plan South Lanarkshire Council 2019: S9. – Encourage the uptake of low emission vehicles)

South Lanarkshire re-launched its ‘Cycle2Work’ scheme and in 2022 agreed that this scheme would now be an all-year-round project with no closing date for applications. More information is available here: Cycle2Work (Air Quality Action Plan South Lanarkshire Council 2019: S9. – Encourage the uptake of low emission vehicles)

Cycle training has also been provided within our schools. In academic year 2022-23 there were 67 schools delivering to Bikeability Level 1 and 52 schools training to Level 2 on-road with a further 2 schools delivering Level 2 style training in the playground. (Air Quality Action Plan South Lanarkshire Council 2019: S9. – Encourage the uptake of low emission vehicles)

Ongoing improvements and expansion of the cycling and walking network continued and a link to the current network is available via online resource linked here: The air that we breathe story map. An example of the infrastructure improvements is available here: Improvements underway for Active Travel routes - South Lanarkshire View (Air Quality Action Plan South Lanarkshire Council 2019: S14 – Improve cycle routes)

The EK branch of Universal Connections participated in a Beat the Street legacy project aimed at upskilling members of the local community in cycle training. Nine members of staff and volunteers completed their 'Train the Trainers Bikeability Leaders' course. This will enable the centre to run essential cycling courses for young people and the wider community to build their confidence, using cycle lanes safely and basic bike maintenance to keep their bikes roadworthy. (Air Quality Action Plan South Lanarkshire Council 2019: S9. – Encourage the uptake of low emission vehicles)

Installation of cycle shelter at Universal Connections (UC) EK, which is part of SLC Education. UC works closely with youth and those in the wider community, and they are working on supporting and encouraging cycling as a viable travel option. SLC are currently installing a fully segregated cycling infrastructure within East Kilbride and the installation of the cycling shelter supports UC in their endeavours regarding cycling. (Air Quality Action Plan South Lanarkshire Council 2019: S15 – Investigate behaviour change initiatives)

Installation of Public Bike Maintenance stands within Calderglen Country Park and Lanark Country Park to encourage active travel choices by means of cycling to and from and within the parks within both towns. (Air Quality Action Plan South Lanarkshire Council 2019: S15 – Investigate behaviour change initiatives)

SLC Walking and Cycling Sustainable Travel Promotion. Each year SLC undertake a publicity campaign with our "Leave the Car at Home" message, and this involves a variety of publicity formats such as billboard advertising, bus rear advertising and supermarket digital sheet advertising. (Air Quality Action Plan South Lanarkshire Council 2019: S15 – Investigate behaviour change initiatives)

East Kilbride Active Travel Infrastructure – As part of the EK Active Travel study undertaken in 2019, community engagement led to a series of routes highlighted for enhancement for both walking and cycling. Several routes have now been installed throughout the town including segregated bidirectional cycle lanes with additional footway provision for pedestrians. (Air Quality Action Plan South Lanarkshire Council 2019: S15 – Investigate behaviour change initiatives)

Improvement in Bus Services – SLC in partnership with Strathclyde Partnership for Transport (SPT) have been improving facilities at bus stops including providing high quality bus shelters, making bus stops more accessible, with installation of high kerbs that are at the same height as the floor of the buses and providing timetable information at all bus stops. Also installed are real time passenger information along some of the strategic bus routes, making travelling by bus more convenient and desirable. (Air Quality Action Plan South Lanarkshire Council 2019: S15 – Investigate behaviour change initiatives)

Education

Focused air quality workshops have been delivered to both primary and secondary school students. (Air Quality Action Plan South Lanarkshire Council 2019: S13 – integration of air quality awareness within education)

The 'On the Move' project has been delivered in Lanark and Blantyre with work ongoing to introduce it to the Calderglen area in EK. Primary schools and communities around Lanark and Blantyre have worked together to inspire locals to travel responsibly for the environment. More information is available here: On the Move to cleaner air in Lanark - South Lanarkshire View (Air Quality Action Plan South Lanarkshire Council 2019: S13 – integration of air quality awareness within education and S15 – Investigate behaviour change initiatives)

Young sports leaders and S6 students from St Andrews and St Brides High School had an opportunity to be trained as Bikeability Instructors as part of the legacy work from one of the 'Beat the Street' projects. These students are now able to deliver on road cycle training to primary school children under the Cycling Scotland's Training Scheme. Children who are taught this course learn safe cycling skills and road safety and Highway Code awareness, and basic cycle maintenance checks along with Eco and Active Travel to improve air quality. (Air Quality Action Plan South Lanarkshire Council 2019: S13 – integration of air quality awareness within education)

Conference of Schools (COS1) event – On the back of the Conference of the Parties 26 (COP26) summit event in Glasgow in 2021 young people from all high schools within South Lanarkshire created a Youth Forum on Climate Change and Sustainability. They held their first mini-COP event called Conference of Schools 1 (COS1) in 2022 which was held over three days at Palace Grounds in Hamilton with more than 500 primary aged

children in attendance. The Youth Forum came up with a theme for the event “TIERS” which focused on Travelling, Influencing, Eating, Reduce-Reuse-Recycle, and Shopping. They asked the school attendees to commit to a set of pledges and to raise awareness across the rest of the schools. A further COS2 event also ran in February 2024 and more information is available: https://blogs.glowscotland.org.uk/sl/public/primaryscience/uploads/sites/13996/2024/05/28124907/COS2-Case-Study-final.pdf (Air Quality Action Plan South Lanarkshire Council 2019: S13 – integration of air quality awareness within education)

Tackling engine idling

South Lanarkshire’s externally funded engine idling promotion campaign continues. Graphics have developed banners which are displayed on a rota locational basis on streetlamps and railings. The campaign emphasises the effects of poor air quality from engine idling. The refreshed campaign branding ‘30 good reasons to switch off your engine’ and ‘11 good reasons to turn off your engine’ are in use around schools and sports centres. The new branding has been very well received. An example of the campaign is available here: https://www.southlanarkshireview.scot/news/article/1304/pupils_switch_on_to_social_to_ask_you_to_switch_off_your_engine. (Air Quality Action Plan South Lanarkshire Council 2019: S15 – Investigate behaviour change initiatives)

Improvements to vehicle emissions

South Lanarkshire increased the numbers of fuel efficient and electric vehicles within the council fleet, including pool cars, sweepers, and a minibus, and expanded the public electric vehicle charging network with 133 charging points now available. Read more here: Tariff to be introduced for electric vehicle charging - South Lanarkshire View (Air Quality Action Plan South Lanarkshire Council 2019: S9. – Encourage the uptake of low emission vehicles)

An ECO Stars fleet scheme has been running since 2014 and aims to raise awareness among companies of the important role they can play in helping improve local air quality by enhancing the performance of their fleet. To date there are 289 members with 10,618 vehicles registered to the scheme. SLC is a member of the scheme. More information is available here: Commercial vehicle operators save costs and save the planet - South Lanarkshire View. (Air Quality Action Plan South Lanarkshire Council 2019: S9 – Encourage the uptake of low emission vehicles and L10 – Engage local businesses in eco fleet initiatives and travel planning)

An Eco Stars Taxi scheme commenced in 2021 and has 13 taxi operators with a total of 174 vehicles registered within the scheme. Three Taxi Operators workshops have also been run as a joint initiative with North Lanarkshire Council. These workshops gave taxi operators information and advice on the Energy Savings Trust Switched on Taxi loan. Information on the Low Emission Zone (LEZ) scrappage scheme which is open to households within 20km of an LEZ was also provided (several towns within South Lanarkshire fall within this radius). The scrappage scheme provides grants to households to dispose of non-compliant vehicles. Information was also given on Glasgow's LEZ and how it might impact drivers from both North and South Lanarkshire, as well as showcasing some ultra-low emissions taxis from the Glasgow Taxi Centre. (Air Quality Action Plan South Lanarkshire Council 2019: S9 – Encourage the uptake of low emission vehicles and L10 – Engage local businesses in eco fleet initiatives and travel planning)

In 2020 an Eco Stars Bus Operators workshop was held. This was also a joint initiative with North Lanarkshire Council to make bus operators aware of the funding incentives from BEAR (Transport Scotland's Bus Emissions Abatement Retrofit programme). This programme aims to fit buses/coaches with Clean Vehicle Retrofit Accreditation Scheme (CVRAS) accredited retrofit technology measures to support the delivery of Scotland's

LEZs and neighbouring authorities benefit also by reducing nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$) emissions in air. (Please note that PM_{10} refers to airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less. $PM_{2.5}$ refers to airborne particulate matter with an aerodynamic diameter of 2.5µm or less). Three Bus Operators were successfully signed up to this programme following this workshop. (Air Quality Action Plan South Lanarkshire Council 2019: S9 – Encourage the uptake of low emission vehicles and L10 – Engage local businesses in eco fleet initiatives and travel planning)

Traffic signal optimisation has been introduced at key locations where possible within areas that impact the flow of traffic to and within the AQMAs. The Split Cycle Offset Optimisation Technique (SCOOT) traffic light system enables groups of traffic signals in busy areas to work together so that traffic flow is smoother, congestion reduced, and emissions minimised. (Air Quality Action Plan South Lanarkshire Council 2019: S8 use of SCOOT or other intelligent traffic system)

Funded Vehicle Emissions Testing events are held during the summer months at locations that include existing, former, and potential AQMAs. Vehicles are randomly selected from the traffic and with Police assistance diverted to a safe site, and those vehicles are tested. These events are delivered in partnership with North Lanarkshire Council and Police Scotland. These events are exclusively funded by Scottish Government (SG) grant award and delivered by SLC certified Environmental Health Staff. (Vehicle emission testing actions not included within the 2019 AQAP. This matter to be addressed within 2024-2029 AQAP)

Greening of public spaces

Working in partnership with a local community gardening group ‘Grow 73’ several large wooden planters with pollution fighting plants were installed adjacent to a busy road junction. The project has been running for several years now and ‘Grow 73’ continue to maintain the planters. They have also engaged with the Royal Horticultural Society who have supported the project by providing advice, compost, and additional plants. (Air Quality Action Plan South Lanarkshire Council 2019: R5. Investigate the use of green infrastructure)

The council has signed an agreement with the Clyde Climate Forest committing to help plant 18 million trees by 2031. More information is available here: Tree planting takes root across South Lanarkshire - South Lanarkshire View and Thousands of trees planted at local nature reserve - South Lanarkshire View. (Air Quality Action Plan South Lanarkshire Council 2019: R5. Investigate the use of green infrastructure)

NO_2 monitoring

Following the Environmental Standards Scotland report September 2022, South Lanarkshire undertook a review of the non-automatic (passive monitoring) NO_2 monitoring locations in 2023 and sited all diffusion tubes at optimum locations considering congestion, idling traffic and high traffic flows as well as the sensitive receptors at hospitals, schools, health centres and nursing homes as recommended by this report. (Air Quality Action Plan South Lanarkshire Council 2019: S16: Continue to expand air quality monitoring activities)

Health impacts

Air pollution is associated with several adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often the less affluent areas[3,4].
The annual health cost to society of the impacts of PM_{10} and $PM_{2.5}$ alone in the UK is estimated to be around £16 billion[5]. SLC is committed to reducing the exposure of people in South Lanarkshire to poor air quality to improve health.

Action development

We have developed actions that can be considered under nine broad topics (not prioritised):

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[3] Environmental equity, air quality, socioeconomic status and respiratory health, 2010

[4] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

[5] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

- Alternatives to private vehicle use
- Policy guidance
- Domestic solid fuel burning
- Promoting low emission transport
- Promoting travel alternatives
- Public information
- Transport planning and infrastructure
- Traffic management
- Vehicle fleet efficiency

Our priority will be to revoke the remaining two AQMAs and produce an 'Air Quality Strategy' (AQS). This AQS will cover air quality across all South Lanarkshire and will be especially protective of current and revoked AQMA's. This overarching strategy will support all the broad priority areas as detailed above.

In the interim period between revoking the remaining two AQMAs and developing the AQS this revised AQAP will set out the key measures that SLC will take to effectively tackle air quality issues within our control to continue to meet statutory air quality objectives. However, we recognise that there are air quality policy areas that are outside of our influence, but for which we may have useful evidence, and so we will continue to work with SG and partner organisations on policies and issues beyond South Lanarkshire's direct influence.

In accordance with the requirements of PG (S) (23) South Lanarkshire expects both the Whirlies and Rutherglen AQMAs to be revoked no later than 31st December 2024 and where possible within the shortest possible time. Following revocation of all AQMAs, SLC will continue to monitor, influence and act to ensure no future new AQMAs arise nor former AQMA's redeclared.

Local Priorities and Challenges

South Lanarkshire Council plan to continue and complete the revocation of Whirlies and Rutherglen AQMAs following the publication of the Scottish Government FIDAS equivalence study[2]. Thereafter, the longer-term ambition is to develop and fully adopt an air quality strategy for all of South Lanarkshire, being especially protective of air quality in previous (revoked) AQMAs.

How to Get Involved

The public can obtain further information relating to air quality in South Lanarkshire on the Council Website (Air quality - South Lanarkshire Council).

Regular updates on air quality projects are promoted via the council's news portal. This can be accessed via this link: South Lanarkshire View. In addition, air quality initiatives are regularly promoted via social media pages. An example includes South Lanarkshire Council on Twitter: "A campaign to help people across South Lanarkshire to engage in a more active lifestyle has been launched."

More information about air quality in Scotland and actions that members of the public can take to help reduce air pollution is available at Air Quality in Scotland.

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1 Local Air Quality Management

This report provides an overview of air quality in South Lanarkshire Council during 2023. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), 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 South 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

2.1 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 publish and implement an Air Quality Action Plan (AQAP) within the shortest possible time and no later than 12 months of the date of AQMA Designation Order. The AQAP must set out measures the local authority intends to put in place in pursuit of the objectives within the shortest possible time. Measures should be provided with milestones and a final date for completion. The action plan itself should have a timescale for completion and for revocation of the AQMA. Where measures to reduce air pollution may require a longer timescale an action plan shall be reviewed and republished within five years of initial publication and then five-yearly thereafter.

A summary of AQMAs declared by South 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 South Lanarkshire AQMA Details - Defra, UK and Appendix D.

In February 2024, the Lanark AQMA for NO_2 was revoked. South Lanarkshire Council aim to revoke the Whirlies and Rutherglen AQMAs throughout 2024 following the publication of the Scottish Government Equivalence Study To Investigate Particulate Matter Monitoring In Scotland Using The Fidas 200. More details on the outcome of these two revocations will be included in next years' Annual Progress Report. The Air Quality Action Plan is available online at Air Quality Action Plan 2024 – 2029.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town	Description	Action Plan
Whirlies Roundabout	PM_{10} annual mean	East Kilbride	An area encompassing the Whirlies Roundabout, East Kilbride between the A725, A749 and B783 and extending along all the roads leading into the roundabout.	Whirlies AQMA, details available at: South Lanarkshire AQMAs - Air Quality in Scotland
Rutherglen	PM_{10} annual mean	Rutherglen	An area encompassing all areas of Rutherglen is designated.	Rutherglen AQMA, details available at: South Lanarkshire AQMAs - Air Quality in Scotland
Lanark Town Centre	NO_2 annual mean	Lanark	An area encompassing all areas of Lanark is designated. SLC revoked Lanark AQMA in February 2024, supported by a Detailed Assessment submitted in 2022.	Lanark AQMA, details available at: South Lanarkshire AQMAs - Air Quality in Scotland

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

2.2.1 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.

South Lanarkshire Council Environmental Services has a representative at the Council's Strategic Environmental Assessment Working Group. This group reviews all new and revised policies, plans and strategies introduced by the Council. This has proved invaluable in promoting awareness of air quality issues and embedding measures to support the improvement and protection of air quality going forward. Through previous air quality action planning projects Environmental Services have developed a strong working partnership with South Lanarkshire Leisure and Culture Services (SLLC), particularly the Active Schools teams. Projects such as Beat the Street and the E-Bike Physical Activity Prescription Trial have resulted in an environmental working group being set up within SLLC. Lanark on the Move project was developed by SLLC as a result of successful partnership working.

2.2.2 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.

South Lanarkshire Council has no Low Emission Zones established within the Local Authority area.

Following the Scottish National Low Emission Framework (NLEF) Screening Determination compiled in 2020, and on the basis of a continuing decline in pollutant concentrations, South Lanarkshire Council's current opinion is that a Low Emission Zone is neither required or a suitable option for improving ambient air quality in the Council area.

2.2.3 Local Transport Strategy

South Lanarkshire Council is currently updating the Local Transport Strategy and it is anticipated that zero carbon ambitions will be embedded within the revised Strategy to

reflect the Councils strong commitment to a zero-carbon future. A Climate Change and Sustainability Committee has made available a Climate Emergency Fund, and this has been used to support some of SLC's sustainable travel projects in alignment with air quality action planning.

2.3 Implementation of Air Quality Action Plan(s) and/or measures to address air quality

In order to ensure that local authorities implement the measures within an action plan by the timescales stated within that plan, the Scottish Government expects authorities to submit updates on progress through the APR process. South Lanarkshire Council has taken forward a number of measures within the action plan during the current reporting year of 2023 in pursuit of improving local air quality and meeting the air quality objectives within the shortest possible time. 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 combined Air Quality Action Plan (AQAP) for South Lanarkshire Council, available at Air Quality Action Plan 2024-2029.

South Lanarkshire Council completed a light touch review of the AQAP following consultation with the Scottish Government and the Scottish Environmental Protection Agency (SEPA), taking into consideration the ongoing revocation of the Lanark AQMA and likely revocation of Whirlies and Rutherglen AQMAs following the findings from the Scottish Government Equivalence Study To Investigate Particulate Matter Monitoring In Scotland Using The Fidas 200. Thereafter, the longer-term ambition is to develop and fully adopt an air quality strategy for air quality across all South Lanarkshire, being especially protective of air quality in previous (revoked) AQMAs.

The key priorities set out in the AQAP aim to further improve air quality to protect and enhance human health, wellbeing, and the environment. Minimising emissions from road traffic through the reduction of emissions from transport as well as promoting and encouraging the uptake of active and sustainable transport will play a vital role in the AQAP. The following actions have been identified as priority areas:

- Priority 1 – Complete the revocation of the Whirlies and Rutherglen AQMAs.
- Priority 2 – Develop a local AQS to ensure air quality remains a high priority issue and to ensure any deterioration in air quality is responded to quickly.
- Priority 3 – Promote and support the uptake of active and sustainable transport.
- Priority 4 – Reduce emissions from transport.

- Priority 5 – Support placemaking to reduce the need to travel, facilitate the ‘live local’ ambitions and reduce car dependency.
- Priority 6 – Integrate air quality with other relevant South Lanarkshire strategies.
- Priority 7 – Consider non-transport emissions sources with a particular focus on other sectors including domestic (household combustions) and agriculture.
- Priority 8 – Provision of air quality data to inform the public and encourage sustainable behaviour change which benefits air quality.
- Priority 9 – Review air quality data collection to ensure data is relevant, robust, fit for purpose and considers new technologies.

The measures identified via assessment as priorities and therefore included within the Action Plan can be understood as comprising two types:

- Strategic measures aimed at integrating air quality into all relevant areas of decision making within South Lanarkshire Council.
- Local specific measures aimed at reducing traffic volumes and congestion within the AQMAs, reducing emissions from principal sources, promoting greater awareness of local air quality, encouraging more sustainable travel choices and green infrastructure.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Expected/Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
Strategic 1	Strengthen links with Local Transport Strategy	Transport planning and infrastructure	2024 -2034 revised LTS in development and ongoing consideration of AQ matters in all future LTS updates	In progress	Not funded	Reference to AQMAs and measures included in South Lanarkshire Council AQAP. Integration of plan with Local and Regional Transport Strategies.	Air quality is integral to South Lanarkshire's Local Transport Strategy 2013 -2023 with a commitment to improve air quality through the provision of enhanced public transport infrastructure and supporting the introduction of electric and hybrid vehicles. In addition, the Strategy outlines a commitment to encourage and facilitate uptake of active travel.	
Strategic 2	Strengthen links with Local Planning and Economic Development	Policy guidance and development control	This is an ongoing measure and will continue as local policy guidance on development plans and measures evolve.	In progress	Not funded	Integration of South Lanarkshire Council AQAP within future versions of Local Development Plan.	South Lanarkshire Local Development Plan 2 will replace the current LDP which was adopted in 2015. LDP2 contains a clear commitment that any new development proposals will not result in, or can mitigate against, any significant adverse impact on air quality. The use of the green network and greenspace to help improve air quality is recognised within LDP2 as well as ensuring development has sustainable travel options by encouraging less reliance on private vehicles and facilitating cycling, walking and the use of public transport.	
Strategic 3	Integrate Air Quality with other Council Strategies	Policy guidance and development control	Ongoing measure that will continue to be considered as existing and new Strategies are developed and updated.	In progress	Not funded	Inclusion of air quality outcomes in the Sustainable Development and Climate Change Strategy 2017 – 2022. Inclusion of air quality outcomes in the Biodiversity Implementation Plan 2018 – 2022.	The Sustainable Development and Climate Change Strategy 2022 – 2027 includes a vision to restore, protect, enhance and respect South Lanarkshire's natural environment enabling basic needs such as clean air. The strategy includes progress to date in a range of air quality improvement projects and an education programme involving communities, businesses and schools throughout the previous 5-year strategy. The South Lanarkshire Biodiversity Duty Implementation Plan 2018-2022 includes an action to investigate the use of green infrastructure to improve air quality.	

Measure No.	Measure	Category	Expected/Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
						Inclusion of air quality outcomes in the Cycling Strategy 2015 – 2020. Inclusion of air quality outcomes in the Park and Ride Strategy 2018 – 2027.	South Lanarkshire recognises the benefits of encouraging cycling and have developed a South Lanarkshire Council Cycling Strategy 2015-2020. This strategy aims to improve air quality by getting more people cycling and travelling actively. The Council has a Park and Ride Strategy 2018 - 2027 which focuses on making the rail network attractive and accessible by providing park and ride facilities. Improving air quality is one of the key benefits and outcomes of this strategy.	
Strategic 4	Revise and adopt an Air Quality Strategy for South Lanarkshire	Policy guidance and development control	2025	In progress	Funded	Develop and adopt an Air Quality Strategy for South Lanarkshire	A revision to the draft Air Quality Strategy will be undertaken and will detail high level guidance to help inform other strategies and policies across the Council. The policy will be aimed at Council staff as well as local businesses, organisations and the general public.	
Strategic 5	Develop air quality guidance note	Policy guidance and development control	Completed with period review of content undertaken.	Complete	Not funded	Maintain and make available an air quality guidance note	South Lanarkshire has developed a GIS based story map 'The air that we breathe' which contains guidance and links to resources and advice to help improve air quality and encourage a 'be part of the solution, not the pollution' approach.	
Strategic 6	Lobby government for additional national policy	Policy guidance and development control	Ongoing	In progress	Not funded	Maintain contact with the Scottish Government regarding the adoption of national air quality measures.	South Lanarkshire has contributed to consultation on Low Emission Zone and will continue to contribute to relevant air quality consultations.	
Strategic 7	Review traffic studies	Transport planning and infrastructure	Ongoing	In progress	Not funded	Undertake a review of traffic to assess the potential impact traffic management optimisation on air quality	Air quality action planning funds have supported review of traffic within the Lanark area as part of a Scottish Transport Appraisal Guidance (STAG) based study particularly in relation to traffic flow and layout review in this area. The aim is to develop a scheme which reduces congestion and so improve air quality particularly within the hot spot location of Bannatyne	

Measure No.	Measure	Category	Expected/Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
							Street. The STAG is currently in final stages of completion.	
Strategic 8	Continue to invest in traffic signal optimisation	Traffic management	Ongoing	In progress		Continue to invest in traffic signal optimisation to improve traffic flow and decrease traffic emissions	A number of traffic signals have been upgraded with key focus on areas subjected to congestion as well as the AQMA locations.	
Strategic 9	Encourage the uptake of low emission vehicles	Promoting travel alternatives	Ongoing	In progress	Part funded	Number of low emission vehicles	To support the transition to low emission vehicles across the wider community South Lanarkshire continues to expand the network of electric charging points. Information on the location of the charging points is available via the air quality storymap. South Lanarkshire Council Eco Stars Scheme have recently introduced the Eco Stars Taxi and Private Hire to augment the existing Eco Stars Fleet Scheme. This will further raise awareness within the taxi and private hire sector of the important role they play in helping to improve local air quality. Eco Stars provides tailored guidance to fleet and taxi operators on low emission vehicle options.	
Strategic 10	Expand cycle / pedestrian counters	Promoting travel alternatives	Ongoing	In progress	Part funded	Number of cycle and pedestrian counters	A growing network of cycle and pedestrian counters are distributed across South Lanarkshire with action plan funding being used to support the growing network. To date approximately 79 counters are in use.	
Strategic 11	Awareness training on air quality issues	Public information	Ongoing	In progress	Not funded	Continue to make training available to relevant Council staff	Air quality and development training has been attended by representatives from Environmental Services and Traffic and Transportation Services. Further refresher training for these officers will be undertaken as well as the provision of air quality training as part of the internal programme of continuing professional development for planning colleagues.	

Measure No.	Measure	Category	Expected/Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
Strategic 12	Train station and bus station improvements	Promoting travel alternatives	Ongoing	In progress	Not funded	Upgrade and expansion at bus and train stations to include active travel hub options. Improved integration between cycling, walking and public transport.	South Lanarkshire Council continues to work in Partnership with Scotrail to increase awareness and facilities to support active travel connectivity with rail stations. In addition, Environmental Services work closely with Traffic and Transportation colleagues to identify priority areas that can support and improve facilities at bus and train stations. Enhancement of park and ride facilities for rail stations to reflect the significant increase in rail travel is a particular area of focus with a Park and Ride Strategy being implemented. The Council opened a new park and ride facility at Cambuslang Train Station in 2021. The facility offers 265 parking spaces including new electric vehicle charging infrastructure which will provide further sustainable transport options to local residents and the surrounding community Plans are also moving forward to re-locate Hairmyres Train Station and provide an expanded transport hub. The work is due to commence in 2024 and will develop a major transport interchange with park and ride facilities. It will also have significant electric vehicle charging provisions, active travel improvements and new bus interchange.	
Strategic 13	Investigate integration of air quality awareness within Education	Public information	Ongoing	In progress	Funded	Continue to make training available to relevant Council staff	Air quality and sustainable active travel workshops have previously been undertaken within a number of primary schools within South Lanarkshire. An online active travel resource for primary schools was piloted during school academic year 2021/22. Lanark on the Move pilot project has been expanded to include Blantyre and Calderglen areas.	
Strategic 14	Improve cycle routes	Transport planning and infrastructure	Ongoing	In progress	Part funded	Improvement of cycle routes	South Lanarkshire Council continues to invest in the maintenance, upgrading and expansion of cycling infrastructure across the area. Active travel studies have been completed for East Kilbride, Cambuslang, Rutherglen Hamilton, Lanark, Carluke, Larkhall,	

Measure No.	Measure	Category	Expected/Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
							Strathaven, Bothwell, Blantyre and Uddingston. Further studies are due to commence within the Clydesdale area. These studies underpin applications for funding to support infrastructure investment and help identify areas were further works would be of most benefit. Following on from the active travel study, East Kilbride has the completed the first stage of segregated cycle infrastructure. Further work has been undertaken on the joint project with North Lanarkshire Council which supports the promotion of walking and cycling access routes to Strathclyde Park. A treasure Trail App is now available to encourage more walking, cycling and wheeling, with the hopes that this will transcend into everyday journeys. A new cycling infrastructure project which will regenerate a derelict brownfield site in Cambuslang into a major new cycling venue has commenced. One of the main aims of this project is encourage more people in the local community to switch from car use to cycling.	
Strategic 15	Investigate further behaviour change initiatives	Public information	Ongoing	In progress	Funded	Continue to focus on air quality initiatives	Beat the Street East Kilbride engaged 15.7% of the local population (11,803) and participants travelled over 151,500 miles sustainably across their local towns as part of the active and sustainable travel promotion initiative. The project saw an 11% reduction in motorised vehicle use. On the Move project has been expanded to include Lanark and Blantyre with work ongoing to introduce it to Calderglen area in East Kilbride. Primary schools and communities around Lanark and Blantyre have worked together to inspire locals to travel responsibly for the environment. Love to Ride South Lanarkshire – cycling behaviour change project. This tailored online behaviour change programme and platform ran for eighteen months and	

Measure No.	Measure	Category	Expected/Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
							has been proven to monitor and get more people on bikes. Love to Ride South Lanarkshire engaged with 35 workplaces and encouraged 18% of new riders to become occasional or regular riders and 9% of active occasional riders become regular riders. An engine idling promotion campaign took place within the last year. This involved graphics being developed and distributed at suitable locations such as street lamp post banners at schools, school railing banners and lamp post posters throughout the council area. The campaign put the emphasis on those being affected by poor air quality from engine idling – whether that be school children, children playing sports or staff and customers at hot food takeaway outlets.	
Strategic 16	Continue to expand air quality monitoring activities	Public information	Ongoing	In progress	Part Funded	Continued provision of appropriate air quality monitoring	AQ Mesh pods, which are more portable forms of real time air quality monitoring kit, have been purchased and used in various locations across South Lanarkshire. A car free zone pilot study was undertaken and demonstrated a 57% reduction and 29% reduction in NO2 at the two car free zone pilot schools.	Funding has not been secured to continue the car free zone study.
Strategic 17	Section 75 Town and Country Planning (Scotland) Act 1997 agreements	Policy guidance and development control	Ongoing	In progress	Not funded	Consideration of air quality issues in the development management process.	No Section 75 agreements have been processed this year in terms of air quality.	
Strategic 18	Vehicle emission testing	Traffic management	Ongoing	Ongoing	Funded		Continue to undertake vehicle emission testing and / or awareness raising subject to funding.	
Strategic 19	Anti-engine idling	Traffic management	Ongoing	Ongoing	Funded		Continue to undertake anti- engine Idling activities subject to funding.	

Measure No.	Measure	Category	Expected/Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
Whirlies 1	Real time bus passenger information	Promoting travel alternatives	Complete	Complete	N/A	Provision of real time passenger information	The number of real time passenger information systems have been increased over this past year and are in place at key bus stop locations in the East Kilbride area. Bus companies operating in South Lanarkshire have developed an App to provide their customers access to real time information for buses on routes within South Lanarkshire.	
Whirlies 2	Investigate bike hire schemes for key locations	Promoting travel alternatives	Ongoing	In progress	Not funded	Provision of bike hire schemes. Progress of this action is dependent on the conclusions of the pilot study.	An initial feasibility study has been undertaken which considered the East Kilbride and Rutherglen areas for potential bike hire schemes. The study supported the Rutherglen area for the operation of a cycle hire scheme with potential to link with the Glasgow bike hire scheme. The study was more cautious in terms of the feasibility of a cycle hire scheme within the East Kilbride area. A re-fresh of the previous Rutherglen study is being considered by Traffic and Transportation Services.	
Lanark 1	Investigate eco-route signage to encourage alternative routes away from town centre	Transport planning and infrastructure	Ongoing	In progress	Not funded	Implementation of eco-route signage. Progress of this action is dependent on the conclusions of the traffic review.	A transport appraisal undertaken in terms of Transport Scotland's Scottish Transport Appraisal Guidance (STAG) is nearing completion. This review will influence cycle and walking route signage and also electric charging points for vehicles. The most up to date information on the Clydesdale STAG is available Clydesdale Scottish Transport Appraisal Guidance (STAG) - South Lanarkshire Council	
Lanark 2	Traffic re-routing investigation	Traffic management	Ongoing	In progress	Not funded	Optimisation of the traffic management system. Progress of this action is dependent on the conclusions of the feasibility study.	The Local Transport Strategy 2013 - 2023 recognises that the growth within the market town of Lanark has resulted in traffic problems which in turn is impacting air quality. To alleviate the congestion issues the feasibility of constructing a gyratory system at the east end of the High Street is currently being considered as part of the Clydesdale STAG The traffic review will inform re-routing options going forward.	
Lanark 3	Review delivery times	Traffic management	Ongoing	In progress	Not funded	Identify which traffic restriction measures considered appropriate to	Discussions are underway with Traffic and Transportation Services as to the traffic regulation restrictions within the Lanark area. Again the	

Measure No.	Measure	Category	Expected/Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
						reduce congestion due to delivery vehicles	Clydesdale STAG will inform this action going forward.	
Lanark 4	Real time bus passenger information	Transport planning and infrastructure	Ongoing	In progress	Not funded	Provision of real time passenger information	Again the Clydesdale STAG is reviewing public transport infrastructure. There have been discussions with Traffic and Transportation Services in terms of the planned upgrade to the Lanark bus and train stations. Integral to these discussions is the feasibility of ensuring future infrastructure supports real time bus passenger information.	
Lanark 5	Review traffic and air quality patterns	Traffic management	Ongoing	In progress	Funded	Results of air quality monitoring used to identify times when peak emissions are experienced	The action plan steering group raised a query as to whether higher volumes of traffic are experienced on market days within the town. In addition, it was queried whether higher volumes of LGVs and HGVs are experienced on these days and whether these are having an effect on air quality. To assist with this query an AQ Mesh pod has been fitted within Bannatyne Street. This portable air quality monitoring unit records real time emissions and will allow a review of days and times when peak emissions are being experienced.	
Lanark 6	Review and promote awareness of parking restrictions	Traffic management	Ongoing	In progress	Not funded	Implementation of measures to improve awareness of parking restrictions	Initial discussions are underway with Traffic and Transportation Services as to the traffic regulation restrictions within the Lanark area. The Clydesdale STAG will also influence this project going forward.	
Lanark 7	Investigate the use of green infrastructure	Transport planning and infrastructure	Ongoing	In progress	Funded	Introduction of green infrastructure. Progress of this action is dependent on the conclusions of the pilot study in Rutherglen.	Limited progress has been made with this measure. A pilot planting project has been undertaken within the Rutherglen area. The lessons learned from the pilot will be used to shape any progress of this measure within the Lanark area	
Lanark 8	Investigate quality bus partnerships (ECO stars)	Vehicle fleet efficiency	Ongoing	In progress	Funded	Number of ECO Stars members	Lanark bus companies have been encouraged to join the ECO Stars fleet recognition scheme which aims to help fleet operators improve efficiency, reduce fuel consumption and emissions and make cost savings. Specialist workshops were arranged specifically	

Measure No.	Measure	Category	Expected/Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
							tailored to bus operators and a number of attendees opted for additional support from Ecostars to assist with funding applications to encourage transition to cleaner vehicles.	
Lanark 9	Investigate the use of traffic regulation conditions	Traffic management	On hold	On hold	Not funded	Identify which traffic restriction measures considered appropriate to reduce traffic within the AQMA.	At this stage this measure has not been progressed. This will be reviewed going forward.	Awaiting outcome of STAG review and impact on town parking
Lanark 10	Engage local businesses in eco-fleet initiatives and travel planning	Vehicle fleet efficiency	Ongoing	In progress	Funded	Number of fleet operators accessing assessment and guidance from South Lanarkshire Council	South Lanarkshire provide fleet operators free access to assessment and tailored guidance to assist fleet operators in becoming more economic in terms of fuel, emissions and costs.	
Lanark 11	Investigate cycle hire feasibility study within the Lanark area	Promoting travel alternatives	On hold	On hold	Not funded	Provision of bike hire schemes	At this stage this measure has not been progressed. This will be reviewed going forward.	Awaiting outcome of STAG as well as bus and train station improvements and active travel hub options
Lanark 12	Investigate active travel hub for bus and train stations	Promoting travel alternatives	Ongoing	In progress	Part funded	Upgrade and expansion at Lanark bus and train station to include active travel hub options. Improved integration between cycling, walking and public transport.	As part of upgrading and expanding the facilities available at the Lanark bus and train stations investigations additional land adjacent to the stations has now been purchased. Plans are at an early stage in terms of development of park and ride facilities to support both of these stations.	
Lanark 13	Review pedestrian locations	Promoting travel alternatives	On hold	On hold	Not funded	Improved provision of pedestrian locations	At this stage this measure has not been progressed. This will be reviewed going forward.	Awaiting outcome of Lanark Stag and

Measure No.	Measure	Category	Expected/Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
								town centre review
Rutherglen 1	Support measures to reduce congestion and improve traffic flow.	Traffic management		Ongoing	Not funded	Reduction in congestion and improvement in traffic flow	Intelligent traffic signalling, bus / cycle priority lanes, other technologies considered for options to improve traffic flow and ease congestion especially where relevant exposure.	
Rutherglen 2	Continue to support traffic management enforcement.	Traffic management		Ongoing	Not funded	Ongoing enforcement	Enforcement of parking restrictions an ongoing matter across South Lanarkshire Consider within future SLC AQS	
Rutherglen 3	Continue to support real time passenger information via a variety of means over all forms of public transport.	Alternative to private vehicle use Promoting travel alternatives		Ongoing	SLC Scotrail Bus companies SPT	Promotion of real time data for public transport	Bus stops in key aq locations have been fitted with real time data info boards. Web and App based real time data is also available for train and buses. Look to review promotion of these resources and expand if need identified. Consider within future SLC AQS	
Rutherglen 4	AQ modelling undertaken if AQ APR identifies a need for further modelling information.	Public Information		Ongoing	SG AQ LAQM Grant funding	Modelling undertaken if project required	Dependent on findings of AQ APR Consider within future SLC AQS	
Rutherglen 5	Continue to support the use of green infrastructure to improve and raise	Public information		Ongoing	SG AQ Action Plan grant funding	Ongoing use of green planters in key hot spot location	Previous project supported installation of planters which incorporated pollution reducing plant species. Planters currently still in place Consider within future SLC AQS	

Measure No.	Measure	Category	Expected/Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
	awareness of AQ matters.							
Rutherglen 6	Work in partnership with public transport providers	Alternative to private vehicle use Promoting travel alternatives		Ongoing	SLC Public transport providers	Increase in uptake of public transport in South Lanarkshire	Continue to support public transport uptake across South Lanarkshire Consider within future SLC AQS	
Rutherglen 7	Support cycle or other active travel equipment hire / cycle library schemes equipment availability.	Alternative to private vehicle use Promoting travel alternatives		Ongoing	SLC SG AQ action plan funding Sustrans possible source of funding	Increase in access to bicycles for transport	Second feasibility study into cycle hire scheme for Rutherglen (and expanded to include Cambuslang area as part of this second study) in the process of being completed at time of writing. The finding will shape future action in terms of bike hire scheme. Bike library options also considered as is partnership working with Biketown. Consider within future SLC AQS	
Rutherglen 8	Continue To support the sustainable travel hierarchy.	Alternative to private vehicle use Promoting travel alternatives		Ongoing	SLC SG AQ action plan funding	Increase in uptake of sustainable travel	Supporting the sustainable travel hierarchy (Digital communication / Walking and wheeling / Cycling / Public and shared transport / Electric vehicles and car sharing / conventional combustion vehicles and car sharing) will be considered as part of the South Lanarkshire AQS development. Consider within future SLC AQS	

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives

3.1 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.

South Lanarkshire Council undertook automatic (continuous) monitoring at eight sites during 2023. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at Air Quality in Scotland: Measurement and annual statistics.

Maps showing the location of the monitoring sites are provided in Appendix D: Maps of the monitoring network and AQMAs or can be found at Air Quality in Scotland: Latest pollution map. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

South Lanarkshire Council undertook non- automatic (passive) monitoring of NO_2 at 46 sites during 2023. Table A.2 in Appendix A shows the details of the sites.

In 2023, on the back of the ESS Air Quality Investigation Report Case Reference IESS.21.013, South Lanarkshire Council undertook a comprehensive review of the non-automatic NO_2 monitoring network and gave further consideration on the state of air quality around vulnerable groups within the communities, as suggested in the above report. On that basis some non-automatic NO_2 monitoring locations were made redundant as the levels monitored had been well below the objective for several years, and new sites adjacent to those vulnerable groups were identified. South Lanarkshire Council also identified alternative background locations for some sites. See Table 3.1 for details.

Table 3. 2 Changes to non-automatic network in 2023

2022 Site ID	New site ID	Justification	Comment
2	42	Annual mean monitored levels < 25µmg/m^3 continuously 2017-2022	Moved to Greenhills Road but at Lyndsayfield Nursing Home – busy road/next to entrance to Morrissons/next to Nursing home 2/8/2023 Lamp post R89
11	41	Annual mean monitored levels < 25µmg/m^3 continuously 2017-2022	Cathkin House Nursing home backs onto very busy A746 – at Kingsgate retail park – very busy shopping area – very busy road – with traffic lights in vicinity of nursing home – stop start and continually congested traffic on A746 Relocated here on 2/8/2023
20	43	Annual mean monitored levels < 25µmg/m^3 continuously 2017-2022	Might be issue with bush/hedge affecting levels monitored at location of diffusion tube as suspect that levels could be unusually low for area – location is on gradient at approach to traffic lights/busy road with traffic queuing at traffic lights – moved to lamp post R146 Hamilton Road 31/7/2023
1	44	Annual mean monitored levels < 30µmg/m^3 continuously 2017-2022	Seeking to keep tube in Larkhall area to monitor increased vehicular movements because of new Asda store and new shopping area at Broomhill Rd which will also capture vehicular movements for Larkhall Academy and Larkhall Leisure Centre Relocated to traffic lights at junction of Union Street with Broomhill Road Larkhall 31/7/2023
37	45	Annual mean monitored levels < 30µmg/m^3 continuously 2017-2022	Phillips Wynd is new housing estate built on former Phillips Factory site with further housing development currently ongoing. New roundabout created at entrance to new housing development with new Aldi store across the road. Wellhall Road is a busy road being main thoroughfare from Earnock/Hillhouse/Little Earnock/Woodhead area towards Hamilton town centre and M74
29	46	Annual mean monitored levels < 25µmg/m^3 continuously 2017-2022	Mavor Avenue is new housing development and will provide a good background reference site for East Kilbride

Maps showing the location of the monitoring sites are provided in Appendix D: Maps of the monitoring network and AQMAs and are available at NO_2 Diffusion Tube Network Latest pollution map (scottishairquality.scot) (please note that the most recent year available is 2022). 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

3.1.3.1 Blantyre

South Lanarkshire Council submitted the 2022 measurement study[6] report to Defra for review in 2023. The appraisal report advised that 'based on the evidence provided by the local authority the conclusions reached are deemed acceptable. The Council should submit their Annual Progress Report in 2024 and continue to monitor in this area to confirm compliance is maintained.'

3.1.3.2 Hyperlocal Sensor Study

South Lanarkshire Council commissioned a short-term monitoring study using low-cost sensors investigating non-road-based sources of pollution and their contribution to ambient air quality, in particular solid fuel combustion. The study utilised nine solar powered Airly Gas+PM sensors, one co-located at the South Lanarkshire Lanark automatic monitoring reference station, and eight more located in the rural village of Stonehouse.

The study ran between the September 2023 and January 2024. On the completion of monitoring the data was processed and put through QA/QC procedures before being analysed. The main pollutant of concern when identifying solid fuel burning is PM_{10} and so greater emphasis was placed on this during the analysis.

Directional analysis indicated that for Nitrogen Dioxide (NO_2) the main sources were local and to the northeast, suggesting that both local traffic and that on the M74 had an influence on concentrations. For both Particulate Matter$_{10}$ (PM_{10}) and Particulate Matter$_{2.5}$ ($PM_{2.5}$) fractions the two main sources were from further up the valley at high wind speeds and from local sources during periods of light winds. The site furthest up-valley, A71, was in a non-residential area near the largest road in the village and recorded the lowest local source signature. This was indicative that non traffic based sources had the greatest influence on local emissions. The highest local source signatures came from the Watt

[6] Ricardo Energy & Environment (2023), Blantyre NO_2 monitoring study; A report for South Lanarkshire Council, Ref ED15694, 14th March 2023

Court sensor which was in the part of the village that had the lowest recorded gas grid connectivity.

Urban traffic sites generally have distinctive diurnal plots, with NO_2 and PM being elevated during the morning and evening rush hour peaks. This could be seen at the co-located Lanark site, which is situated near a busy road. While a pronounced morning and evening rush hour peak could be identified in the NO_2 plot for the Stonehouse sites, the PM plots showed little to no morning peak and an evening peak that started significantly later in the evening. This too suggests a non-traffic-based source of emissions.

Further investigation into the temporal and metrological influences on the data set also indicated that PM concentrations were influenced by air temperature with elevated concentrations being recorded at lower temperatures.

This study therefore suggests non-traffic based emission sources, namely solid fuel burning, were the major contributor to measured PM concentrations.

A map showing the location of the monitoring sites are provided in Appendix D: Maps of the monitoring network and AQMAs

3.1.3.3 Air Quality and Climate Change Co-Benefits Evidence Base

South Lanarkshire Council was supported by Ricardo to develop an ‘Air Quality and Climate Change Co-Benefits Evidence Base’ in response to the council’s Air Quality Actions and Climate Emergency Planning, to evaluate the potential air quality benefits resulting from actions under consideration by the council to support climate action.

In the delivery of the study, Ricardo and South Lanarkshire Council have gained invaluable insight into Climate Action Planning in South Lanarkshire, and how this may interact with and influence emissions of air quality pollutants, and importantly, potential opportunities for resulting co-benefits in terms of reductions in emissions of both greenhouse gases and air quality pollutants.

South Lanarkshire Council has invested significant effort in its plans to reduce greenhouse gas emissions and to support the communities of South Lanarkshire to respond to climate impacts. However, the research has outlined that in order to better assess the co-benefit impacts more effort to identify quantitative driven actions will benefit future years assessment and ability to achieve specific climate change and clean air targets.

In the absence of formal uptake %, default uptake scenarios were agreed with South Lanarkshire Council for the key sectors to enable the evaluation of the impact of these on emissions of the key air pollutants, NOx, PM_{10} and $PM_{2.5}$.
Due to a major improvement programme currently being implemented on the Scenario Modelling Tool (SMT) by DEFRA, unfortunately the plans to implement and evaluate the impacts of scenario and related measures using the SMT, and the generation of outputs and associated recommendations was halted temporarily. As a consequence, only an interim report can be produced for the information of South Lanarkshire Council, until the SMT is available for application.

The final report, including findings and recommendations from the scenario modelling will be issued to South Lanarkshire Council at the earliest opportunity. South Lanarkshire Council will provide an update in next year's APR.

3.2 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.

3.2.1 Nitrogen Dioxide (NO_2)

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

Table A.4 in Appendix A compares the adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40 µg/m^3 at non automatic monitoring sites.

For diffusion tubes, the full 2023 dataset of monthly mean values is provided in Appendix B.

Table A.5 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.

Hourly mean NO_2 concentrations measured at automatic monitoring sites during 2023 were compliant with the NO_2 1-hour objective as there were no measured exceedances of the 200 µg/m^3 objective during the year.

The annual mean concentrations measured at roadside, kerbside and urban background monitoring sites over the last five years are presented in Figure A.2, Figure A.3 and Figure A.4 in Appendix A.

3.2.2 Particulate Matter (PM_{10})

Table A.6 in Appendix A compares the ratified monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 18µg/m^3. It should be noted that the tables also provide SAQD corrected data for PM_{10} and $PM_{2.5}$ as recommended by Scottish Government (May 2023)[7].

There were no exceedances of the 18 µg/m^3 annual mean objective at any monitoring locations within South Lanarkshire during 2023. A comparison of PM_{10} annual mean concentrations measured in South Lanarkshire over the past five years are presented in Figure A.5 in Appendix A.

Table A.7 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.

No daily means greater than 50 µg/m^3 were measured at any automatic site in 2023. Therefore all sites remain compliant with the objective.

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.8 in Appendix A compares the ratified and FIDAS corrected monitored $PM_{2.5}$ annual mean concentrations for the past five years with the air quality objective of 10µg/m^3.

During 2023, $PM_{2.5}$ concentrations measured at all locations in South Lanarkshire were less than the annual mean objective of 10 µg/m^3.

[7] https://www.scottishairquality.scot/technical-reports/local-authority-guidance-note-laqm-reporting-scottish-pm-data

3.2.4 Sulphur Dioxide (SO_2)

South Lanarkshire Council do not currently measure SO_2 concentrations.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

South Lanarkshire Council do not currently measure Carbon Monoxide, Lead and 1,3-Butadiene pollutants.

4 New Local Developments

4.1 Road Traffic Sources

No new or significant changes to road traffic sources have been identified during 2023.

4.2 Other Transport Sources

No other transport sources have been identified that require screening or consideration at this time.

4.3 Industrial Sources

SEPA issued two new waste management licenses (WML) in South Lanarkshire Council in 2023. The details are provided below.

Table 4.1 new PPC (Part A and B) and WML and significant variations in 2023

Number	Level	Application Type	Activity	Status Date	Site	Authorisation Holder
WML/W/0000275	WML	Substantial Variation	Waste - Other Waste Storage and Treatment Sites	05/05/23	Daldowie Sludge Treatment Centre, Daldowie, Broomhouse, Uddingston, Glasgow, G71 1RX	Scottish Water
WML/W/0000153	WML	Substantial Variation	Waste - Other Waste Storage and Treatment Sites	14/08/23	Craighead Works, Whistleberry Road, Hamilton, ML3 0HP	Ireland Alloys Limited

4.4 Commercial and Domestic Sources

No new or significantly changed commercial or domestic sources have been identified during 2023.

4.5 New Developments with Fugitive or Uncontrolled Sources

No new or significantly changed commercial or domestic sources have been identified during 2023.

5 Planning Applications

Table 5.1 includes the details of a proposed development project in which an air quality impact assessment was required in 2022. The planning application was approved in October 2022 and included a planning condition specifying that an air quality impact assessment should be submitted. As of 2024, the assessment is currently still pending, with the latest document regarding air quality on the planning portal being the initial request to complete and air quality impact assessment, this ‘Grant matters specified in conditions’ document was published in October 2023.

No other planning applications have been identified in 2023.

Table 5.1 - Proposed developments

Reference	Type	Project	Description
P/21/1812	Residential	Land To The West Of Strathaven Road, Hamilton	Residential development (628 units) with associated roads, landscaping and SUDS

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

All Nitrogen Dioxide (NO_2) annual mean concentrations measured during 2023 at automatic monitoring sites in South Lanarkshire were less than the 40 µg/m^3 objective. The last five years of measurements indicate an overall downward trend in measured NO_2 concentrations at all automatic sites. No exceedances of the NO_2 hourly objective (200 µg/m^3) were measured during 2023.

No exceedances of the NO_2 annual mean objective were measured at diffusion tube (non-automatic) locations.

No exceedances of the PM_{10} annual mean objective were measured during 2023, with and without FIDAS correction factors applied. Measured concentrations at the eight PM_{10} measurement sites in South Lanarkshire ranged from 7.2 to 12.1 µg/m^3 (with FIDAS correction factors applied). Measured PM_{10} concentrations in 2023 were similar to those measured in 2022.

There were no exceedances of the PM_{10} daily short-term air quality objectives at any monitoring site during 2023.

No exceedances of the $PM_{2.5}$ annual mean objective were measured during 2023. Measured concentrations at the eight $PM_{2.5}$ measurement sites in South Lanarkshire ranged from 3.2 to 6.4 µg/m^3. Measured $PM_{2.5}$ concentrations in 2023 were similar to those measured in 2022.

Therefore, concluding that monitoring has not identified any potential or actual exceedances at relevant locations within and outside of existing AQMA.

6.2 Conclusions relating to New Local Developments

South Lanarkshire Council has not identified any new local developments that required further consideration, or any locations where there may be a risk of the air quality objectives being exceeded. There was one planning application approved in 2022 for a residential development in Hamilton for which an air quality impact assessment is required and still pending.

6.3 Proposed Actions

Following the review of all available data it is recommended that South Lanarkshire Council carry out the following actions:

1. Submit the next Air Quality Progress Report in June 2025.
2. Continue to implement the measures outlined in the reviewed Air Quality Action Plan 2024 - 2029.
3. Adopt an Air Quality Strategy and implement measures.
4. Continue to review the current NO_2 diffusion tube monitoring programme and seek to relocate any tubes where appropriate (i.e., where low concentrations have been measured consistently).
5. Proceed with the revocation of Rutherglen and East Kilbride Whirlies AQMA.
6. Provide an update on the Climate Change and Air Quality impact report in next year's APR.

South Lanarkshire Council confirms it will undertake these recommended actions.

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)
SL04	Rutherglen	Roadside	261114	661691	NO_2; PM_{10}; $PM_{2.5}$	Yes (Rutherglen)	Chemiluminescent; FIDAS	60	1	2
EK0	East Kilbride Whirlies	Roadside	264383	655664	NO_2; PM_{10}; $PM_{2.5}$	Yes (Whirlies)	Chemiluminescent; FIDAS	10	0.5	2
SL03	Lanark	Kerbside	288427	643701	NO_2; PM_{10}; $PM_{2.5}$	Yes Lanark	Chemiluminescent; FIDAS	2	0.5	1
SL05	Hamilton	Roadside	272310	655276	NO_2; PM_{10}; $PM_{2.5}$	No	Chemiluminescent; FIDAS	2	8	1.8
SL06	Uddingston	Roadside	269663	660304	NO_2; PM_{10}; $PM_{2.5}$	No	Chemiluminescent; FIDAS	2	2	1.5
SL07	Cambuslang	Kerbside	264321	660516	NO_2; PM_{10}; $PM_{2.5}$	No	Chemiluminescent; FIDAS	10	0.5	2
SLC08	Raith Interchange 2	Roadside	271063	658087	NO_2; PM_{10}; $PM_{2.5}$	No	Chemiluminescent; FIDAS	25	38	2
SLC09	Blantyre	Roadside	268916	657605	NO_2; PM_{10}; $PM_{2.5}$	No	Chemiluminescent; FIDAS	2.6	1.7	1.9

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.

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)
1	3 London Street, Larkhall	Kerbside	276087	651563	NO2	No	2.3	1.0	No	2.0
2	Greenhills Road, East Kilbride	Roadside	260052	653785	NO2	No	20.0	1.3	No	2.0
3	4 Kirkton Street, Carluke	Kerbside	284538	650572	NO2	No	2.0	0.8	No	2.0
4	4 St Leonard Street, Lanark	Kerbside	288438	643694	NO2	Yes (Lanark)	0.7	4.4	No	2.0
5	32 Friars Lane, Lanark	Urban Background	287860	643685	NO2	Yes (Lanark)	4.8	3.6	No	2.0
6	4 Bloomgate, Lanark	Roadside	288122	643685	NO2	Yes (Lanark)	2.0	0.2	No	2.0
7	218 Eaglesham Road, East Kilbride	Kerbside	260711	654205	NO2	No	4.7	1.2	No	2.0
8, 9, 10	Whirlies (3), East Kilbride	Kerbside	264374	655673	NO2	Yes (Whirlies)	6.8	1.9	Yes	2.0

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)
11	56 Maxwell Drive, East Kilbride	Roadside	264210	654909	NO2	No	16.0	30.0	No	2.0
12	20 Farmeloan Road, Rutherglen	Kerbside	261662	661789	NO2	Yes (Rutherglen)	0.6	2.1	No	2.0
13	252 Main Street, Rutherglen	Kerbside	261662	661663	NO2	Yes (Rutherglen)	3.8	0.1	No	2.0
14	12 Mill Street, Rutherglen	Roadside	261302	660734	NO2	Yes (Rutherglen)	5.1	2.6	No	2.0
15	Cambuslang Road (Smith Terrace)	Roadside	261858	662142	NO2	Yes (Rutherglen)	3.0	1.5	No	2.0
16	Hamilton Road/ Clydefor Road Jct	Kerbside	264492	660497	NO2	No	15.0	1.5	No	2.0
17	262 Cambuslang Road, Cambuslang	Roadside	263086	661296	NO2	Yes (Rutherglen)	0.3	2.3	No	2.0
18	Greenlees Road, Cambuslang	Roadside	264300	660476	NO2	No	5.0	1.0	No	2.0

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)
19	Blackswell Lane, Hamilton	Roadside	272704	655431	NO2	No	6.9	2.7	No	2.0
20	190 Hamilton Road, Halfway	Kerbside	265561	659788	NO2	No	3.0	1.5	No	2.0
21	109 Caird Street, Hamilton	Roadside	271670	656346	NO2	No	5.7	3.1	No	2.0
22	79 Union Street, Hamilton	Kerbside	271852	655320	NO2	No	1.2	3.3	No	2.0
23	134 Almada Street, Hamilton	Roadside	271424	655786	NO2	No	3.7	1.4	No	2.0
24	Almada Street-Muir Street, Hamilton	Roadside	271861	655952	NO2	No	3.6	0.1	No	2.0
25	289 Glasgow Road (Empire Bar)	Roadside	270013	656436	NO2	No	2.0	2.7	No	2.0
26	24 Low Patrick Street, Hamilton	Roadside	272608	655213	NO2	No	3.3	5.6	No	2.0

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)
27	10 Gateside Street, Hamilton	Roadside	272265	655078	NO2	No	2.2	0.8	No	2.0
28	28 Low Quarry gardens, Hamilton	Urban Background	271949	654957	NO2	No	11.9	0.6	No	2.0
29	5 Wordsworth Way, Bothwell	Urban Background	270924	659109	NO2	No	15.9	1.6	No	2.0
30	93 Main Street, Bothwell	Kerbside	270526	658722	NO2	No	8.9	2.3	No	2.0
31	25 Main Street, Bothwell	Roadside	270526	658510	NO2	No	3.1	3.3	No	2.0
32	233 Glasgow Road, Blantyre	Roadside	268902	657591	NO2	No	0.4	3.6	No	2.0
33	283 Glasgow Road, Blantyre	Roadside	268754	657689	NO2	No	5.2	3.0	No	2.0
34	1 Hunthill Road, Blantyre	Roadside	268000	656643	NO2	No	4.4	2.3	No	2.0

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)
35	Wellhall Road / Hillhouse Roundabout	Urban Background	270065	654918	NO2	No	12.2	1.3	No	2.0
36	Bardykes Road (West End Bar)	Kerbside	268175	658191	NO2	No	1.5	0.2	No	2.0
37	Burnpark Avenue, Uddingston	Roadside	268944	661474	NO2	No	22.0	29.2	No	2.0
38	81 Main Street, Uddingston	Roadside	269617	660438	NO2	No	0.2	2.7	No	2.0
39	North British Road, Uddingston	Kerbside	270180	660753	NO2	No	29.0	1.1	No	2.0
40	Bannatyne Street, Lanark	Kerbside	288450	643698	NO2	Yes (Lanark)	1.5	0.2	No	2.0
41	Cathkin House Nursing Home - Kingsgate Retail Park, East Kilbride	Urban Background	264374	656862	NO2	No	7.0	1.7	No	2.0
42	Greenhills Road at Lyndsayfield Nursing Home	Roadside	262030	652031	NO2	No	45.0	2.0	No	2.0

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)
43	146 Hamilton Road, Cambuslang	Roadside	265507	659827	NO2	No	15.3	2.3	No	2.0
44	junction of Union Street with Broomhill Road, Larkhall	Kerbside	276332	650924	NO2	No	6.0	1.0	No	2.0
45	Wellhall Road (Aldi), Hamilton	Roadside	270437	655151	NO2	No	19.0	2.0	No	2.0
46	Argosy Drive, East Kilbride	Urban Background	263993	655867	NO2	No	6.3	4.5	No	2.0

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: Automatic Monitoring (µg/m^3)

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
SL04	Roadside	Automatic	78.9	78.9	36	-	25.5	22.5	22
EK0	Roadside	Automatic	98.7	98.7	-	22	24.8	22	21
SL03	Kerbside	Automatic	93.2	93.2	19	13	16.7	14.5	13
SL05	Roadside	Automatic	47.7	47.7	29	19	24.2	25.3	20
SL06	Roadside	Automatic	99.8	99.8	26	15	18.8	17.7	16
SL07	Kerbside	Automatic	89.1	89.1	33	21	27.2	22.3	19
SL08	Roadside	Automatic	97.5	97.5	20	-	14.3	14	14
SL09	Roadside	Automatic	99.8	99.8	28.6	18	21.8	18.7	18

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in bold.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG22 if 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%).

Figure A.1 Trends in Annual Mean NO_2 Concentrations at Automatic Monitoring Sites (2019 to 2023)

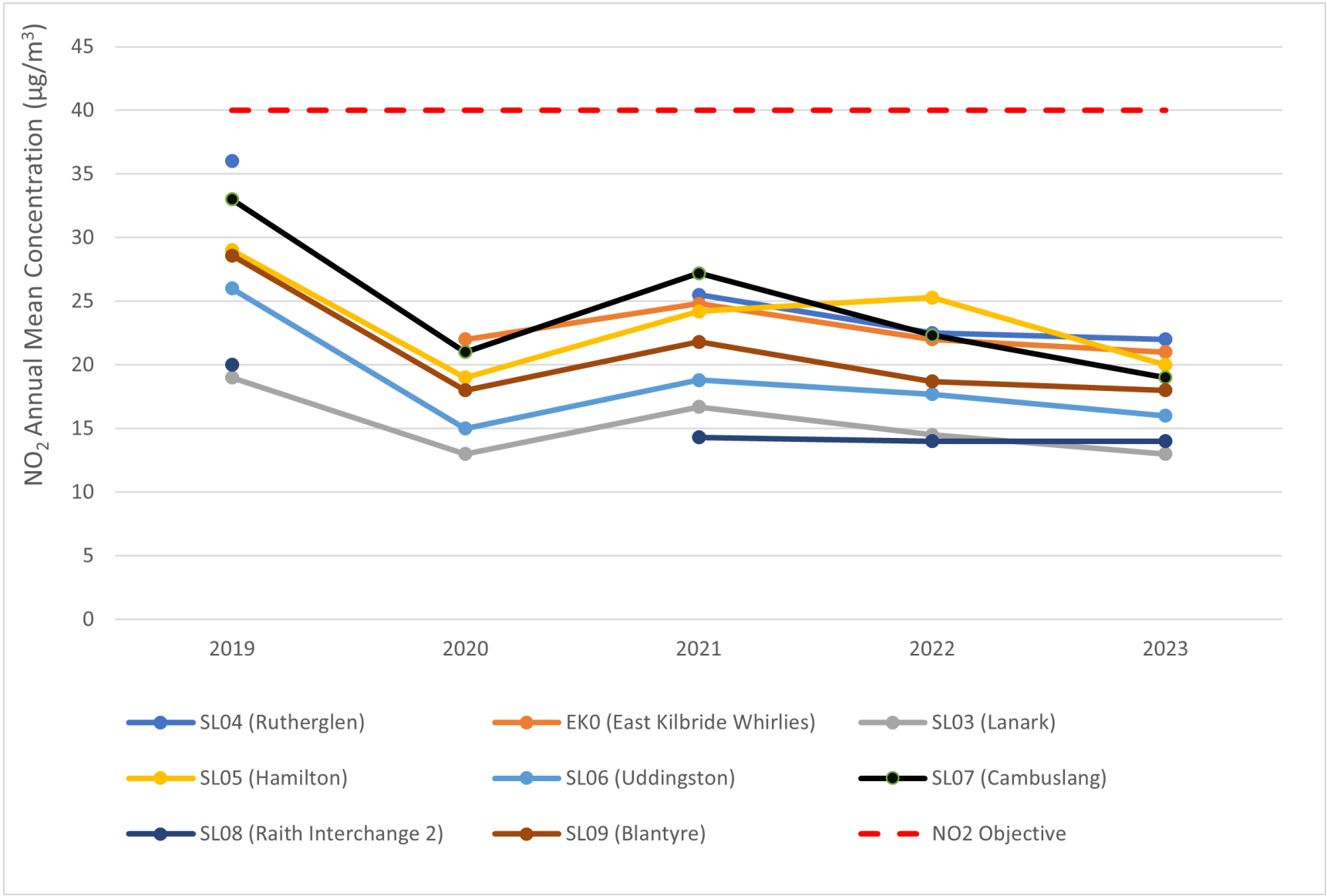


Table A.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
1	276087	651563	Kerbside	86	55.6	21.8	16.4	18.2	15.4	16.6
2	260052	653785	Roadside	86	55.6	22.7	9.9	12.0	11.9	15.7
3	284538	650572	Kerbside	92	100.0	36.4	25.5	29.0	20.2	20.5
4	288438	643694	Kerbside	92	100.0	27.8	21.1	23.8	19.8	16.5
5	287860	643685	Urban Background	92	100.0	6.1	4.5	4.9	4.3	4.5
6	288122	643685	Roadside	84	90.2	31.2	28.4	28.1	21.8	18.1
7	260711	654205	Kerbside	84	90.2	21.2	15.0	17.0	14.4	13.6
8, 9, 10	264374	655673	Kerbside	92	100.0	30.0	22.8	25.1	20.6	20.2
11	264210	654909	Roadside	29	22.9	15.3	10.2	15.1	11.4	11.1
12	261662	661789	Kerbside	92	100.0	34.9	27.7	27.9	25.1	25.1
13	261662	661663	Kerbside	92	100.0	23.9	17.3	20.1	17.0	17.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
14	261302	660734	Roadside	67	73.6	29.4	19.3	22.6	18.9	19.8
15	261858	662142	Roadside	92	100.0	29.0	21.9	24.2	20.7	18.8
16	264492	660497	Kerbside	59	63.5	29.4	18.4	18.5	16.8	19.0
17	263086	661296	Roadside	92	100.0	25.0	17.3	20.3	17.2	15.9
18	264300	660476	Roadside	59	57.2	33.6	21.9	23.6	18.4	23.2
19	272704	655431	Roadside	92	100.0	33.7	25.9	25.9	24.0	24.0
20	265561	659788	Kerbside	86	55.6	23.5	15.4	17.7	16.6	11.0
21	271670	656346	Roadside	92	100.0	25.2	16.8	18.4	17.8	17.7
22	271852	655320	Kerbside	75	82.6	27.1	19.1	19.9	20.3	19.7
23	271424	655786	Roadside	84	92.1	24.7	17.1	20.8	19.7	18.4
24	271861	655952	Roadside	92	100.0	28.5	19.3	22.5	19.6	18.7

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
25	270013	656436	Roadside	84	90.5	34.1	22.4	24.3	21.7	20.9
26	272608	655213	Roadside	92	100.0	46.0	37.1	29.8	19.2	20.5
27	272265	655078	Roadside	84	90.2	31.5	21.1	24.3	19.8	20.3
28	271949	654957	Urban Background	92	100.0	11.3	8.8	9.4	6.2	9.3
29	270924	659109	Urban Background	86	55.6	16.5	11.7	13.3	12.5	12.3
30	270526	658722	Kerbside	84	92.6	29.1	20.8	25.1	18.9	17.5
31	270526	658510	Roadside	92	100.0	27.1	15.7	16.0	14.1	16.6
32	268902	657591	Roadside	84	92.1	46.3	46.1	32.1	23.7	24.0
33	268754	657689	Roadside	84	90.2	22.6	15.9	19.4	16.6	17.6
34	268000	656643	Roadside	92	100.0	21.3	14.9	16.1	16.1	14.7
35	270065	654918	Urban Background	86	55.6	20.1	14.4	16.2	13.2	13.4

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
36	268175	658191	Kerbside	72	46.3	26.6	16.2	18.0	15.4	14.5
37	268944	661474	Roadside	92	100.0	22.7	18.1	20.6	17.1	15.3
38	269617	660438	Roadside	92	100.0	24.8	19.7	22.9	19.1	17.6
39	270180	660753	Kerbside	75	84.7	29.8	18.4	19.9	18.0	14.4
40	288450	643698	Kerbside	92	100.0	20.3	10.6	18.7	16.1	13.9
41	264374	656862	Urban Background	75	19.3	N/A	N/A	N/A	N/A	17.7
42	262030	652031	Roadside	50	17.7	N/A	N/A	N/A	N/A	13.7
43	265507	659827	Roadside	100	34.6	N/A	N/A	N/A	N/A	13.1
44	276332	650924	Kerbside	100	34.6	N/A	N/A	N/A	N/A	13.3
45	270437	655151	Roadside	100	34.6	N/A	N/A	N/A	N/A	13.3
46	263993	655867	Urban Background	75	25.1	N/A	N/A	N/A	N/A	12.1

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22 (confirm by selecting in box).**

☒ **Diffusion tube data has been bias adjusted (confirm by selecting in box).**

☒ **Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction (confirm by selecting in box).**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in bold.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG(22) if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

(4) 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%).

Figure A.2 Trends in Annual Mean NO_2 Concentrations at Roadside Sites (2019 to 2023)

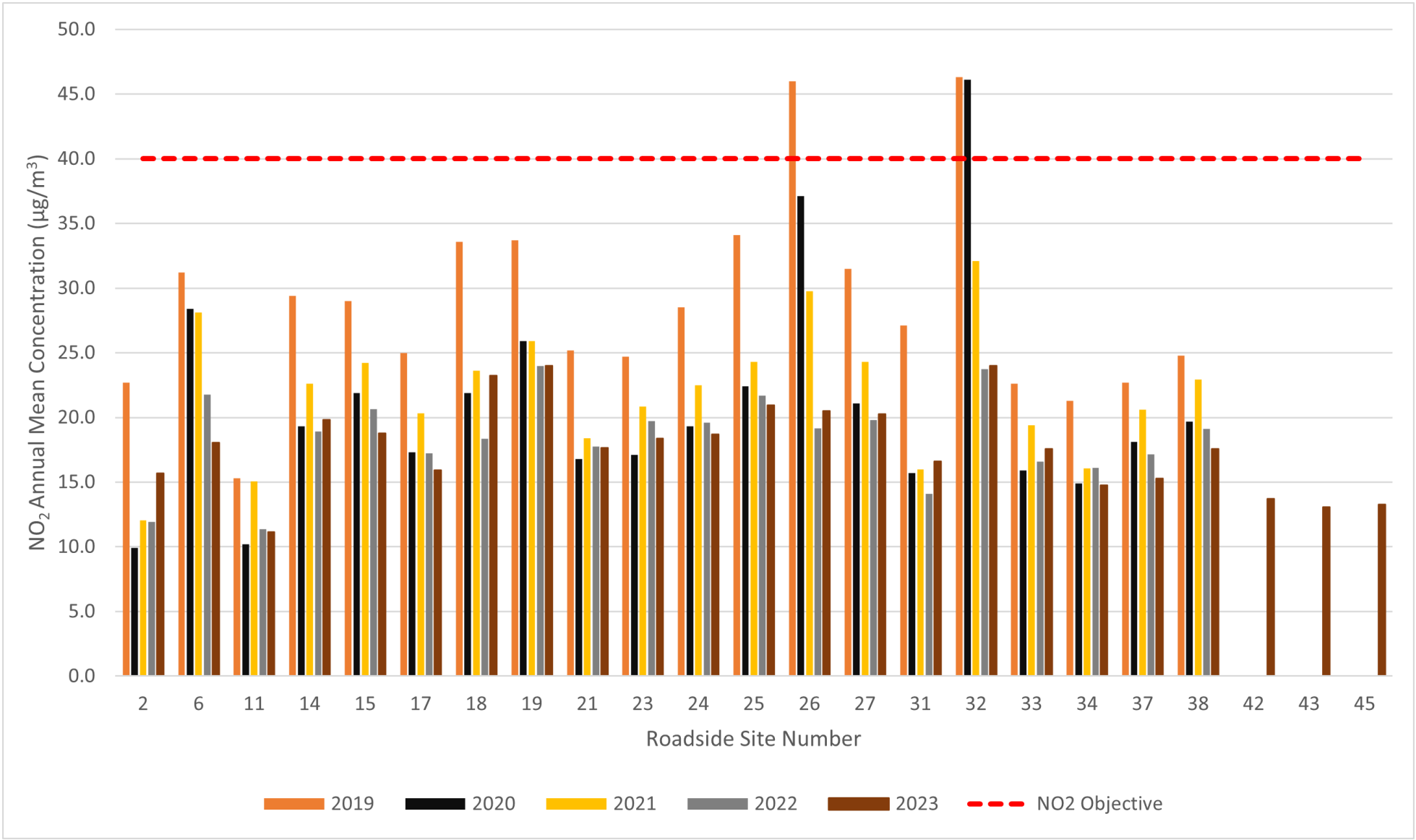


Figure A.3 Trends in Annual Mean NO_2 Concentrations at Kerbside Sites (2019 to 2023)

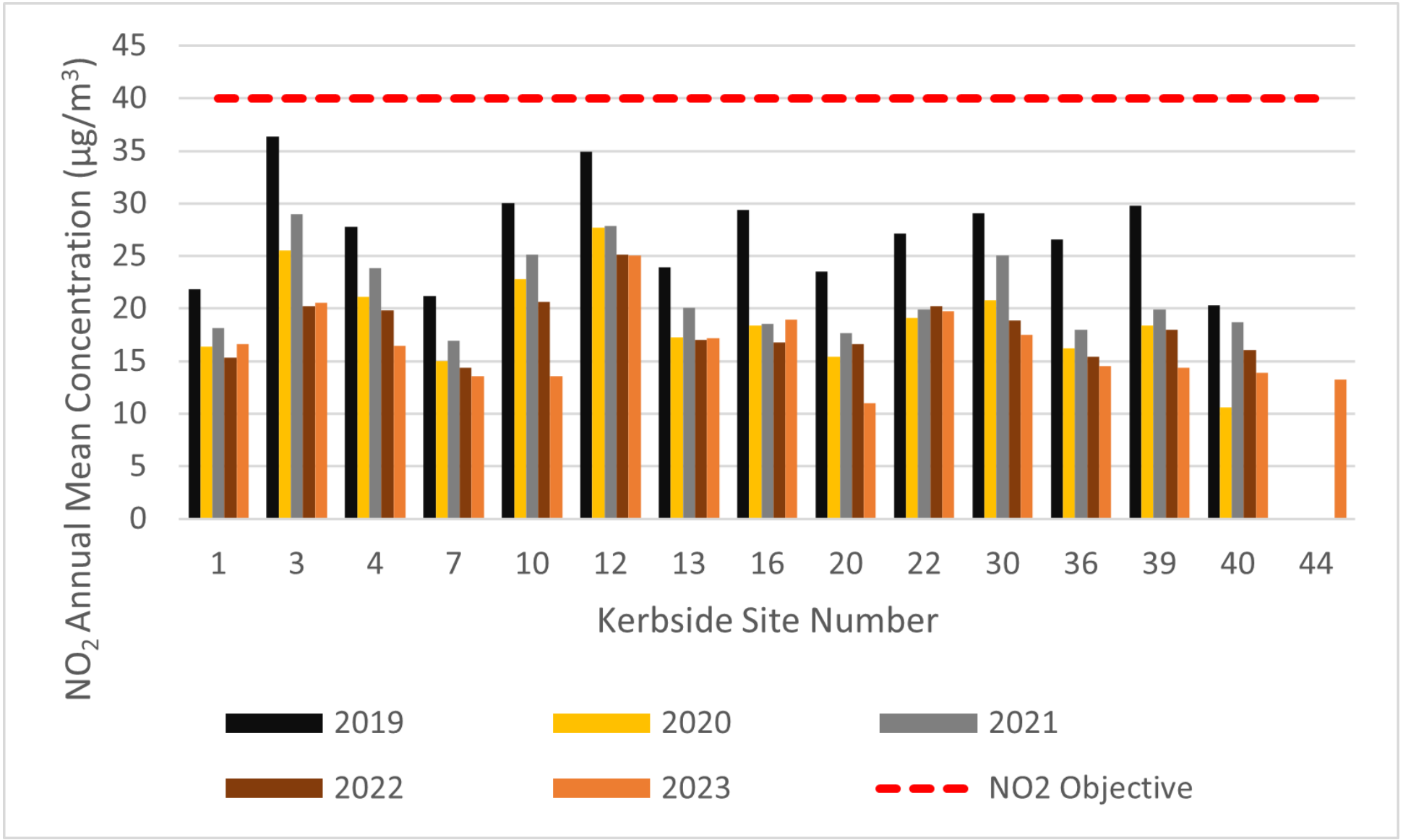


Figure A.4 Trends in Annual Mean NO_2 Concentrations at Urban Background Sites (2019 to 2023)

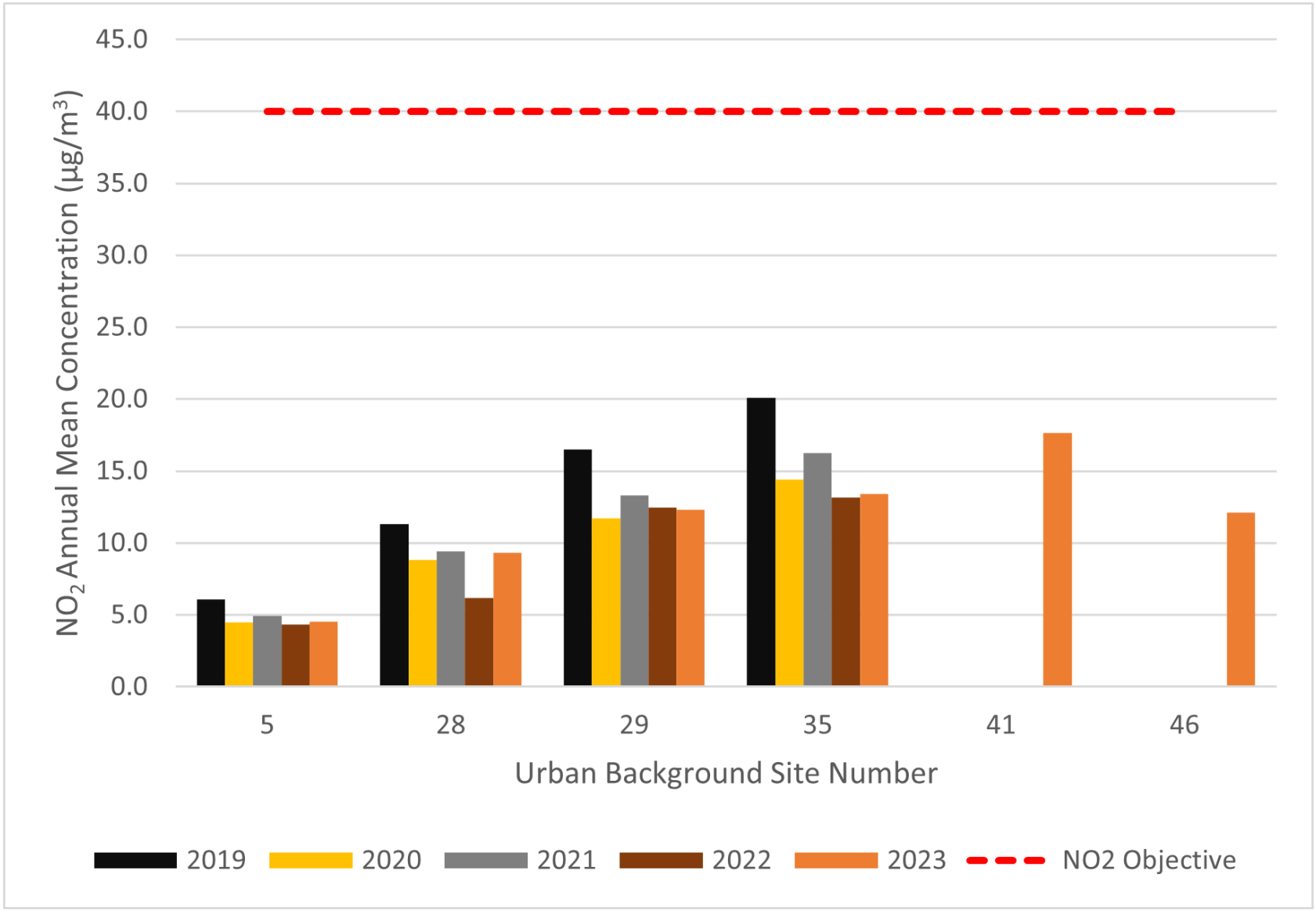


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
SL04	Roadside	Automatic	78.9	78.9	0 (99)	-	0 (89.5)	0	0 (93)
EK0	Roadside	Automatic	98.7	98.7	-	**2**	**4**	0 (116.6)	0
SL03	Kerbside	Automatic	93.2	93.2	0	0 (68)	0 (70)	0	0
SL05	Roadside	Automatic	47.7	47.7	0	0	0 (100.3)	0 (95.1)	0 (68.9)
SL06	Roadside	Automatic	99.8	99.8	0	0 (50)	0 (70.1)	0	0
SL07	Kerbside	Automatic	89.1	89.1	**1**	0	0	0 (124.3)	0
SL08	Roadside	Automatic	97.5	97.5	0 (71)	-	0 (65.8)	0	0
SL09	Roadside	Automatic	99.8	99.8	0 (98)	0	0	0	0

Notes:

Exceedances of the NO_2 1-hour mean objective (200 µg/m^3 not to be exceeded more than 18 times/year) are shown in bold.

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.6 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2019 Corrected*	2020	2020 Corrected*	2021	2021 Corrected*	2022	2022 Corrected*	2023	2023 Corrected*
SL04	Roadside	Automatic	99.6	99.6	14.0	15.4	10.0	11.0	11.9	13.1	11.8	13.0	11.0
EK0	Roadside	Automatic	76.7	76.7	10.0	11.0	9.0	9.9	9.8	10.8	10.1	11.1	9.0
SL03	Kerbside	Automatic	98.9	98.9	10.0	11.0	8.0	8.8	8.8	9.7	10.1	11.1	9.0
SL05	Roadside	Automatic	53.8	53.8	11.1	12.2	9.0	9.9	10.0	11.0	10.4	11.4	6.5
SL06	Roadside	Automatic	88.1	88.1	11.7	12.8	10.0	11.0	9.8	10.8	10.0	11.0	10.0
SL07	Kerbside	Automatic	99.5	99.5	13.0	14.3	10.0	11.0	10.7	11.8	11.4	12.5	11.0
SLC08	Rural	Automatic	99.3	99.3	10.0	11.0	8.0	8.8	9.1	10.0	9.5	10.5	9.0
SLC09	Roadside	Automatic	99.8	99.8	11.0	12.1	9.0	9.9	12.1	13.3	10.7	11.8	10.0

Notes:

Exceedances of the PM_{10} annual mean objective of 18 $\mu g/m^3$ are shown in bold.

All means have been "annualised" as per LAQM.TG(22), valid data capture for the full calendar year is less than 75%. See Appendix C for details.

* All means have been corrected using factors (PM_{10} divided by 0.909) identified by the "Scottish Government Equivalence Study To Investigate Particulate Matter Monitoring In Scotland Using The Fidas 200".

(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%).

Figure A.3 Trends in Annual Mean PM_{10} Concentrations (using FIDAS correction values) at Automatic Sites (2019 to 2023)

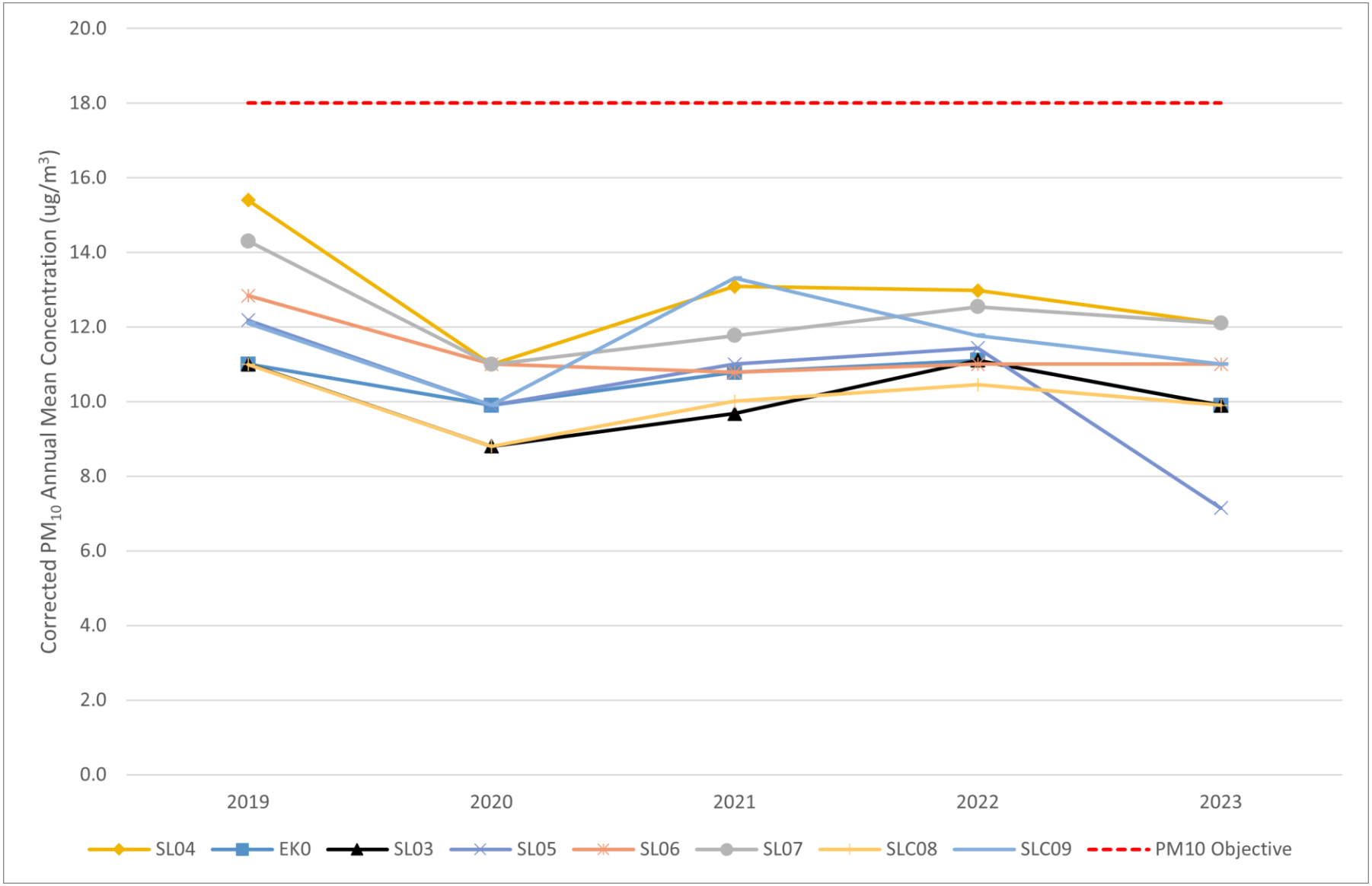


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
SL04	Roadside	99.6	99.6	**4**	0	0 (35.3, 38.8*)	0	0
EK0	Roadside	76.7	76.7	**1**	0	0	0	0 (22.5, 24.8*)
SL03	Kerbside	98.9	98.9	**1**	0	0	0	0
SL05	Roadside	53.8	53.8	**1 (35,39*)**	0	0	0	0 (15.5, 17*)
SL06	Roadside	88.1	88.1	**2 (45,50*)**	0	0	0 (26.7, 29.4*)	0
SL07	Kerbside	99.5	99.5	**7**	0 (25, 28*)	0	0	0
SLC08	Rural	99.3	99.3	**1**	0	0	0	0
SLC09	Roadside	99.8	99.8	**2**	0	0	0	0

Notes:

Exceedances of the PM_{10} 24-hour mean objective (50 µg/m^3 not to be exceeded more than seven times/year) are shown in bold.

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

* All means have been corrected using factors (PM_{10} divided by 0.909) identified by the "Scottish Government Equivalence Study To Investigate Particulate Matter Monitoring In Scotland Using The Fidas 200".

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

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2019 Corrected*	2020	2020 Corrected*	2021	2021 Corrected*	2022	2023 Corrected*	2023	2023 Corrected*
SL04	Roadside	99.6	99.6	8.0	8.5	6.0	6.4	5.9	6.3	6.2	6.6	6.0	6.4
EK0	Roadside	76.7	76.7	6.0	6.4	5.0	5.3	4.7	5.0	5.1	5.4	4.0	4.2
SL03	Kerbside	98.9	98.9	6.0	6.4	5.0	5.3	4.7	5.0	5.2	5.5	5.0	5.3
SL05	Roadside	53.8	53.8	6.0	6.4	5.0	5.3	4.9	5.2	5.2	5.5	3.0	3.2
SL06	Roadside	88.1	88.1	7.0	7.4	5.0	5.3	5.0	5.3	4.5	4.8	5.0	5.3
SL07	Kerbside	99.5	99.5	7.0	7.4	5.0	5.3	5.3	5.6	5.9	6.3	5.0	5.3
SLC08	Rural	99.3	99.3	6.0	6.4	5.0	5.3	5.0	5.3	5.1	5.4	5.0	5.3
SLC09	Roadside	99.8	99.8	6.0	6.4	5.0	5.3	5.4	5.7	5.4	5.7	5.0	5.3

Notes:

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

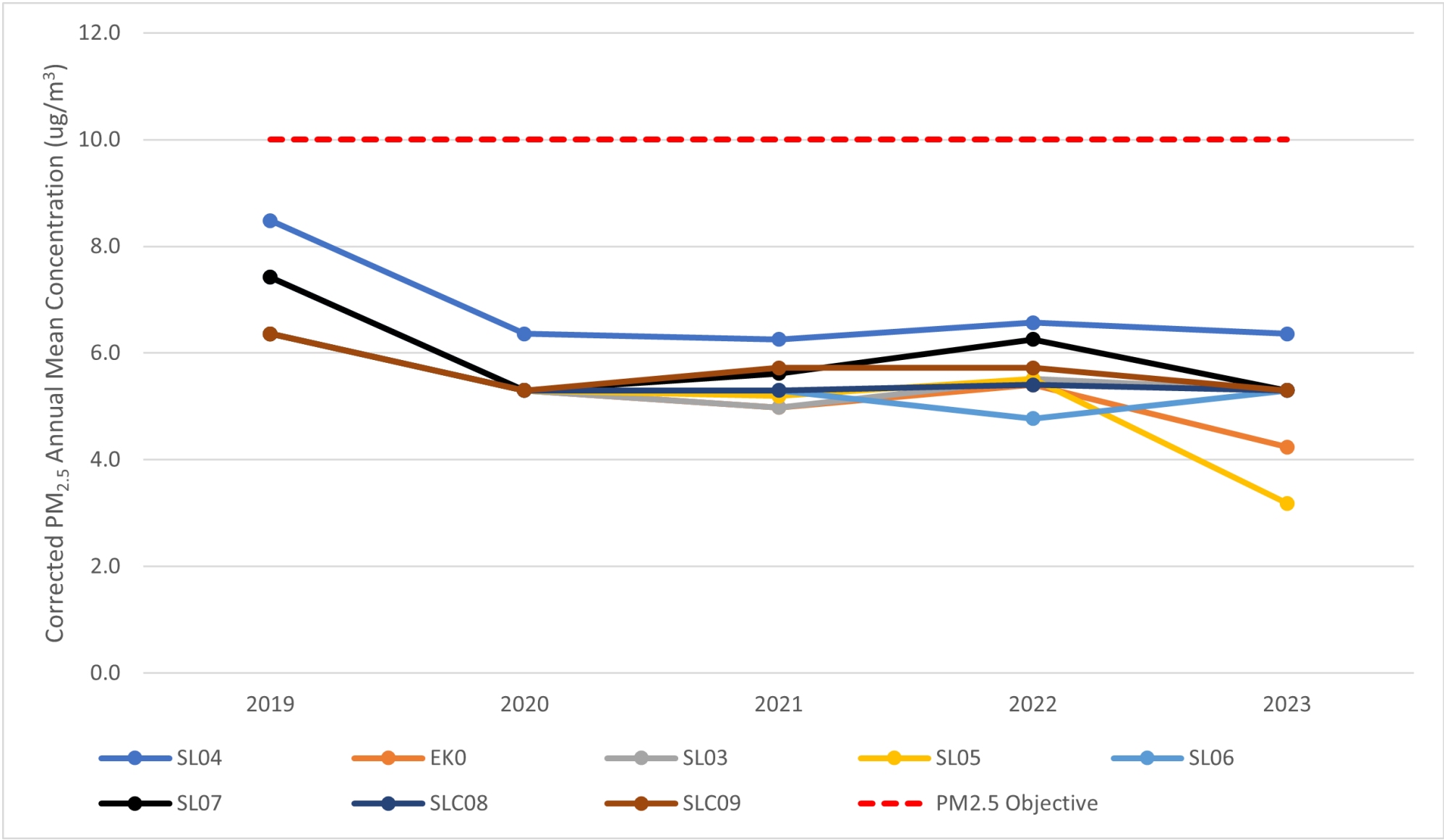
All means have been "annualised" as per LAQM.TG(22), valid data capture for the full calendar year is less than 75%. See Appendix C for details.

- All means have been corrected using factors ($PM_{2.5}$ multiplied by 1.06) identified by the "Scottish Government Equivalence Study To Investigate Particulate Matter Monitoring In Scotland Using The Fidas 200"

(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%).

Figure A.5 – Trends in Annual Mean $PM_{2.5}$ Concentrations (using FIDAS correction values) at Automatic Sites (2019 to 2023)



Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO_2 2023 Monthly Diffusion Tube Results (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(0.82)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	276087	651563	20.2		14.1	20.1	28.5	16.7	12.6						18.9	16.6		
2	260052	653785	29.2		17.3	16.6	11.7	14.2	7.0						17.8	15.7		
3	284538	650572	28.9		20.6	22.9	30.5	18.5	22.7	24.7	21.9	24.0	33.5	23.0	25.1	20.5		
4	288438	643694	22.9		17.1	24.0	25.9	17.3	13.8	17.5	19.8	21.9	24.9	14.6	20.1	16.5		
5	287860	643685	6.9		5.4	8.2	7.2	5.1	3.3	2.5	4.9	4.2	7.8	4.6	5.5	4.5		
6	288122	643685	24.1		5.8	25.8	32.5	28.8	14.0		20.1	25.0	21.9	18.8	22.0	18.1		
7	260711	654205	21.6		16.3	18.6	20.0	8.3	11.5	11.3	18.9	13.7		22.7	16.6	13.6		
8	264374	655673	29.6		18.6	25.8	24.0	25.7	17.8	22.2	32.8	24.1	37.0	23.7	-	-		Triplicate Site with 8, 9 and 10 - Annual data provided for 10 only
9	264374	655673	33.9		23.9	28.5	24.2	28.8	17.1	20.9	14.5	20.4	30.1	7.9	-	-		Triplicate Site with 8, 9 and 10 - Annual data provided for 10 only

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(0.82)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
10	264374	655673			23.7	21.5	16.8	25.0	19.2	22.5	27.4	18.9	23.8	29.5	24.6	20.2		Triplicate Site with 8, 9 and 10 - Annual data provided for 10 only
11	264210	654909	14.2		12.3										13.6	11.1		
12	261662	661789	32.7		35.7	32.5	27.2	34.5	21.5	21.8	37.7	28.6	30.1	33.6	30.6	25.1		
13	261662	661663	23.4		23.3	18.9	20.6	16.0	13.9	14.1	20.5	20.4	27.8	28.7	21.0	17.2		
14	261302	660734	25.6		24.2	23.4	22.9		15.7	18.7		21.8		27.2	22.8	19.8		
15	261858	662142	29.2		26.1	24.7	21.9	9.7	18.0	16.7	26.8	19.7	27.2	27.9	22.9	18.8		
16	264492	660497	24.1		21.3	25.3	24.9	19.4	14.0			18.3			21.4	19.0		
17	263086	661296	23.2		22.8	18.6	22.0	17.3	15.7	13.5	18.2	17.8	19.1	23.2	19.4	15.9		
18	264300	660476			21.2	25.7	24.2	25.9	15.4	18.1	19.0				21.4	23.2		
19	272704	655431	34.2		32.8	29.5	27.5	27.3	19.5	26.4	27.4	30.2	28.4	34.0	29.2	24.0		
20	265561	659788	2.3		21.0	15.9	15.4	14.5	16.1						12.5	11.0		
21	271670	656346	25.2		21.3	21.5	20.7	8.7	15.4	22.6	17.4	15.8	35.4	26.6	21.5	17.7		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(0.82)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
22	271852	655320	23.2		31.4	20.7		16.8	18.7	17.3	15.4	21.0		50.1	24.0	19.7		
23	271424	655786	22.4		23.3	20.2	23.8	12.8		17.9	20.2	26.1	36.3	20.9	22.4	18.4		
24	271861	655952	27.5		17.5	23.1	23.8	19.0	14.5	26.7	23.7	17.1	34.9	16.5	22.8	18.7		
25	270013	656436	32.6		27.1	23.9	24.7	20.2	20.8	24.8	26.3	20.1	28.6		25.5	20.9		
26	272608	655213	28.9		21.8	29.0	18.3	20.0	16.6	23.7	21.7	28.0	41.6	19.4	25.0	20.5		
27	272265	655078	33.5		22.7	26.5	26.7	17.9	16.7	21.1	25.4	21.8		27.9	24.7	20.3		
28	271949	654957	13.7		9.3	12.0	8.5	6.7	4.8	5.6	8.6	21.0	21.9	9.9	11.3	9.3		
29	270924	659109	18.4		13.7	13.2	14.2	12.2	8.1						14.0	12.3		
30	270526	658722	28.3			20.2	20.7	18.7	11.0	17.3	24.6	17.2	26.2	23.1	21.4	17.5		
31	270526	658510	24.0		16.5	17.4	18.6	14.4	15.6	12.5	17.0	10.8	47.7	20.6	20.3	16.6		
32	268902	657591	30.9		27.2	22.7	31.2	21.3		39.7	25.4	23.0	40.8	25.6	29.3	24.0		
33	268754	657689	22.2		18.5	20.8	24.4	16.7	11.9		23.4	20.6	38.9	14.2	21.4	17.6		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(0.82)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
34	268000	656643	22.6		18.5	15.6	21.0	12.2	10.3	13.4	16.9	17.5	29.2	16.0	18.0	14.7		
35	270065	654918	18.2		16.0	16.6	14.6	14.0	9.0						15.2	13.4		
36	268175	658191	19.8		22.4	17.7	18.3		8.6						17.7	14.5		
37	268944	661474	9.5		23.4	16.4	33.3	19.5	12.3	12.2	19.6	22.3	20.5	25.5	18.7	15.3		
38	269617	660438	24.1		22.6	18.9	19.8	18.2	14.9	17.8	26.0	15.6	32.0	22.3	21.4	17.6		
39	270180	660753	25.4				15.0	6.6	9.2	12.2	23.3	19.3	18.2	22.9	17.5	14.4		
40	288450	643698	17.8		15.9	25.7	16.5	14.9	10.1	11.6	12.0	16.3	32.1	10.9	16.9	13.9		
41	264374	656862											27.7	15.2	21.5	17.7		
42	262030	652031										9.7	22.4		16.7	13.7		
43	265507	659827									22.5	22.7	19.7	14.2	19.5	13.1		
44	276332	650924									14.1	15.1	20.0	27.7	19.7	13.3		
45	270437	655151									7.5	21.5	27.4	19.8	19.7	13.3		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(0.82)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
46	263993	655867									11.3	19.6	23.6		18.7	12.1		

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1 (confirm by selecting in box).**

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22 (confirm by selecting in box).**

☒ **Local bias adjustment factor used (confirm by selecting in box).**

☐ **National bias adjustment factor used (confirm by selecting in box).**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column (confirm by selecting in box).**

☒ **South Lanarkshire Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System (confirm by selecting in box).**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within South Lanarkshire Council During 2023

South Lanarkshire Council has not identified any new sources relating to air quality within the reporting year of 2023.

Additional Air Quality Works Undertaken by South Lanarkshire Council During 2023

South Lanarkshire Council has not completed any additional works relating to the development of action plan measures or declaration, amendment or revocation of an AQMA within the reporting year of 2023.

QA/QC of Diffusion Tube Monitoring

South Lanarkshire Council maintained the diffusion tube monitoring networks as normal, though January 2023 exposure period was longer due to workload and council resourcing issues. The remaining sampling periods exposure and analysis was in line with diffusion tube calendar. The annual mean NO_2 concentration was calculated using the Diffusion Tube Processing Tool (v4.0)[8], as per LAQM.TG(22). All results have been bias adjusted, annualised (where required) and expressed as an Annual Mean NO_2 concentration as presented in Table B.1.

All passive diffusion tubes (PDT) for NO_2 measurements were prepared and analysed by Edinburgh Scientific Services. The PDTs were prepared using the 50% triethanolamine (TEA) in acetone method. Edinburgh Scientific Services is a UKAS accredited laboratory with documented Quality Assurance/Quality Control (QA/QC) procedures for diffusion tube analysis.

[8] Available at Diffusion Tube Data Processing Tool | LAQM (defra.gov.uk)

Diffusion Tube Annualisation

Three diffusion tube sites within South Lanarkshire Council had less than 25% data capture and therefore insufficient data available for annualisation and 13 diffusion tubes required annualisation as data capture was below 75%, but above 25%. The 13 diffusion tubes that required annualisation were processed with Defra's Diffusion Tube Processing Tool (v4.0), as per LAQM.TG(22). Details are provided in Table C.2.

Diffusion Tube Bias Adjustment Factors

South Lanarkshire Council have applied a local bias adjustment factor of 0.82 to the 2023 monitoring data. A summary of bias adjustment factors used by South Lanarkshire Council over the past five years is presented in Table C.1.

A co-location study completed at East Kilbride Whirlies was completed in 2023 had good overall precision and data capture for a local bias adjustment to be used (details in Table C.3) and provided a local bias adjustment factor of 0.82. The national bias adjustment factor was 0.81, the local adjustment factor was used to provide a worst-case scenario for the local air quality, noting that all measurements are below the air quality objectives when using the local bias adjustment factor.

Figure C.1 National Diffusion Tube Bias Adjustment Factor Spreadsheet, Edinburgh Scientific Services (version 03/24)

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/24

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 June 2024

LAQM Helpdesk Website

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:	Step 2:	Step 3:	Step 4:
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	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 a laboratory is not shown, we have no data for this laboratory.	If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data[2]	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[5] (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[6]	Bias Adjustment Factor (A) (Cm/Dm)
Edinburgh Scientific Services	50% TEA in acetone	2023	KS	Marylebone Road intercomparison	11	46	38	22.9%	P	0.81
Edinburgh Scientific Services	50% TEA in acetone	2023		Overall Factor[3] (1 study)				Use		0.81

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	Local	-	0.82
2022	National	03/23	0.81
2021	Local/National	03/22	0.87
2020	National	03/21	0.88
2019	National	03/20	0.87

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within South Lanarkshire Council required distance correction during 2023.

QA/QC of Automatic Monitoring

All South Lanarkshire Council's automatic monitoring sites are routinely calibrated and audited by Ricardo Energy & Environment whereby monitoring data are managed to the same procedures and standards as Automatic Urban and Rural Network (AURN) sites. All data presented within this APR is ratified. Live/historic data is available at Air Quality in Scotland.

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

PM_{10} and $PM_{2.5}$ measurements were made using FIDAS analysers. All PM measurement data were fully ratified by Ricardo Energy & Environment to AURN standards.

All PM_{10} and $PM_{2.5}$ measurements have been reported as measured and after applying correction factors based on guidance from the Scottish Government on the use of FIDAS analysers in Scottish Government Equivalence Study To Investigate Particulate Matter Monitoring In Scotland Using The Fidas 200.

Automatic Monitoring Annualisation

Annualisation was required for NO_2 measurements at one automatic site, Hamilton SL05, within South Lanarkshire Council where data capture was less than 75%. Annualisation was required for PM_{10} and $PM_{2.5}$ at one automatic site, Hamilton SL05, as data capture was less than 75%. Data capture was greater than 25% at all automatic sites. Details of annualisation are provided in Table C.2 and followed the guidance provided in LAQM.TG(22).

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within South Lanarkshire Council required distance correction during 2023.

Table C.2 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Glasgow Townhead	Annualisation Factor Peebles	Annualisation Factor Edinburgh St Leonards	Annualisation Factor Auchencorth Moss	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
SL05 – NO_2	1.0207	1.0656	1.0748	-	1.0537	18.7	19.7	
SL05 – PM_{10}	0.8352	-	0.8603	0.8238	0.8397	7.7	6.5	
SL05 – $PM_{2.5}$	0.8413	-	0.8556	0.8001	0.8323	4.0	3.3	
1	1.0368	1.0922	1.0976	-	1.0755	18.9*	20.3*	
2	1.0368	1.0922	1.0976	-	1.0755	17.8*	19.1*	
14	1.0331	1.0999	1.0509	-	1.0613	22.8*	24.2*	
16	1.0451	1.0976	1.1100	-	1.0842	21.4*	23.2*	
18	1.3006	1.4091	1.2670	-	1.3256	21.4*	28.3*	
20	1.0368	1.0922	1.0976	-	1.0755	12.5*	13.4*	
29	1.0368	1.0922	1.0976	-	1.0755	14.0*	15.0*	
35	1.0368	1.0922	1.0976	-	1.0755	15.2*	16.3*	
36	0.9693	1.0247	1.0107	-	1.0016	17.7*	17.7*	
43	0.8622	0.7727	0.8238	-	0.8196	19.5*	16.0*	
44	0.8622	0.7727	0.8238	-	0.8196	19.7*	16.2*	
45	0.8622	0.7727	0.8238	-	0.8196	19.7*	16.2*	

Site ID	Annualisation Factor Glasgow Townhead	Annualisation Factor Peebles	Annualisation Factor Edinburgh St Leonards	Annualisation Factor Auchencorth Moss	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
46	0.8353	0.7363	0.7976	-	0.7897	18.7*	14.8*	

*Time Weighted Annual Mean (µg/m^3)

Table C.3 – Local Bias Adjustment Calculations

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3	Local Bias Adjustment Input 4	Local Bias Adjustment Input 5
Periods used to calculate bias	9				
Bias Factor A	0.82 (0.72 - 0.96)				
Bias Factor B	22% (5% - 40%)				
Diffusion Tube Mean (µg/m^3)	23.9				
Mean CV (Precision)	11.4%				
Automatic Mean (µg/m^3)	19.5				
Data Capture	99%				
Adjusted Tube Mean (µg/m^3)	20 (17 - 23)				

Overall Diffusion Tube Precision	**Good Overall Precision**
Overall Continuous Monitor Data Capture	**Good Overall Data Capture**
Local Bias Adjustment Factor	**0.82**

Notes:

A single local bias adjustment factor (0.82) has been used to bias adjust the 2023 diffusion tube results.

Appendix D: Maps of the monitoring network and AQMAs

Figure D.1 Lanark Monitoring Sites

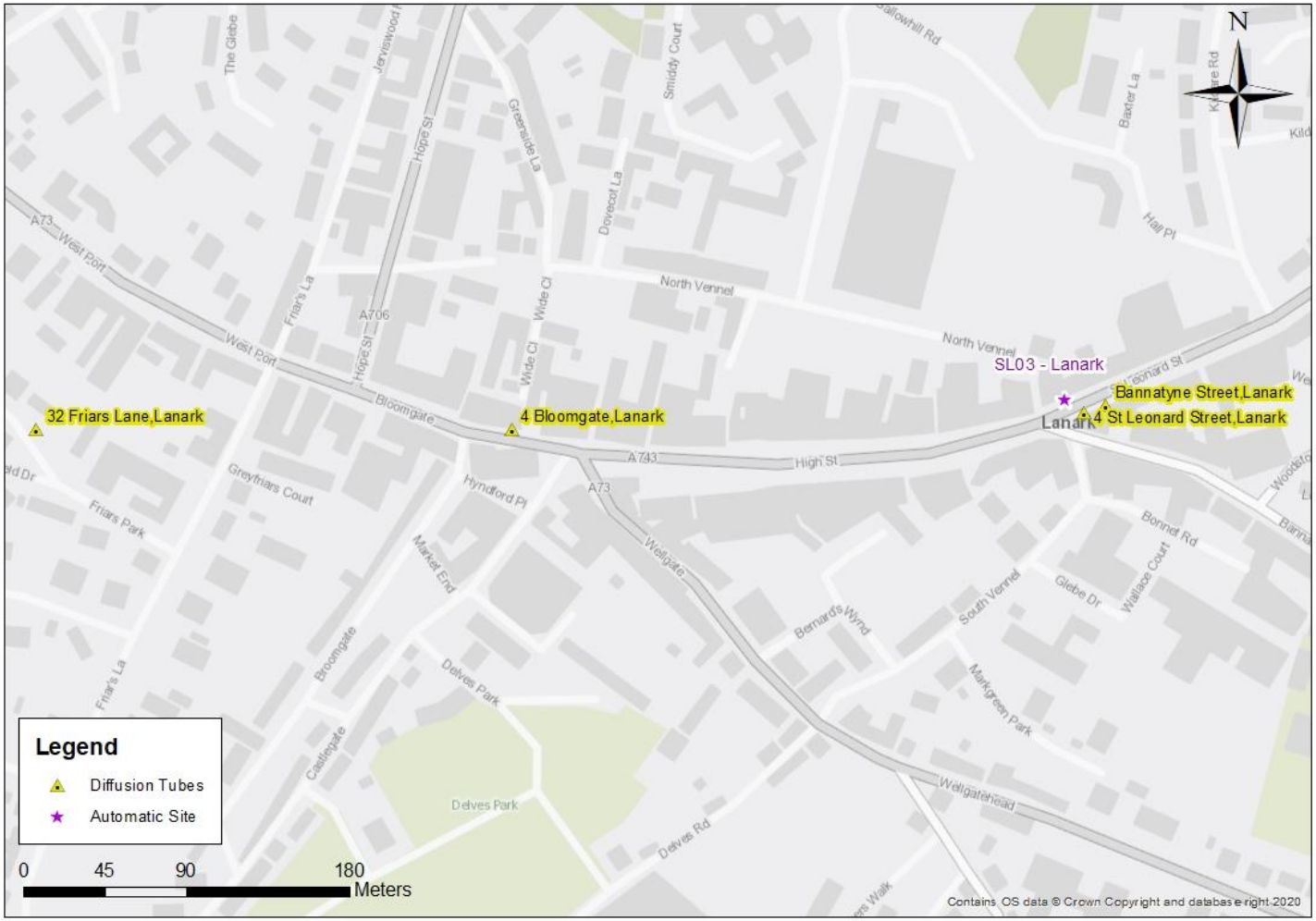


Figure D.2 Carluke Monitoring Sites

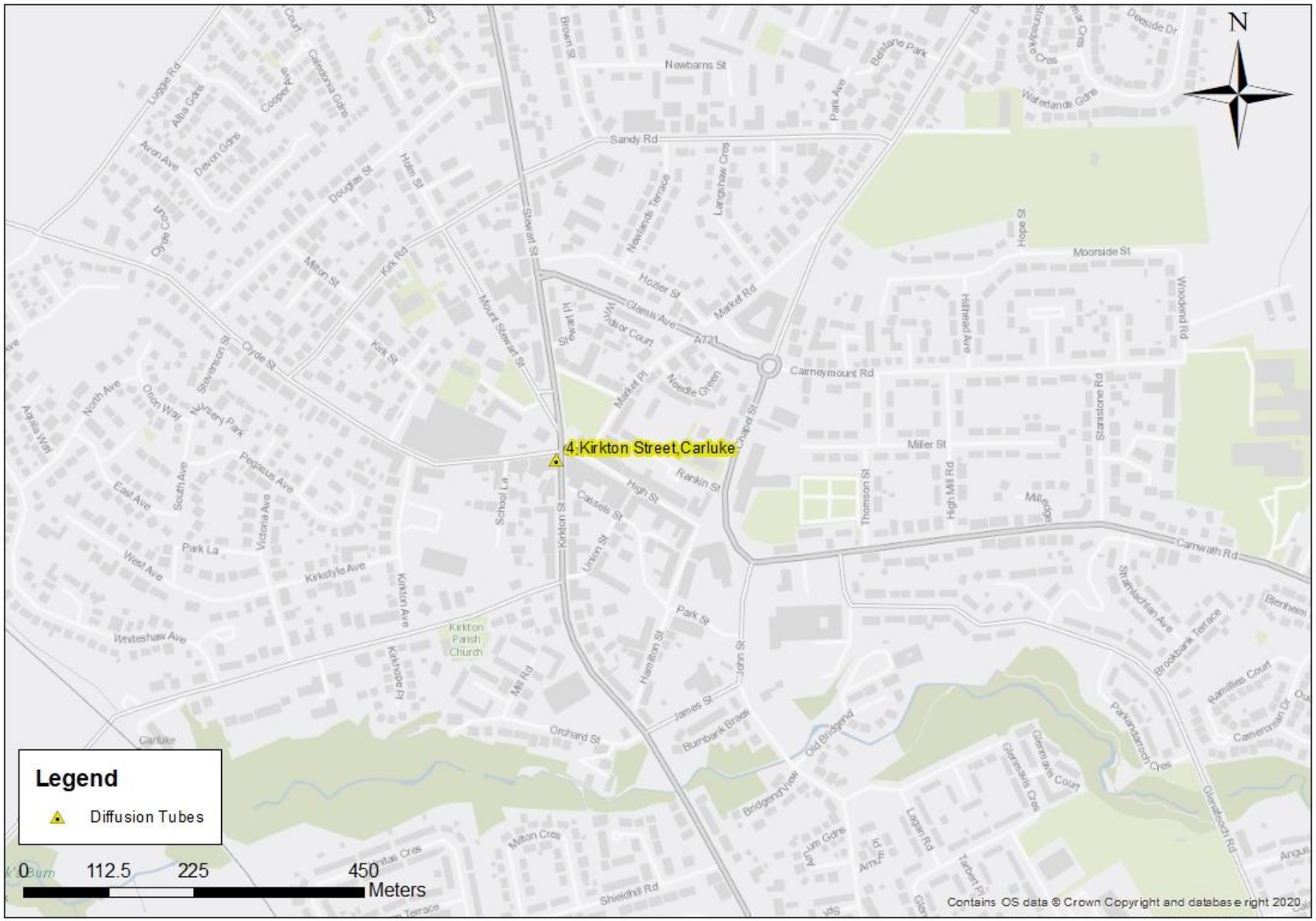


Figure D.3 Larkhall Monitoring Sites

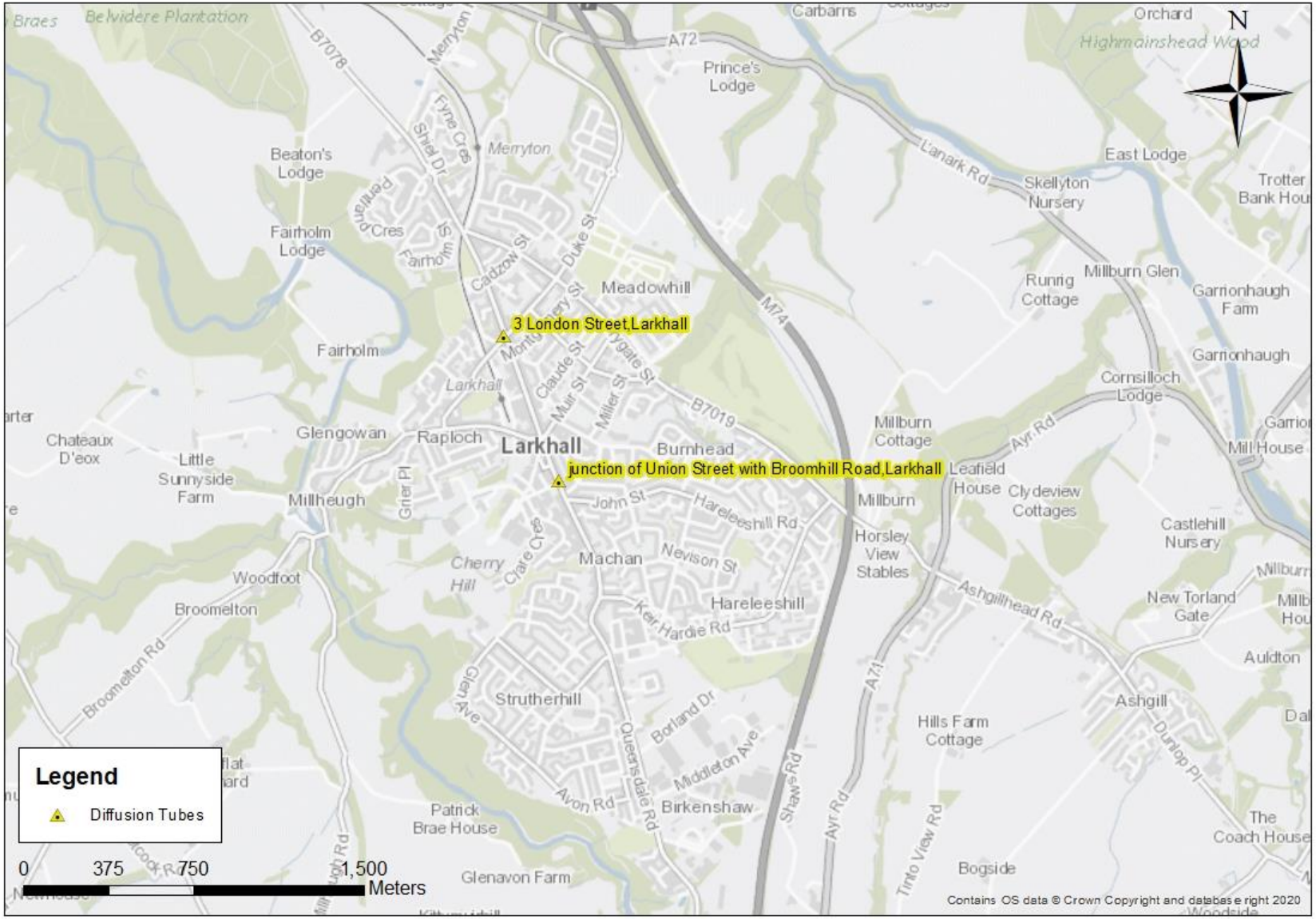


Figure D.4 Hamilton Monitoring Sites

Figure D.5 Blantyre Monitoring Sites

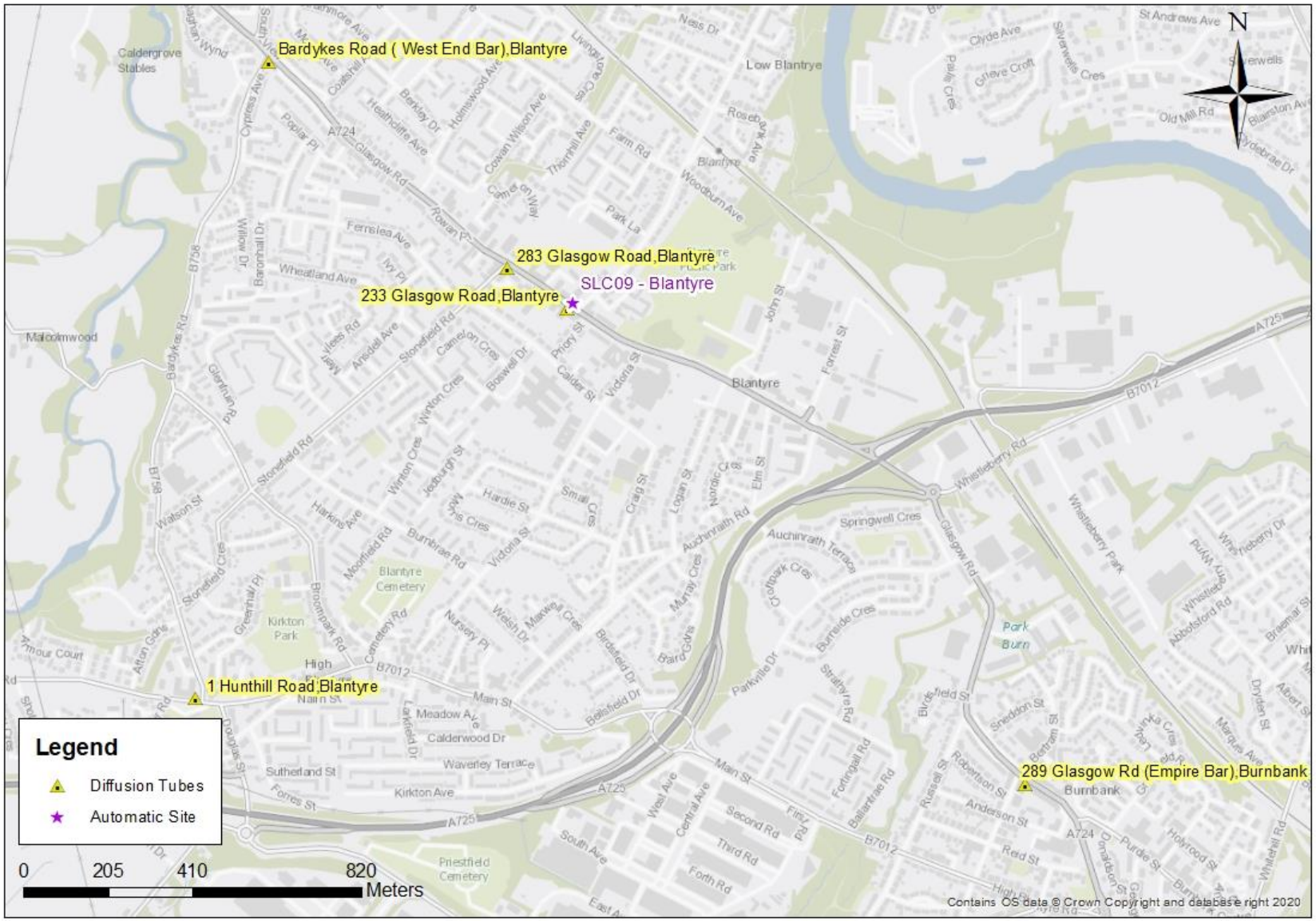


Figure D.6 Raith Interchange and Bothwell Monitoring Sites

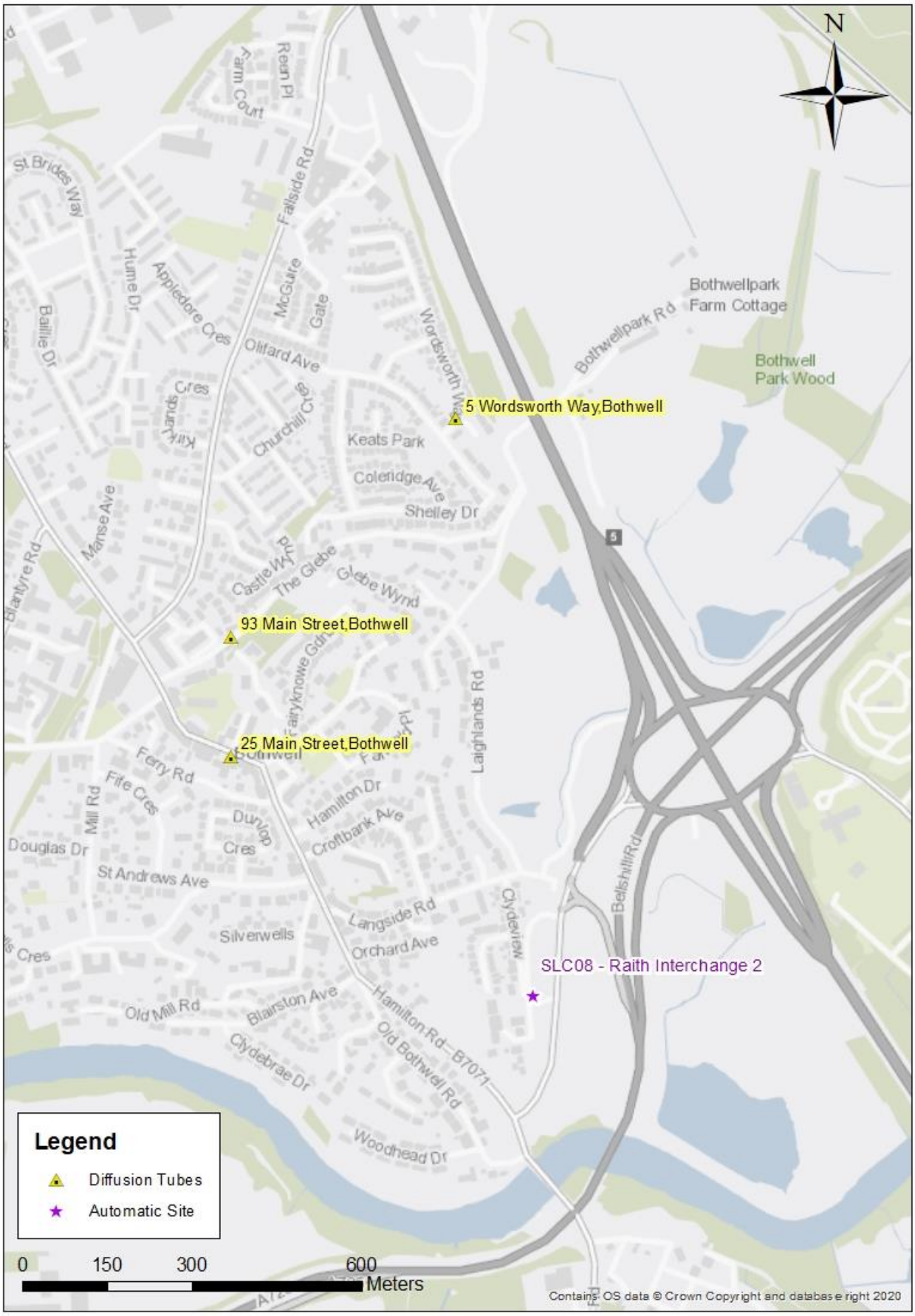


Figure D.7 Uddingston Monitoring Sites

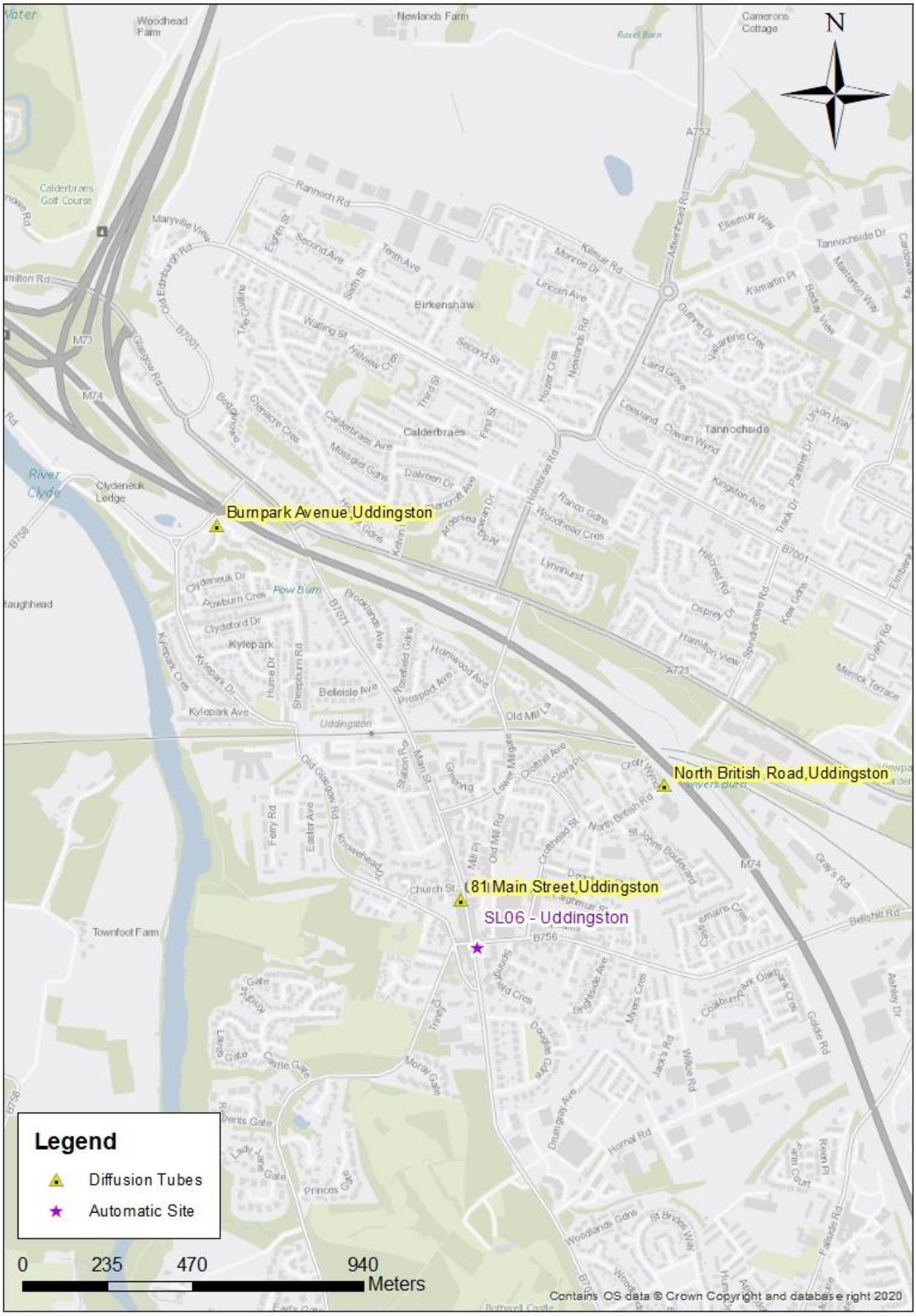


Figure D.8 Halfway Monitoring Sites

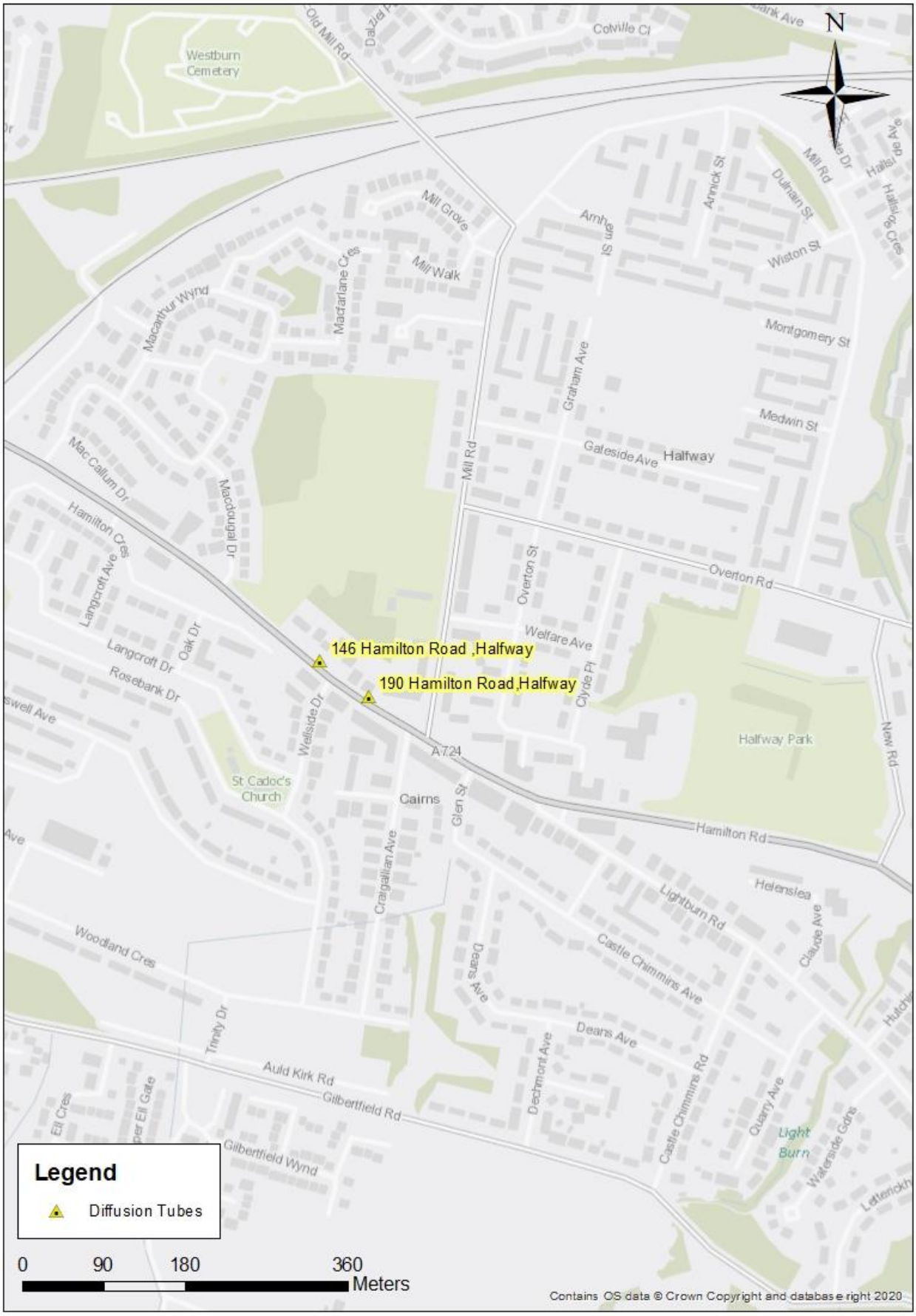


Figure D.9 Cambuslang Monitoring Sites

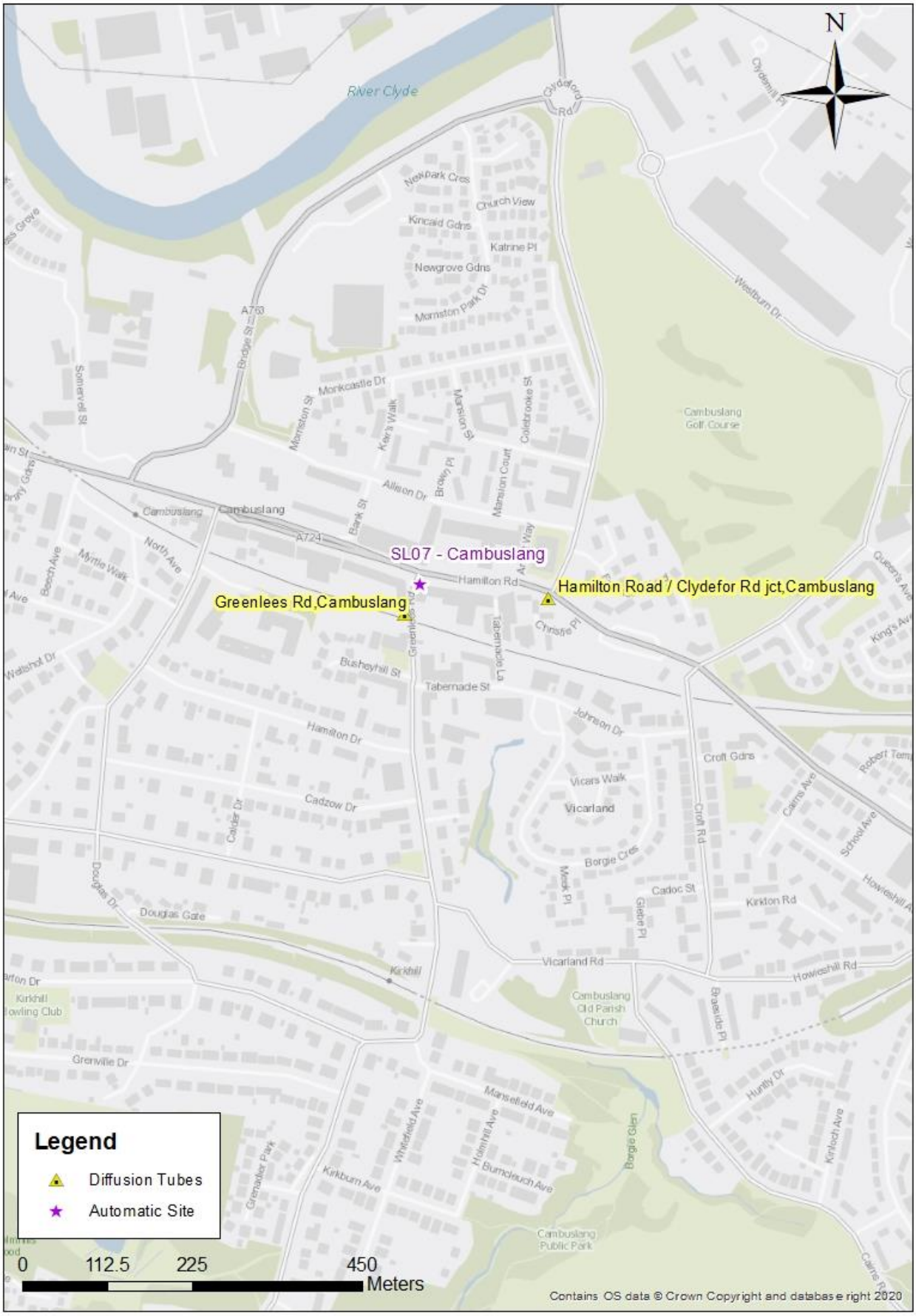


Figure D.10 Rutherglen Monitoring Sites

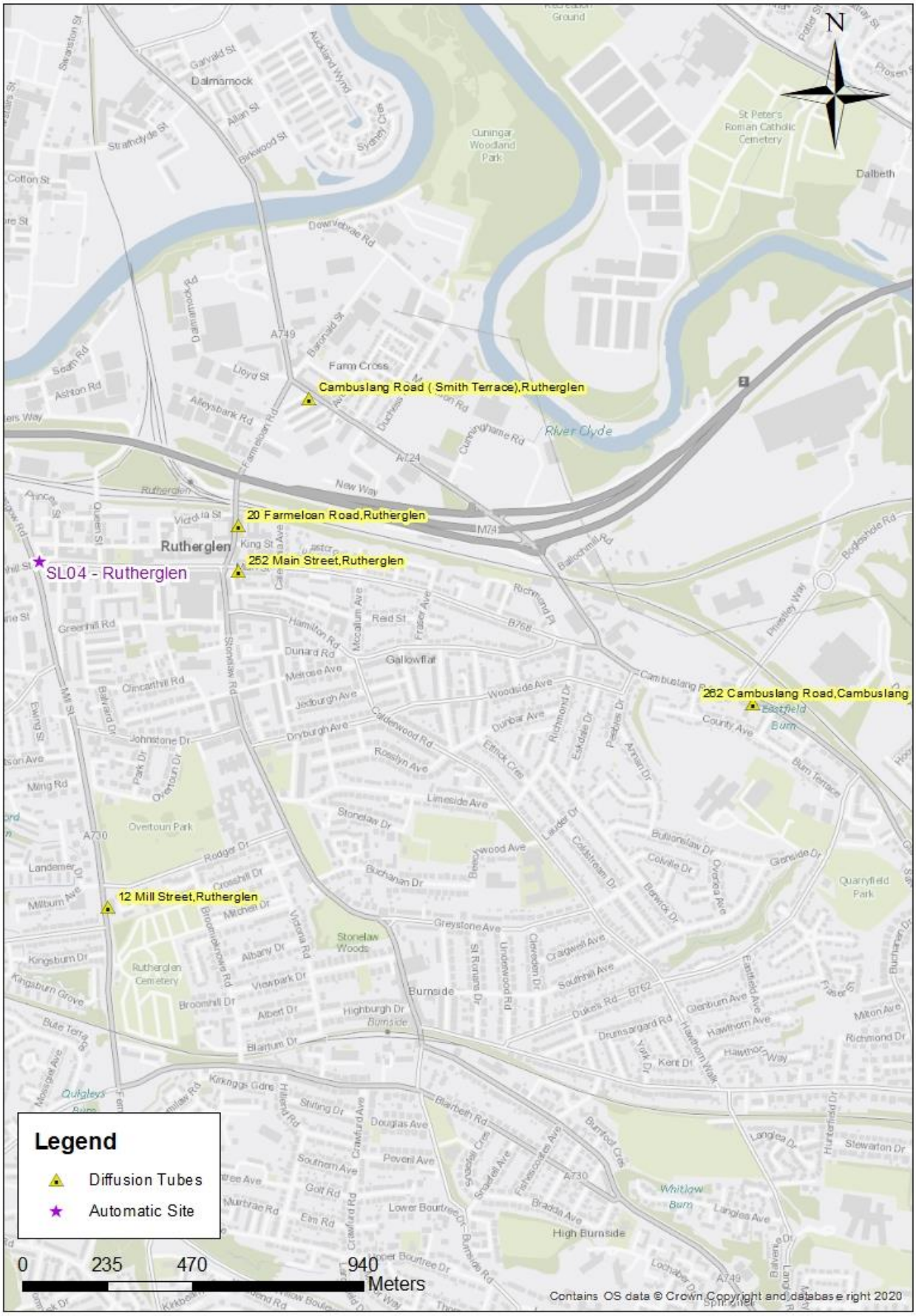


Figure D.11 East Kilbride Monitoring Sites

Figure D.12 Lanark AQMA with Monitoring Sites

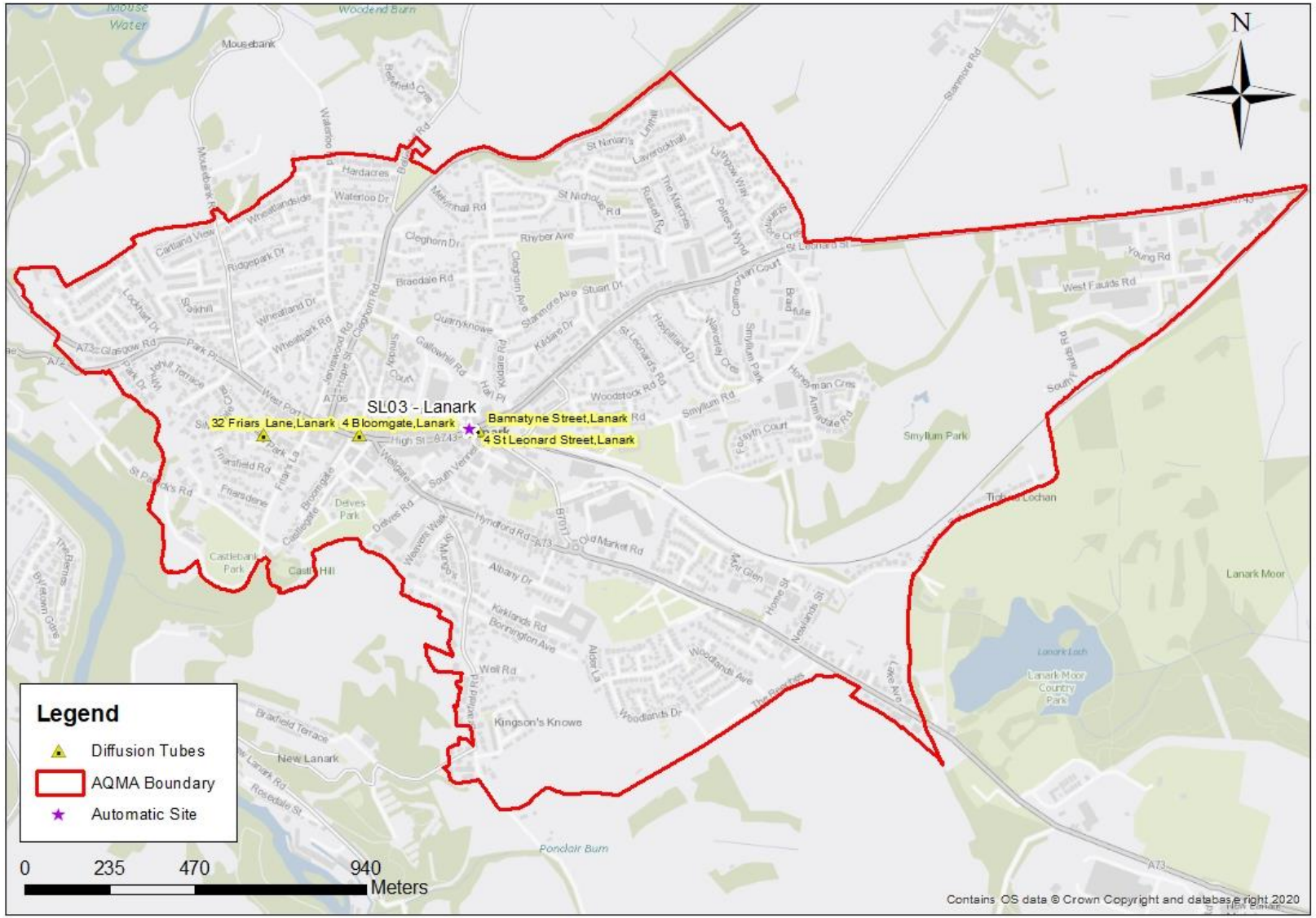


Figure D.13 East Kilbride AQMA with Monitoring Sites

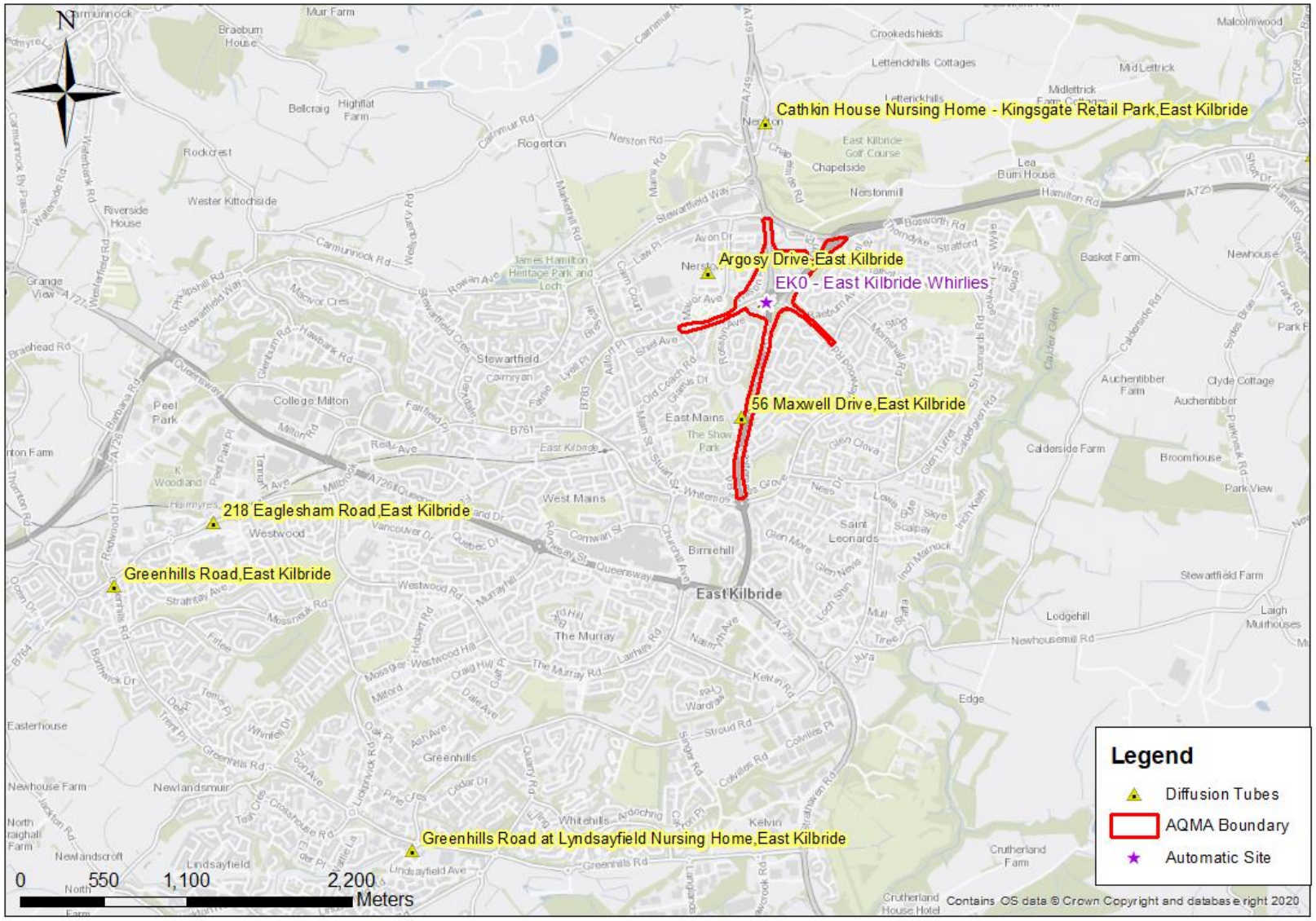


Figure D.14 Rutherglen AQMA with Monitoring Sites

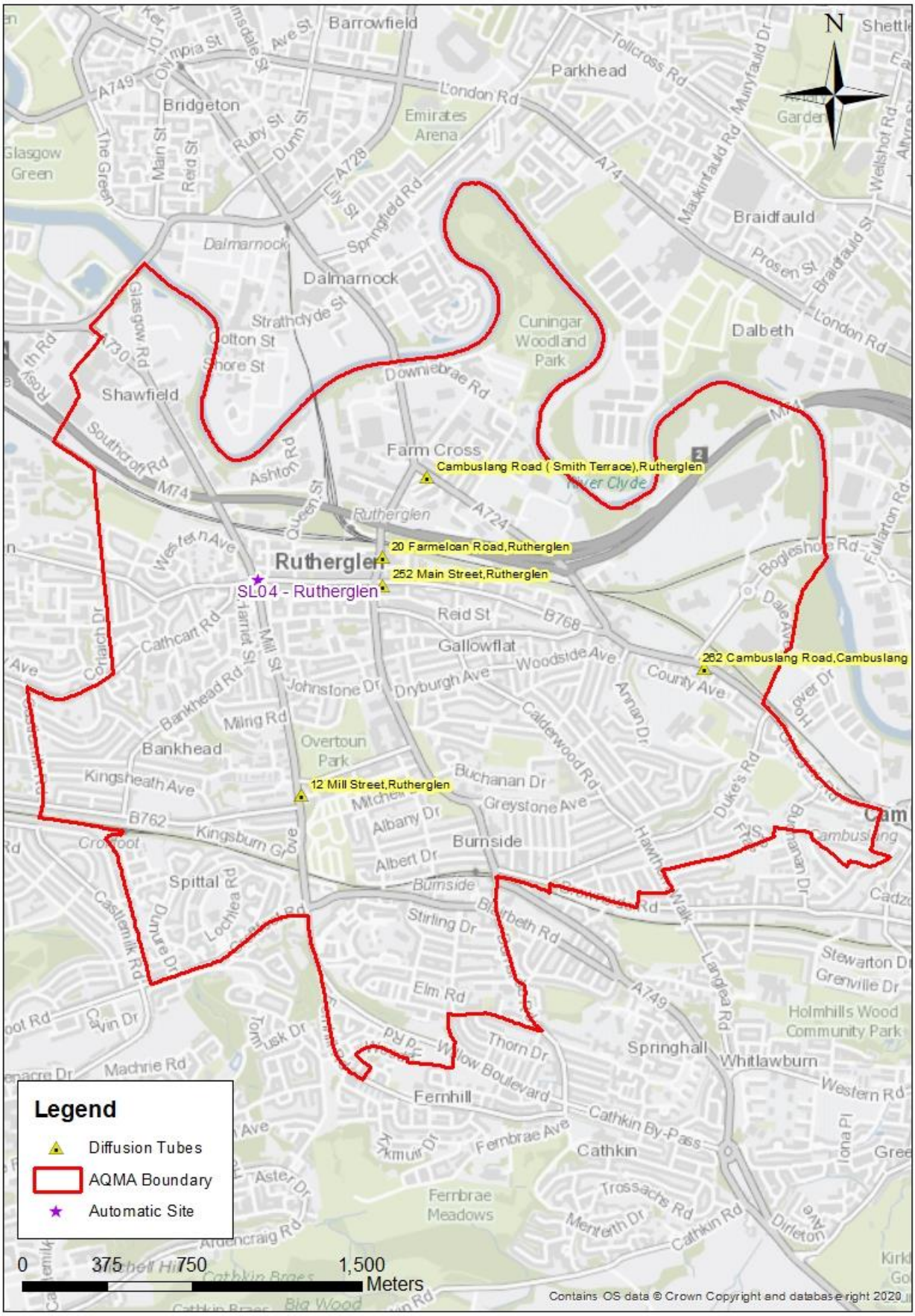


Figure D. 15 Hyper local sensor location map, Stonehouse

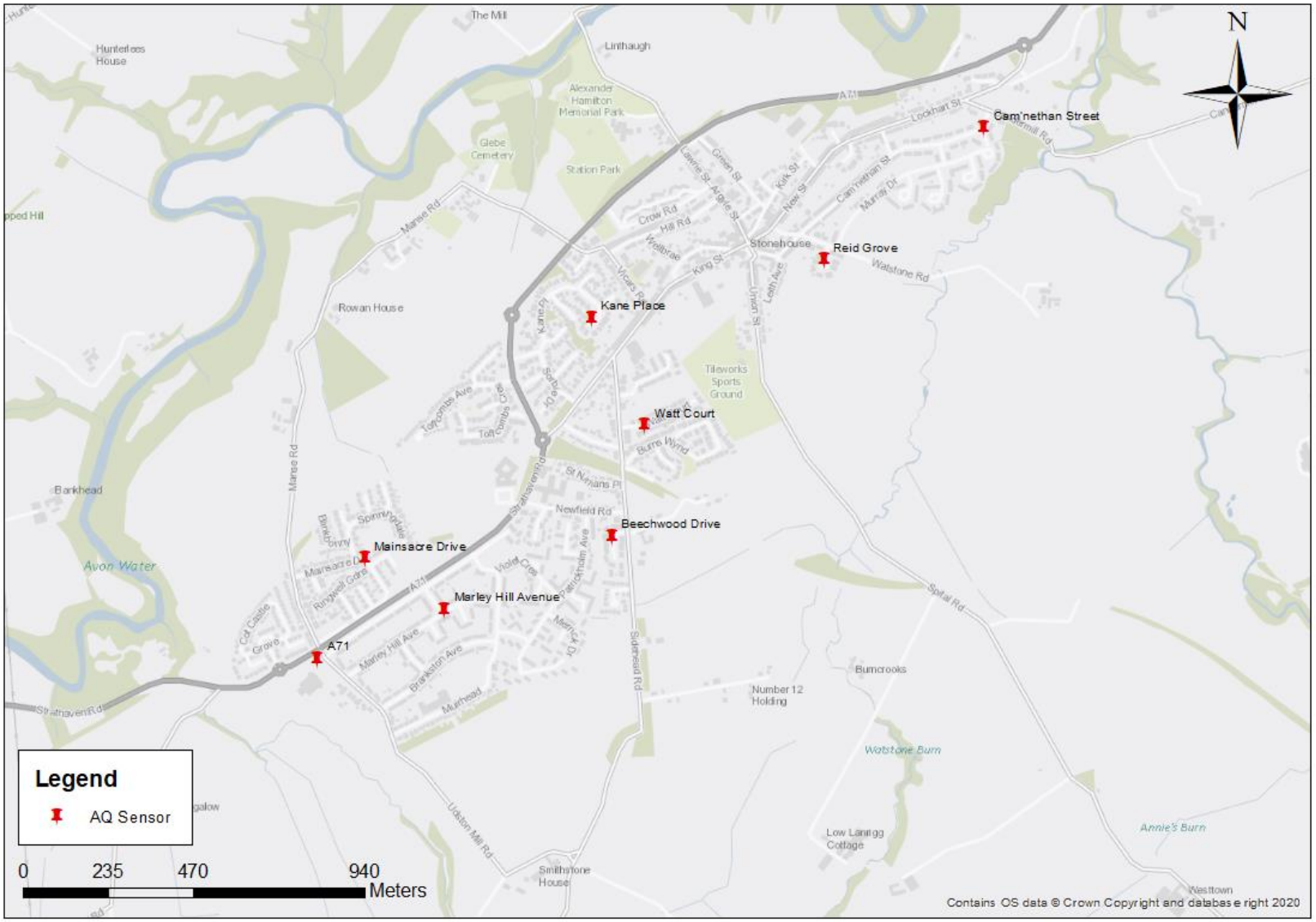
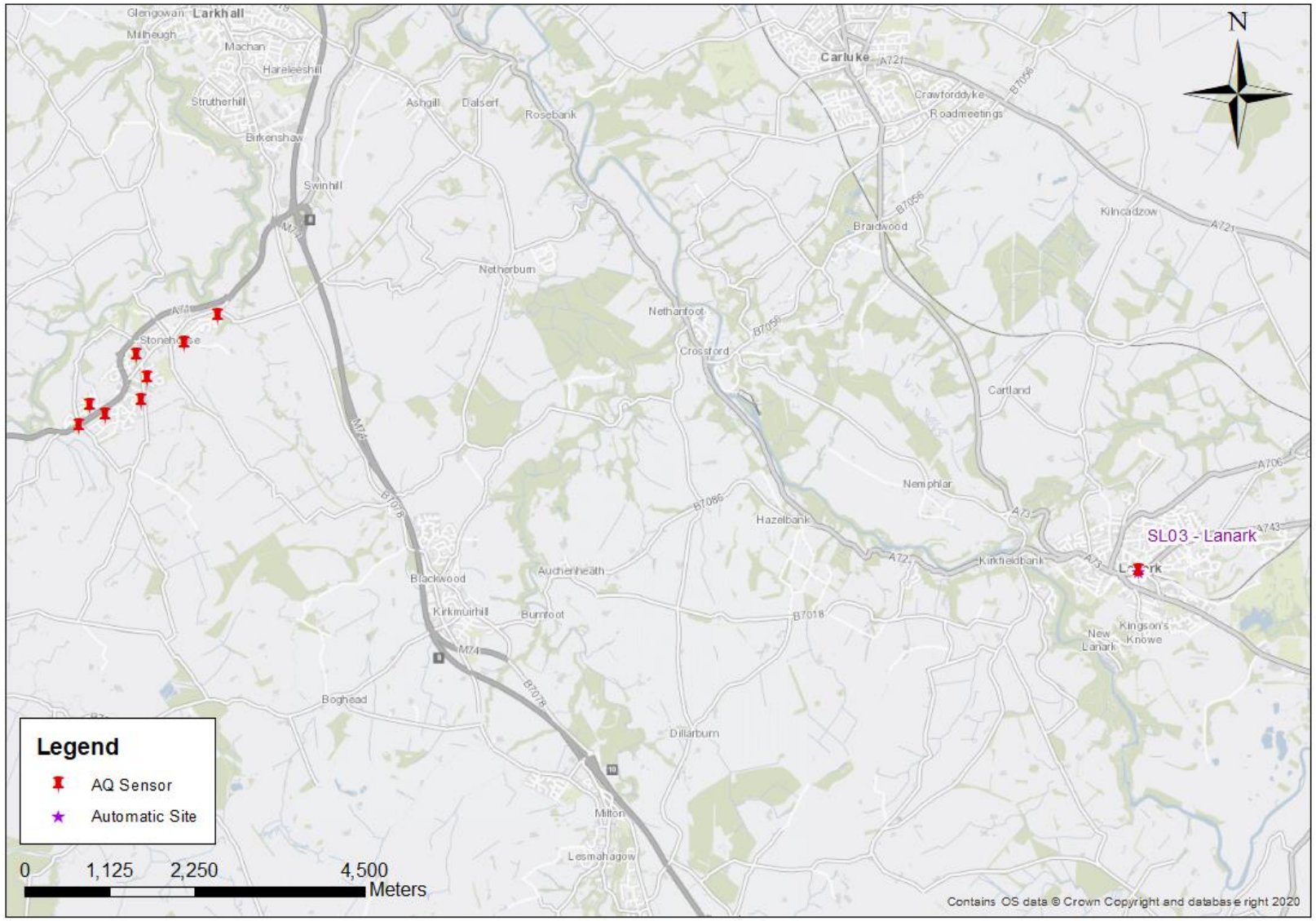


Figure D. 16 Hyper local sensor location map, Stonehouse and Lanark



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	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
DT	Diffusion Tube
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

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