Annual Progress Report (APR)

THE CITY OF EDINBURGH COUNCIL

2024 Air Quality Annual Progress Report (APR) for The City of Edinburgh Council

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

Local Air Quality Management

October 2024

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Executive Summary: Air Quality in Our Area

Air Quality in the City of Edinburgh

The City of Edinburgh Council currently has five Air Quality Management Areas (AQMAs):

- Central AQMA, declared for exceedances of the Nitrogen Dioxide (NO_2) annual mean objective (annual mean of 40 µg/m^3) and the 1-hour mean objective (200 µg/m^3 not to be exceeded more than 18 times per year)
- St John's Road AQMA, declared for exceedances of the NO_2 annual mean objective
- Great Junction Street AQMA, declared for exceedances of the NO_2 annual mean objective
- Glasgow Road AQMA, declared for exceedances of the NO_2 annual mean objective
- Salamander Street AQMA, declared for exceedances of both the PM_{10} (Particulate Matter) annual mean objective (18 µg/m^3) and the 24-hour mean objective (50 µg/m^3 not to be exceeded more than 7 times a year).

An AQMA is required when a pollutant fails to meet air quality standards which are set by the Scottish Government. Road traffic is by far the greatest contributor to elevated concentrations of NO_2 in the city; however, the AQMA at Salamander Street declared for PM_{10} exceedances is due to other sources as well as traffic. Emissions from industrial and fugitive sources from operations in and around Leith Docks are a contributory factor.

This report presents historic air quality monitoring data and new data from 2023.

Following an annual review, the Council monitored NO_2 concentrations at 142 locations in 2023. These were predominately passive diffusion tube sites, including four duplicate diffusion tube sites and five triplicate co-location sites at seven automatic monitoring stations.

Only one exceedance of the annual mean NO_2 objective of 40µg/m^3 was reported. This was at diffusion tube site 64 - Queensferry Road outside of any AQMAs, reporting an annual mean concentration of 42.2 µg/m^3. This site is not located at a site of relevant

exposure (as defined by the regulations) and therefore required a distance correction calculation. Following the NO_2 fall-off with distance calculation, the annual mean NO_2 concentration at relevant exposure is predicted to be 28.8 µg/m^3, which is below the objective.

No diffusion tube monitoring locations reported annual mean concentrations greater than 60µg/m^3, and none of the automatic monitoring stations recorded one-hour averages where concentrations exceeded 200 µg/m^3, therefore it is unlikely that there is a risk of any exceedances of the NO_2 1-hour objective during 2023.

NO_2 concentrations were similar to those in 2021 and 2022 and generally have remained lower than pre-COVID-19 pandemic years. Areas where annual mean concentrations increased from 2022 are largely surrounding junctions or areas of known congestion. This is to be expected with traffic levels returning following the easing of the pandemic restrictions, however, no exceedances have been reported as a result of this.

Whilst monitoring data from the immediate years following the COVID-19 pandemic should be taken with a degree of caution, the Council will consider reducing the boundary of the Central AQMA once the implications of the recently enforced (June 2024) Low Emission Zone (LEZ) are evident.

The Council will consider revoking the Great Junction Street AQMA once the impact of the new tram extension and the Leith Connections Low Traffic Neighbourhood (LTN) is known.

Within the St John's Road AQMA, over the past five years there have been no sites reporting an exceedance or likely exceedance of the hourly objective. As such, the AQMA was amended to revoke the designation for the NO_2 1-hour mean objective. The amendment came into force on 11th March 2024. The AQMA remains in place for the NO_2 annual mean objective and further consideration to revocation will be considered once the impact of any decisions on the Corstorphine Connections LTN are known.

NO_2 concentrations in the Glasgow Road AQMA decreased significantly in 2020 as a consequence of the traffic restrictions imposed during the COVID-19 pandemic. There have been no exceedances of the NO_2 annual mean objective since 2019. Plans are in place to install a Westbound bus lane from Ingliston to the Newbridge roundabout (within the AQMA) in spring 2027 as part of the West Edinburgh Transport Improvement Programme (WETIP). An outline business case was agreed in June 2024 and now a

package of public transport and active travel interventions are being designed to help provide early sustainable development in the area; support travel mode shift; and target improvement in air quality. Monitoring will continue and a decision on revocation will be made based on the final design and the findings of the air quality impact assessment.

Due to compliance with the objectives and the continued trend of decreasing NO_2 concentrations observed, the Inverleith Row AQMA has been revoked. The revocation order came into force on 11th March 2024.

Monitoring will continue in the previously declared Inverleith Row AQMA, in and around the other AQMAs and in strategic locations across the city as per the requirements of the Local Air Quality Management regime.

In general, there continues to be a decreasing trend of annual mean NO_2 concentrations, with concentrations lower than pre-pandemic levels and stabilizing in recent years. The general downward trend remains in line with the national trend of NO_2 pollution showing long-term improvement at urban background and roadside locations and is likely to be the result of lower traffic flows since the COVID-19 pandemic and a cleaner fleet. A detailed traffic survey in Edinburgh has been undertaken in association with the implementation of the Low Emission Zone. Analysis of this data is ongoing and will provide further insight into these factors as part of the Low Emission Zone monitoring and evaluation process.

There were no reported exceedances of the Scottish PM_{10} annual (18 µg/m^3) or daily mean objectives, or of the $PM_{2.5}$ annual mean objective (10 µg/m^3) during 2023.

Overall, long-term trends in both PM_{10} and $PM_{2.5}$ concentrations have remained relatively stable at some sites and show a decreasing trend at other sites, although this decreasing trend has begun to stabilize in recent years with only small or no decreases observed.

Although there continues to be no exceedances of the objectives in the Salamander Street AQMA, there was marginal compliance with the 24-hour objective in 2022. Monitoring will continue in the AQMA which was declared for exceedances of both the PM_{10} annual and 24-hour mean objectives. The AQMA will remain in place while there is a risk of exceedance of the objectives.

Actions to Improve Air Quality

The City of Edinburgh Council published an updated Air Quality Action Plan (AQAP) for Edinburgh (February 2024).

Actions are set out under eight key themes:

1. Low Emission Zone (LEZ)
2. Strategic Transport
3. Active Travel
4. Public Transport
5. Low Emission Vehicles
6. 2030 Climate Strategy
7. Integrated Policies and Guidance
8. Domestic Emissions.

The AQAP focuses on locations where exceedances or risk of exceedances of the NO_2 objectives are identified, but it also includes strategic measures which will ensure concentrations of pollutants are reduced across Edinburgh, even below current statutory objectives. This precautionary approach to public health is supported by the Cleaner Air for Scotland 2 Strategy (CAFS2) 2021 and assists in ensuring objectives continue to be met.

As a significant action within the AQAP, Edinburgh's Low Emission Zone became fully operational with enforcement commencing on 1st June 2024. This signalled a milestone in air pollution reduction in the city and shows the Council's commitment to delivering a greener and healthier city and supports the delivery of key targets, including becoming a net zero city by 2030.

Also, a significant recent milestone has been the opening of passenger services on the new tram route to Newhaven which commenced in June 2023.

Within the current reporting year, the Council was also able to progress action in other areas including working in schools to promote air quality, support partners with sensor projects, embed air quality in many new Council plans and strategies, and promote Clean Air Day, which focused on promoting sustainable travel.

In terms of improvements to the public transport and active travel offering in the City, progress included delivery of a new multi-operator Travel Tracker system for the bus

network, ongoing support for electric bus charging infrastructure to help decarbonise the fleet, completion of the City Centre West East active travel link (CCWEL) and agreement of the outline business case for the West Edinburgh Transport Improvement Programme (WETIP), to advance a package of improvements that will include changes in the Glasgow Road AQMA.

The ECO Stars fleet recognition scheme continued to be a success with eight new members (now totalling 349) and reaching over 12,000 fleet vehicles that regularly use the city's road network. The Council also successfully completed pilot studies into Whole House Retrofit (WHR) for retrofitting social housing across the city to the highest energy standards, to reduce energy demand and tackle fuel poverty.

Progress on the following measures has been slower than expected due to prioritising the implementation of the LEZ:

- Work with Transport Scotland and SEPA to look at opportunities to promote zero-carbon city centres within the existing LEZs governance structure. Progress against this action relies on a national approach led by Transport Scotland and SEPA
- Complete design work for improvements to St John's Road AQMA as part of A8 Corridor programme – programme to be confirmed.

In accordance with the requirements of relevant legislation and policy guidance (PG(S)(23)) the Council expects that all NO_2 AQMAs within Edinburgh will be revoked by the end of the AQAP period (2028) and where possible, within a shorter timeframe.

In terms of the Salamander Street AQAP for PM_{10}, work is underway to define actions that are required to continue to address improvements in the AQMA. This includes building on progress made since 2018 when a steering group was set up to enable collaborative working between the Council and key stakeholders, including SEPA, Scottish Government and the main landowner in the area, Forth Ports. As a part of this action planning work the following five key themes were considered by the group:

1. Air Quality Monitoring
2. Industrial
3. Non-permitted processes e.g. roads, street cleansing and normal port activities
4. Development Control
5. Information to the public

The Council has recently met with SEPA and Scottish Government to discuss the structure of the AQAP and potential actions in relation to the five themes. The Council has also re-engaged with key stakeholders including Forth Ports, the Council's Planning and Roads authorities, Regulatory Services and officers dealing with Climate Change and Adaptation as well as economic development, particularly in relation to the Forth Green Freeport status of the docklands.

The next step will be for the steering group to reconvene to consider draft actions in detail, prior to a statutory consultation of a Draft AQAP in Spring 2025.

With the feedback analysis from the consultation process, a final AQAP will be produced and presented to the Council's Transport and Environment Committee for approval before the end of 2025.

Local Priorities and Challenges

Continuing economic growth in the city and wider region presents a challenge for air quality. Population growth has inevitable demand for all modes of transport and supporting infrastructure. The new freeport status at the Port of Leith, established as part of the broader Forth Green Freeport, may also include changing transport and industrial patterns.

Edinburgh's proposed new Local Development Plan, City Plan 2030, sets out the strategy for proposals and policies to shape development and inform planning decisions in the city over the next years and beyond.

As the Council approaches the adoption of City Plan 2030, the Planning Service is at the early stages of the preparation of City Plan 2040 which will be the next local development plan. It will be prepared under new legislation and guidance. The current evidence gathering stage will include an Evidence Report and this will contain spatial information to support an understanding of places, their characteristics and needs including the principal physical and environmental characteristics. The Evidence Report will be informed, for example, by AQAPs and studies on transport infrastructure capacity, transport planning, energy developments, greenhouse gas emissions and climate risks.

In terms of local air quality management, the priority for the Council in 2024/25 will be to continued operation of the Low Emission Zone scheme, including:

- ongoing public and stakeholder communication to ensure maximum early compliance
- operation/maintenance of the enforcement system including cameras and warning infrastructure and back-office systems
- continued engagement with the Scottish Government, Transport Scotland and the Scottish Environmental Protection Agency (SEPA) to monitor and evaluate the LEZ, supported by regular reporting
- continue to update the LEZ City Model developed under the National Modelling Framework to reflect changes to the road network and fleet information from traffic surveys.

The Council will also prioritise the development of the Salamander Street AQAP following on from the meeting with SEPA and the Scottish Government to discuss the themes and potential actions. A steering group will now be reconvened to consider actions in detail, prior to a public consultation of a Draft AQAP in Spring 2025. With the feedback analysis from the consultation process, a final AQAP will be produced and presented to the Council's Transport and Environment Committee for approval before the end of 2025.

The Council also expects the following measures to be completed over the course of the next reporting year:

- Detailed design stage to be completed for the new traffic management scheme in Glasgow Road AQMA. An outline business case has been agreed.
- Update Edinburgh Design Guidance to incorporate a greater provision of electric vehicle infrastructure in new developments. The updated Edinburgh Design Guidance, if approved at Planning Committee in November 2024, will go through public consultation during the first quarter of 2025 prior to returning to Planning Committee for approval.
- To discourage the uptake and use of biomass in commercial settings City Plan 2030 states that heat generations from biomass is not supported. At the time of writing, City Plan 2030 is going through the final stages of adoption. As a significant policy intervention City Plan also supports the transition to low and zero carbon technologies.

- Vehicle engine idling public awareness is to be a focus of Clean Air Day 2025.
- Consultation to begin on the strategic business case for tram expansion from Granton to the Royal Infirmary of Edinburgh and the Bioquarter and beyond.
- General activity in respect to annual actions - Clean Air Day, encouraging air quality education in schools, supporting sensors projects, assessment of traffic management schemes and public transport improvements - will also continue.
- Implement new PM_{10} monitoring adjacent to the Salamander Street AQMA, considering the extensive building of new residential properties (relevant exposure) in the area.

How to Get Involved

Further information on air quality in the City of Edinburgh can be found on the Air Quality in Scotland website. This provides information and data on air quality in Edinburgh and throughout Scotland and includes ways you can help improve air quality: http://www.scottishairquality.scot/what-can-i-do/

Individual decisions can make a big difference to improving air quality for example, rethinking your journey to lower your pollution footprint. Quiet Routes are Edinburgh's walking and cycling routes, which avoid the busy main roads. The link below directs you to the route maps:
http://www.edinburgh.gov.uk/info/20087/cycling_and_walking/1475/explore_quietroutes

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1 Local Air Quality Management

This report provides an overview of air quality in the City of Edinburgh Council area 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 the air quality objectives are likely to be achieved. Where there is an exceedance, or 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 the 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 the 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 AQAP itself should have a timescale for completion and for revocation of the AQMA. Where actions 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 the City of Edinburgh Council can be found in Table 2.1 . Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://www.edinburgh.gov.uk/pollution/local-air-quality-management/1.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town	Description	Action Plan
Central AQMA	NO_2 annual mean NO_2 1-hour mean (amended March 2009)	Edinburgh City Centre	City centre and main arterial routes. Extensions in: March 2009 to include West Port; April 2013 to include Gorgie Road, Chesser, Grassmarket, Cowgate and London Road, Easter Road; and September 2015 to include Angle Park Terrace and Clerk Street, Nicolson Street areas. Exceedances mostly in locations where there are street canyons, high percentage of bus movements and congested traffic. Residential properties at basement, ground, first, second, third, and	Air Quality Action Plan (Updated 2024)

AQMA Name	Pollutants and Air Quality Objectives	City / Town	Description	Action Plan
			fourth level, 2–4 metres from road edge. Busy shopping areas included as well as upwards road gradient at Leith Walk, North Bridge and West Port.	
St John's Road AQMA	NO_2 annual mean	Corstorphine, Edinburgh	Part of the A8 route at Corstorphine area. Residential properties at ground, first, second, third and fourth floor level within 2m of kerb edge. Street canyon effect in part. Busy shopping area. Congested flat road with high percentage of bus movements.	As above
Great Junction Street AQMA	NO_2 annual mean	Leith, Edinburgh	The full length of road to the depth of the building facades, including the Ferry Road Junction area. Residential properties at first, second, third and fourth floor level. Street canyon, congested traffic and busy shopping area. Receptors close to road edge. High percentage of bus movements. Extended April 2013 to include Bernard Street, Commercial Street and North Junction Street.	As above
Glasgow Road AQMA	NO_2 annual mean	West Edinburgh	Part length of A8, between Newbridge Roundabout and Ratho Station, to the depth of the building facades.	As above
Salamander Street AQMA	PM_{10} annual mean 24-hr mean	Leith, Edinburgh	A section of the A199 including Salamander Street, Baltic Street, Bernard Street, part of Seafield Road; an area to the north-east as far as the East Sands of Leith and south of Baltic Street, extending to Queen Charlotte Street and Links Place	Action Plan currently under development

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 the City of Edinburgh 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.

The Council will provide further updates on this CAFS action following any discussions with the Scottish Government throughout the life span of the CAFS2 strategy. Nonetheless, below are a number of plans and strategies that have embedded air quality issues in their development in 2023/24.

The Council's Business Plan: Our Future Council, Our Future City was agreed by Council in March 2023 and sets out the long-term strategic priorities and outcomes. The three main priorities are:

- Create good places to live and work
- End poverty in Edinburgh
- Become a net zero city.

The first Business Plan Progress Update report provided information on progress between April 2023 and March 2024. The number of Air Quality Management Areas is a strategic measure to track to monitor impact of the Plan.

The council's local transport strategy - the City Mobility Plan - was reviewed during 2023 and updated in February 2024 and the associated Implementation Plan expanded to include measures from the active travel, public transport, parking, road safety and air quality action planning work. This is to enable a fully integrated approach to citywide mobility planning and place-based investment.

The Future Streets Framework, which included a Circulation Plan for moving around Edinburgh was also agreed in February 2024. The framework establishes a consistent and robust approach to the allocation of space across the network to allow a more efficient and co-ordinated design process, contributing to the city's wider policy objectives, which include improved outcomes for health and the environment, increasing physical activity and reducing the air quality and carbon emission impacts associated with vehicle traffic.

The outline business case for the West Edinburgh Transport Improvement Programme (WETIP) agreed in June 2024 will advance an essential package public transport and active travel interventions to help provide early sustainable development; support mode shift; and target improvement in air quality. Furthermore, the interventions will also provide long-term resilience and will support strong connectivity between neighbouring authorities, particularly by improving public transport journey times between West Lothian and Edinburgh. This will increase the supply of labour to help meet the demand required to deliver the full economic potential of West Edinburgh.

The Scottish Government's National Planning Framework (NPF4) also established a vision for West Edinburgh identifying it as a significant location for investment. Notable national economic interests include Edinburgh International Airport; The Royal Highland Centre; and Edinburgh International Business Gateway. Delivery of the ambitious vision requires investment in a strategic package of transportation improvements; these improvements are being delivered through WETIP.

The Council's new local development plan, City Plan 2030, is currently in the final stages of adoption. City Plan 2030 seeks to improve air quality and reduce emissions by promoting a brownfield approach (for new development), 20-minute neighbourhoods, a modal shift away from private car travel and supporting zero carbon energy schemes. This includes guiding new development to locations already close to local amenities that future occupiers and users of the developments can walk and cycle to. Some new developments will also be required to provide new local amenities to reduce private car travel.

Furthermore, City Plan 2030 contains many proposals for new and enhanced active travel and public transport routes to serve new and existing development, including a safeguard for future tram lines.

City Plan 2030 establishes the principle of maximum parking limits for new developments as well as the need for these new developments to incorporate measures to promote active travel and shared mobility to reduce car ownership. The Plan also includes a policy that does not support new off-street car parking within the city centre and the Low Emission Zone.

Development of energy schemes are to be supported if they do not cause significant harm to the local environment and where a connection to an existing or future network is not possible then all development must instead employ a heat network with no adverse impact on air quality. Heat generation from biomass is not supported given adverse impacts on air quality. As a significant policy intervention City Plan also supports the transition to low and zero carbon technologies.

The need to improve air quality is also set out clearly in the City's Climate Strategy, where reducing emissions and adapting the city to be resilient to climate change is a focus. Health, local air quality management and a just transition were key factors in determining the final list of strategic actions, which are about more than reducing greenhouse gas emissions. By bringing together the wider range of City priorities, the strategy is also about creating a city which is cleaner, healthier and greener, with natural habitats helping wildlife to thrive and helping to protect the city from flooding and other climate change impacts, and where:

- People live in neighbourhoods with easy access to greenspaces and local services reducing the need to travel
- Homes are well-insulated, energy efficient and heated and powered by low-cost, renewable energy
- More people work from home or in local hubs more of the time
- The city has a network of safe and attractive active travel routes, and an integrated world class sustainable public transport system, which is affordable for everyone
- Most citizens find they no longer need a car, and a network of car clubs and electric vehicle charging hubs is available to support those who do

- The city centre is re-imagined as a place for people walking, cycling and wheeling, with excellent public transport accessibility and with the needs of the most vulnerable fully catered for
- Edinburgh is a hub for net zero innovation, with a new breed of sustainable local businesses creating local jobs and skills development opportunities.

A single citywide partnership plan has also now been developed to show how the Council and partners can adapt to climate change. It is called the Climate Ready Edinburgh Plan 2024-2030. Increase awareness of and measures to deal with the environmental health impacts of climate change are included. There is agreement to work with partners to develop a fuller understanding of the potential impacts of climate change on air quality, by exploring opportunities to raise awareness and communicate the interconnections between the two. There are also links to the City Mobility Plan and appreciation of vulnerability with higher temperatures in relation to increase pollen levels, ground level ozone and risk of wildfires, all with potential to impact on air quality and people's health.

2.2.2 Transport – Low Emission Zones

The other CAFS Action that requires local authorities to report on is that related to Low Emission Zone development work. The action states that local authorities, working with Transport Scotland and SEPA, will look at opportunities to promote zero-carbon city centres within the existing LEZs governance structure. The Council has therefore agreed to meet with partners to consider the potential opportunities. Further updates will be provided in future reports.

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

To ensure 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.

The Council approved a revised Air Quality Action Plan (AQAP) for Edinburgh in February 2024. A copy is published here: Air Quality Action Plan 2024.

The AQAP was produced following a period of statutory consultation in Spring/Summer 2023. It takes account of actions in the previous AQAP as well as relevant national,

regional, and local policies, plans and programmes which have the potential to impact air quality in Edinburgh.

The AQAP focuses on locations where there are risks of exceedances of the NO_2 objectives, but also identifies strategic measures which will ensure concentrations of pollutants are reduced across Edinburgh, especially $PM_{2.5}$. This approach is supported by that set out in the Cleaner Air for Scotland 2 strategy (2021), which provides national policy support for a precautionary public health approach to air pollution, and which will assist in ensuring objectives continue to be met.

The AQAP complements the substantial amount of work which has been undertaken in relation to the Low Emission Zone (LEZ) scheme development and implementation. The Cleaner Air for Scotland strategy introduced the National Low Emission Framework (NLEF) in 2019 to provide a methodology for local authorities to undertake assessments in relation to transport related actions to improve air quality, where transport is identified as the key contributor to local air quality problems. It was designed to support and build on the work already being done through LAQM regime and on completion of screening assessments (a component of the 2017/18 Programme for Government commitment) it was determined that Edinburgh and the three other biggest cities in Scotland would introduce LEZs.

In May 2021, the regulations to give Scottish local authorities detailed powers under the Transport (Scotland) Act 2019 to create and enforce LEZs became law. Further guidance stipulated and supported the use of the National Modelling Framework (NMF) to assess and develop the LEZs in pursuit of meeting the objectives and reducing climate change emissions.

The AQAP actions were developed under eight broad themes:

1. Low Emission Zone (LEZ)
2. Strategic Transport
3. Behavioural Change to Active Travel
4. Public Transport
5. Low Emission Vehicles
6. 2030 Climate Strategy
7. Integrated Policies and Guidance
8. Domestic Solid Fuel Burning.

The Council has taken forward several measures within the AQAP during the current reporting year in pursuit of improving local air quality, meeting the air quality objectives within the shortest possible time and maintaining compliance with the objectives. 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 AQAP.

Key completed measures for this reporting year are:

- Implementation of the LEZ, which should reduce concentrations of nitrogen dioxide in central Edinburgh to a level which achieves the air quality objectives and Limit Values at most locations. Priority has been given to the LEZ and its communication campaign as the significant measure in the new AQAP, to ensure full operation including enforcement of the scheme on 1st June 2024. This signalled a milestone in air pollution reduction in the city and shows the Council's commitment to delivering a greener and healthier city and supports the delivery of key targets, including becoming a net zero city by 2030.
- Opening of passenger services on the new tram route to Newhaven commenced in June 2023.

Photo 1. Low Emission Zone began enforcement on 1st June 2024

From left to right: Chair of Healthy Air Scotland Gareth Brown; Transport and Environment Convener Councillor Scott Arthur; Cabinet Secretary for Transport Fiona Hyslop; Council Leader Cammy Day; Consultant in Public Health at NHS Lothian, Flora Ogilvie

Other completed measures for this reporting year are:

- Plans developed and implemented for Placemaking and climate change were closely co-ordinated and aligned with those for air quality to maximise co-benefits
- Clean Air Day engagement focused on promoting sustainable transport

- Schools participated in a Data Innovation Programme with University of Edinburgh - Earth Monitoring SeNSES (Sensor Network for South-East Scotland) - to monitor air quality
- Several air quality sensor projects have been supported by providing city infrastructure for SEPA and the University of Edinburgh research projects
- New multi-operator Travel Tracker system delivered for the bus network
- Ongoing support for electric bus charging infrastructure to help decarbonise the fleet
- Outline business case for the West Edinburgh Transport Improvement Programme (WETIP) agreed in June 2024 to advance a package of public transport and active travel interventions to help early sustainable development, support mode shift and target air quality improvements in the Glasgow Road AQMA
- Increase the number of members of the ECO Stars fleet recognition scheme by eight. Total membership is 349 and now includes over 12,030 fleet vehicles, which regularly operate on the city's road network
- Pilot studies completed for the Whole House Retrofit (WHR) for retrofitting social housing across the city to the highest energy standards, to reduce energy demand and tackle fuel poverty.

Progress on the following measures has been slower than expected due to prioritising the implementation of the LEZ, the fact the AQAP has only been in place since January 2024:

- Work with Transport Scotland and SEPA to look at opportunities to promote zero-carbon city centres within the existing LEZs governance structure. Progress against this action relies on a national approach led by Transport Scotland and SEPA.
- Complete design work for improvements to St John's Road AQMA as part of A8 Corridor programme – programme to be confirmed.

The Council expects the following measures to be completed over the course of the next APR reporting year:

- Continued operation of the Low Emission Zone scheme, including:
    - ongoing public and stakeholder communication to ensure maximum early compliance
    - operation/maintenance of the enforcement system including cameras and warning infrastructure and back-office systems

  - continued engagement with the Scottish Government, Transport Scotland and the Scottish Environmental Protection Agency (SEPA) to monitor and evaluate the LEZ, supported by regular reporting
  - continue to update the LEZ City Model developed under the National Modelling Framework to reflect changes to the road network and fleet information from traffic surveys.

- Detailed design stage to be completed for the new traffic management scheme in Glasgow Road AQMA – an outline business case has been agreed.
- Update Edinburgh Planning Guidance to incorporate a great provision of electric vehicle infrastructure in new developments. The updated Edinburgh Design Guidance, if approved at Planning Committee in November 2024, will go through public consultation during the first quarter of 2025 prior to returning to Planning Committee for approval.
- To discourage the uptake and use of biomass in commercial settings the City Plan 2030 states that heat generations from biomass is not supported. The Plan is going through the final stages of adoption. As a significant policy intervention City Plan also supports the transition to low and zero carbon technologies.
- Vehicle engine idling public awareness is to be a focus of Clean Air Day 2025.
- Consultation to begin on the strategic business case for new tram lines, taking the trams from Granton to the Royal Infirmary of Edinburgh and the Bioquarter and beyond.
- General activity in respect to annual measures - Clean Air Day, encouraging air quality education in schools, supporting sensors projects, assessment of traffic management schemes and public transport improvements - will also continue.

There are several air quality policy areas that are outside of the direct control of the Council, such as vehicle emissions standards. The Council will therefore continue to work with regional and central government and key stakeholders on policies and issues beyond the Council's direct influence, particularly where local evidence can be provided to support and influence change.

In accordance with the requirements of the relevant legislation and policy guidance (PG(S)(23)) the City of Edinburgh Council expects that all NO_2 AQMAs within Edinburgh will be revoked by the end of the AQAP period (2028) and where possible, within a shorter timeframe.

Actions within the Salamander Street Air Quality Management Area

Separately, further work is underway in respect to the actions that are required to address PM_{10} within the Salamander Street Air Quality Management Area. Emissions from industrial and fugitive sources from operations in and around Leith Docks are a contributory factor, as well as traffic.

A steering group was set up in 2018 to allow for collaborative working with external bodies, SEPA, Scottish Government and the main landowner in the area, Forth Ports, as well as relevant Council disciplines - Placemaking and Mobility, Planning, Regulatory Services and Operational Services (road network management, enforcement and neighbourhood environmental services). The following five key themes were considered by the group:

- Air Quality Monitoring
- Industrial
- Non-permitted processes e.g. roads, street cleansing and normal port activities
- Development Control
- Information to the public

The Council has recently met with SEPA and Scottish Government to discuss the structure of the AQAP and potential actions in relation to the five themes. The Council has also re-engaged with key stakeholders including Forth Ports, the Council's Planning and Roads authorities, Regulatory Services and officers dealing with Climate Change and Adaptation as well as economic development, particularly in relation to the Forth Green Freeport status of the docklands.

The next step will be for the steering group to reconvene to consider draft actions in detail, prior to a public consultation of a Draft AQAP in Spring 2025.

With the feedback analysis from the consultation process, a final AQAP will be produced and presented to the Council's Transport and Environment Committee for approval before the end of 2025.

Table 2.2 – Progress on Actions to Improve Air Quality

Action No.	Action	Category and Classification	Completion Year	Measure Status	Funding Status	Key Milestone	Progress	Barriers to implementation
1.1	Implement the LEZ and key actions such as the road network mitigation, signage, enforcement system, communication plan and further development of the LEZ through continued working with Scottish Government to monitor and evaluate performance and maintain the City NMF model	Promoting Low Emission Transport – Low Emission Zone	2025	Partially completed	Partially funded	Initial implementation on 31st May 2022 Enforcement begins 1st June 2024	LEZ fully operational from 1st June 2024	Continued support from SEPA will be necessary to assist with the monitoring and evaluation of the scheme through the National Modelling Framework (NMF)
1.2	Work with Transport Scotland and SEPA to look at opportunities to promote zero-carbon city centres within the existing LEZs governance structure	Promoting Low Emission Transport – Low Emission Zone	Ongoing	Planned	Funded (staff time)	Initial meeting 2024	Initial meeting to be held 2024	Priority given to the implementation of the LEZ
2.1	In the context of a strategic approach to traffic management that seeks to reduce motorised traffic and	Traffic Management – Strategic Highway Improvements	Applicable to each scheme	In progress	Applicable to each scheme	Applicable to each individual scheme	Strategic Active Travel projects: **CCWEL** (City Centre West East Link). Mesh communications	

Action No.	Action	Category and Classification	Completion Year	Measure Status	Funding Status	Key Milestone	Progress	Barriers to implementation
	encourage public transport and active travel, seek to ensure that traffic management projects achieve positive impacts on air quality especially in locations in breach of, or at risk of breaching, air quality objectives, and include mitigations for negative impacts						system being installed to improve traffic management operations and control idling vehicles within street canyon. Plan to link junction to crossings, to make efficient use of the traffic signal timings, responsive to traffic flows and connected to the Urban Traffic Control system **The Roseburn to Union Canal Link** crosses the Central AQMA. Although it is difficult to measure modal shift it is accepted that by promoting alternative sustainable travel there will be a reduction in car vehicle use, which would have a positive impact on air quality	

Action No.	Action	Category and Classification	Completion Year	Measure Status	Funding Status	Key Milestone	Progress	Barriers to implementation
							Traffic management projects related to actions specific to other AQMAs are mentioned in 2.2 and 2.3 below	
2.2	Complete design work for improvements at St John's Road / Drumbrae Junction as part of the Circulation Plan's A8 Corridor programme and implement improvements	Traffic Management – Strategic Highway Improvements	As per agreed delivery programme	Preliminary design and traffic modelling undertaken	Unfunded	Detailed design work completed	CMP Capital Investment Plan to be presented to Committee in December 2024 and will focus on aligning resource and funding towards deliver programme for key projects including A8 corridor	
2.3	Ensure that any new traffic management schemes within the Glasgow Road AQMA achieve improvements in local air quality and reduce exposure to pollutants	Traffic Management – Strategic Highway Improvements	2028	Scheme currently under consideration	Partially Funded	Agree Outline Business Case 2024 Nov 2025 Detail design to take account of air quality impact 2026 Final Business Case	Outline business case agreed in June 2024 as part of the West Edinburgh Transport Improvement Programme (WETIP)	

Action No.	Action	Category and Classification	Completion Year	Measure Status	Funding Status	Key Milestone	Progress	Barriers to implementation
3.1	Engage in Clean Air Day on an annual basis	Promoting Travel Alternatives/ Public Information	Annual	In progress	Unfunded	Consider sister campaign Clean Air Night 2024	People and Place active travel behaviour change funding used to undertake promotional social media campaign to promote the *Places We Can All Go* active travel routes. There was a huge increase in numbers of people viewing the Council's active travel web pages following the campaign which ran from 13 Jun - 27 Jun: • 90 views - 29 May to 12 June • 14,319 views - 13 June to 27 June Other statistics include: delivered impressions 637,000 with 12,000 click throughs and 1,000 post reactions	End of June date for national campaign classes with end of Scottish school year National campaigns promotional material required in advance
3.2	Work with Council education officers and schools, to increase air quality awareness &	Promoting Travel Alternatives/	Annual	In progress	Unfunded	Work with schools on LEZ boundary	Schools are participating in the Data Innovation Programme with	

Action No.	Action	Category and Classification	Completion Year	Measure Status	Funding Status	Key Milestone	Progress	Barriers to implementation
	make improvements across the school community	Public Information					University of Edinburgh - Earth Monitoring SeNSES (Sensor Network for South-East Scotland) to monitor air quality	
3.3	Support citizen science and sensor projects looking at air quality to encourage behaviour change towards sustainable travel modes	Promoting Travel Alternatives	Annual	Planned	Applicable to each scheme	Ad-hoc projects	Working with SEPA & University of Edinburgh to research sensor technology by facilitating monitoring capability at St John's Road monitoring station and street furniture/infrastructure	
4.1	Support improvements to public transport, including enhancing and expanding the bus / mass transit network, bus priority measures, regional interchanges and flexible and smart ticketing, as set out in the CMP Implementation Plan	Promoting Travel Alternatives	Ongoing	In progress	Funding secured to enable significant progress	Review of committed actions in CMP Implementation Plan	Passenger services on the new tram route to Newhaven commenced in June 2023 Consultation to begin on the strategic business case for further tram lines New multi-operator Travel Tracker system delivered for bus network	

Action No.	Action	Category and Classification	Completion Year	Measure Status	Funding Status	Key Milestone	Progress	Barriers to implementation
							Bus stop & shelter Replacement Programme being delivered Outline business case for WETIP agreed in June 2024 to advance package of public transport and active travel interventions to help early sustainable development, support mode shift and target air quality improvements	
4.2	Support projects to decarbonise the Edinburgh bus fleet	Promoting Low Emission Transport	Annual	In progress	Partially funded	Review of EV charging infrastructure and available technologies	Development of electric bus vehicle charging at Lothian Buses (LB) Central depot LB and partner Kleanbus announced a pilot project to repower and upcycle 18 existing open-top mid-life diesel buses to electric September 2024 the first of 50 new Volvo BZL Electric double	Funding

Action No.	Action	Category and Classification	Completion Year	Measure Status	Funding Status	Key Milestone	Progress	Barriers to implementation
							deck buses entered operation for LB	
5.1	Continue the ECO Stars fleet recognition scheme	Vehicle Fleet Efficiency – Fleet Efficiency and Recognition Schemes	Annual	In Progress	Part funded	Annual renewal of scheme	Increase in number of operators by 8. Total membership is 349 and fleet size is 12,030 which regularly operate on the city's road network	
5.2	Update Edinburgh Planning Guidance to incorporate a greater provision of electric vehicle (EV) infrastructure in new developments	Promoting Low Emission Transport-Priority Parking for LEVs	2024	Planning phase	Funded (staff time)	Publication of updated Guidance	Draft Edinburgh Design Guidance includes new policy on parking provision; where parking is offered, provision should be made for 100% electric vehicle charging infrastructure. To be consulted upon 2025	
6.1	Discourage the uptake and use of biomass in commercial settings through Planning Policy to ensure no negative impacts on local air quality and to support the transition to low carbon technologies	Promoting Low Emission Plant - Other Policy	2025	In progress	Funded (staff time)	Publication of updated Guidance	City Plan 2030 to be adopted in Nov 2024 states heat generation from biomass is not supported given adverse impacts on air quality. As a significant policy intervention, it also supports the	

Action No.	Action	Category and Classification	Completion Year	Measure Status	Funding Status	Key Milestone	Progress	Barriers to implementation
							transition to low and zero carbon technologies	
7.1	Use UK APAS (Air Pollution Assessment Service) to investigate the impacts of City Plan development on air quality in the long term	Transport Planning and Infrastructure - Other	2028	In progress	Funded (staff time)	Final development of the model at end of 2024	Not applicable (Completion year 2028) Consortium meeting in 2024 to continue to develop the model	
7.2	Lobby Scottish Government for an update of licensing laws to tackle concerns such as patio gas heaters and external solid fuel burning in licensed premises and use of petrol / diesel generators in street trading	Promoting Low Emission Plant – Other Policy	2028	Planned	Funded (staff time)	Update in licensing laws	Not applicable (Completion year 2028)	
7.3	Continue to enforce against vehicle idling and expand awareness raising campaigns, including commercial fleet representatives at Events Planning and Oversight Group (EPOG)	Traffic Management – Anti-Idling Enforcement	Ongoing	In progress	Funded (staff time)	Enforcement mechanism already in place.	Working practice established to raise awareness at EPOGs Attended Scottish Government workshop on engine idling Oct 2024	

Action No.	Action	Category and Classification	Completion Year	Measure Status	Funding Status	Key Milestone	Progress	Barriers to implementation
	and consider the Council's own vehicle telematics data						Engine idling theme to be focus for CAD 2025	
7.4	Ensure Placemaking strategies and guidance including Place Briefs take account of air quality	Policy Guidance – Development Control	2024	In progress	Funded (staff time)	Review of Edinburgh Design Guidance (EDG)	Plans updated in 2023/24 (See also section 2.2.1 of report): • City Mobility Plan • Future Streets Framework • WETIP • City Plan 2030 • Climate Ready Edinburgh Plan • EDG under review	
8.1	Local information campaigns to support the national (CAFS) message, e.g., communications from the Council in winter on energy needs to work in partnership with air quality messaging	Public Information	2028	Planning phase	Unfunded	Scottish Government CAFS Public Engagement Framework published	A public communications campaign is ongoing in respect to the LEZ operation	
8.2	8.2 Work with Scottish Government to review the Clean Air Act and encourage abolition of	Promoting Low Emission Plant – Other Policy	2024	In progress	Funded (staff time)	Respond to formal Scottish	July 2024 participated in Cean Air Act review	Scottish Government to undertake further work to look at how

Action No.	Action	Category and Classification	Completion Year	Measure Status	Funding Status	Key Milestone	Progress	Barriers to implementation
	permitted development rights (PDRs) for flues for woodburning stoves and biomass boilers					Government consultation	workshop with Scottish Government March 2024 Scottish Government review concluded PRD for flues for certain domestic heating should not be abolished	limitations could be geographically targeted to address issue of nuisance and air quality
8.3	Review complaints and gather information on solid fuel burning to see whether there are any 'hotspot' areas within the city to inform any targeted intervention	Promoting Low Emission Plant – Other Policy	2026	Planning phase	Unfunded	Delivery of a completed study	Not applicable (Completion year 2026)	Funding required
8.4	Develop a Whole House Retrofit (WHR) delivery programme for retrofitting social housing across the city to the highest energy standards, to reduce energy demand and tackle fuel poverty	Promoting Low Emission Plant – Other Policy	Full completion of the works beyond 2030	In Progress	Funded	Pilots complete 2024/25	Pilots completed and lessons learned being incorporated into detailed projects	

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

The City of Edinburgh Council undertook automatic (continuous) monitoring at nine sites during 2023. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available on the Scottish Air Quality website.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

The Glasgow Road air quality monitoring station decommissioning was completed at the end of 2023. NO_2 and PM_{10} concentrations had been recorded below the objective since its installation in 2013. Only PM monitoring was performed at this site during 2023, as the NO_x analyser had been relocated to Gorgie Road in September 2022 as a replacement.

As part of rationalisation plans, this decommissioning allowed for a new site to be established on the LEZ boundary at Drumsheugh Place. Funding was obtained from the Scottish Government LAQM grant to provide a new NOx analyser (T200) and housing unit. Monitoring of both NO_2 and PM commenced in February 2024; however, due to issues with a calibration gas shortage in the UK and the commissioning audit, NO_2 data was not produced until July 2024. The 2025 Annual Progress Report will analyse the data sets in full.

Scottish Government grant funding has also been approved to set up PM monitoring at new sensitive receptors (housing) near the Salamander Street AQMA. Survey work has commenced to find a suitable location and consideration will be given to a further rationalisation of the monitoring network to establish the new site.

All monitoring stations reported an NO_2 data capture greater than 75% for 2023. Data capture for PM_{10} and $PM_{2.5}$ were greater than 75% for all monitoring locations.

St Leonard's monitoring station reported both an ozone and SO_2 data capture of greater than 75% in 2023.

3.1.2 Non-Automatic Monitoring Sites

The City of Edinburgh Council undertook non-automatic (passive) monitoring of NO_2 at 135 sites during 2023. Table A.2 in Appendix A shows the details of the sites.

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

During 2023, 29 monitoring sites were decommissioned and one new monitoring site was deployed outside St Mary's RC Primary School on East London Street. This is part of the Council's continual review and assessment of the network, while also taking account of the National Modelling Framework (NMF) by the Scottish Environment Protection Agency (SEPA). A summary of these sites is presented in Table 3.1 below.

Table 3.1 - Newly Commissioned/Decommissioned Diffusion Tube Sites in 2023

Site ID	Site ID	Removed / New
129B	Queensferry Road/Ramsay Grange	Removed
SJ1	St John's Road/Kaimes Road	Removed
14	Trinity Crescent	Removed
76	Angle Park Terrace/Harrison Road	Removed
79	Fountainbridge/Tollcross	Removed
18	Gorgie Road 8	Removed
76d	Henderson Terrace	Removed
11a	Lanark Road 425	Removed
77a	Slateford Road 51	Removed
43	Broughton Road	Removed
21	Leith Walk/Brunswick Road	Removed
66	London Road/Cadzow Place	Removed
9c	North Junction St nr 4	Removed
73d	Portobello Rd facade Ramsay Inst	Removed
51b	Salamander Street 29b	Removed
48	Cowgate/Guthrie Street	Removed
125	East Preston Street 3A	Removed

Site ID	Site ID	Removed / New
10A	George IV Bridge	Removed
17a	Hope Park Terrace/VS	Removed
92	Lord Russell Place 3-5	Removed
8	Morningside Road	Removed
33B	Queen Street No66	Removed
142	South Clerk Street 41a	Removed
10c	Teviot Place 14	Removed
127	West Preston Street 17	Removed
121	Inverleith Gardens 2	Removed
122	Inverleith Gardens 9	Removed
55c	Inverleith Row/Café Montague	Removed
CL10,11,12	Glasgow Road AQMS	Removed
20a	East London Street	New

3.1.3 Other Monitoring Activities

As part of the Corstorphine Connections Low Traffic Neighbourhood (LTN) air quality monitoring has been undertaken both before implementation (May 2023) of the LTN and afterwards, from June 2023 to June 2024. NO_2 concentrations have been measured using passive diffusion tubes at 25 sites throughout the LTN to determine whether implementation has had any effect on air quality. This has also been accompanied by traffic surveys. Details on the Corstorphine Connections project and interim reporting can be found at: https://www.edinburgh.gov.uk/cycling-walking-projects-1/corstorphine-connections

The Leith Connections LTN was implemented in April 2023 and, similarly, air quality monitoring of NO_2 at 27 sites has been undertaken pre and post-implementation, accompanied by traffic surveys. Details on the Leith Connections project and interim reporting can be found at: https://www.edinburgh.gov.uk/cycling-walking-projects-1/leith-connections

Smart Cities

As part of Edinburgh's Smart City programme, the council have introduced a digital Urban Traffic Management & Control System (UTMC). The eventual aim of the system is to continually receive data from a range of sources, such as journey time, traffic flow and air quality to inform traffic signal timings and improve traffic flow. In this regard, Zephyr® air quality sensors have been installed at ten locations in the city which provide indicative

measurements of NO_2. Testing is currently being undertaken and any relevant findings will be reported in future APRs where appropriate.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are adjusted for annualisation and bias where relevant. 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.

Automatic monitoring

All seven automatic monitoring stations that measure NO_2 had a data capture greater than 75%; consequently there were no data requiring annualisation in 2023.

No exceedances of the annual mean NO_2 objective of 40 µg/m^3 were observed during 2023.

For comparison against the short-term objectives there must be a data capture of 85% or greater throughout the calendar year. All seven of the automatic monitoring stations showed data capture greater than 85%. There were no monitored one-hour averages where concentrations exceeded 200 µg/m^3.

Non-automatic monitoring

One monitoring location reported an annual mean concentration exceeding the objective of 40 µg/m^3. The concentration recorded was 42.2 µg/m^3 observed at diffusion tube 64 located on Queensferry Road, outside of any AQMAs. This site is not located at a site of relevant exposure and therefore required distance correction. Following the NO_2 fall-off with distance calculation, the annual mean NO_2 concentration at the nearest point of exposure is predicted to be 28.8 µg/m^3. This is significantly below the annual average NO_2 objective.

Details of the Fall off with Distance calculations can be found in Appendix C.

Annual mean concentrations from four monitoring sites are within 10% of the objective, highlighting a risk of exceedance. Two are not sited at a location of relevant exposure, therefore distance correction was undertaken:

- 69J (554 Queensferry Road) = 38.7 µg/m^3. Distance corrected = 27.0 µg/m^3
- 24 (Princes Street/The Mound) = 39.4 µg/m^3. Distance corrected = 30.6 µg/m^3

Both these are significantly below the annual average NO_2 objective.

The other two sites recording annual mean concentration within 10% of the objective are both situated in the Central AQMA, 62A (Lothian Road) = 36.5 µg/m^3 and 28b (West Port) = 38.9 µg/m^3. A road resurfacing project in the vicinity of site 62A (Lothian Road), as well as some infrastructure issues resulting in less efficient traffic signalling in that area, saw increases in traffic during 2023. 28b (West Port) also had increased traffic in the area, especially following the reintroduction of two-way traffic on Cowgate in November 2022 following a long period of one-way restrictions imposed during development works in the area. There were also a number of uitility works along the Cowgate – Westport corridor during 2023 requiring temporary signals which would have increased idling traffic.

Notable increases in NO_2 were observed at 74G (Leith Street), 27 (North Bridge) and 62B (Lothian Road) compared to 2022, likely due to the aforementioned issues in the Lothian Road area and, in the east end, congestion and the reintroduction of two-way traffic related to the North Bridge restoration project.

No sites reported a concentration greater than 60 µg/m^3, which suggests that there have not been any exceedances of the hourly average objective for NO_2.

NO_2 concentrations were mostly similar to those in 2022. Where any significant increase in concentration has been observed, this has largely been at sites of known congestion and the concentrations still remain below the objective. This increase is to be expected with traffic levels returning following the easing of the COVID-19 pandemic restrictions; moreover, concentrations still remain below those observed before the travel restrictions imposed during the pandemic (2020).

Whilst 2020 and 2021 monitoring data should be taken with a degree of caution, the Council will consider reducing the boundary of the Central AQMA once the implications of the recently implemented Low Emission Zone (LEZ) become evident. Operation (enforcement) of the LEZ started in June 2024.

All monitoring locations within the Great Junction Street AQMA have maintained compliance with the annual average NO_2 objective for the past five years. Prior to 2020, the monitoring locations indicated that annual mean NO_2 concentrations were decreasing. However, the Great Junction Street AQMA may be impacted by the recently commenced tram operations from City Centre to Newhaven (June 2023) and implementation of the Low Traffic Neighbourhood (LTN) – Leith Connections (started in in April 2023). Further traffic restrictions with the LTN also commenced in October 2023. The Council will consider revoking the Great Junction Street AQMA once the impact of this intervention is known.

The Council received approval from the Scottish Government and SEPA to revoke the Inverleith Row AQMA since there has been greater than five years compliance with the annual mean NO_2 objective and a continued trend of decreasing NO_2 concentration. The revocation order came into force on 11th March 2024 and the Inverleith Row AQMA has now been revoked. All monitoring data in the Inverleith area shows compliance with the objectives.

In the St John's Road AQMA, over the past five years there have been no diffusion tube sites reporting an annual concentration greater than 60 µg/m^3, and there were fewer than 18 hourly periods where concentrations have exceeded 200 µg/m^3; consequently, the AQMA has been amended to revoke the designation for the NO_2 1-hour mean objective. The revocation order came into force on 11th March 2024 and the St John's Road AQMA has now been amended. The AQMA remains in place for the annual mean objective. Full consideration of any revocation will be considered once decisions are finalised regarding the Corstorphine Connection Low Traffic Neighbourhood intervention.

NO_2 concentrations in the Glasgow Road AQMA decreased significantly in 2020 as a consequence of the traffic restrictions imposed during the Covid pandemic. They have since increased, but remain below pre-pandemic concentrations. Data from the past two years suggests that NO_2 concentrations may have started to stabilize, at roughly 30 µg/m^3 (Figure A.2). There are plans in place to install a Westbound bus lane from Ingliston to the Newbridge roundabout (within the AQMA) in spring 2027 as part of the West Edinburgh Transport Improvement Programme (WETIP). An outline business case was agreed in June 2024 and now a package of public transport and active travel interventions will be designed to help provide early sustainable development in the area; support mode shift; and target improvement in air quality. Monitoring will continue and a decision on revocation will be made based on the final design and the findings of the air quality impact assessment.

Trends

Automatic

NO_2 concentration trends for the continuous monitoring locations are presented in Appendix A.

At all automatic monitoring stations there was a noticeable decrease in NO_2 in 2020, which was to be expected after the implementation of travel restrictions during the COVID-19 pandemic. In subsequent years, concentrations have remained significantly below those observed pre-pandemic in 2019 and have remained roughly the same as, or lower than, those observed in 2020 (See Figure A.1).

Non-automatic

NO_2 concentration trends for the passive diffusion tube locations which have been in place for at least five years are presented in Appendix A. Data was corrected using the relevant bias adjustment factor for each year and taken from the point of measurement (not distance corrected). Where diffusion tube monitoring locations have been decommissioned, these have been removed from inclusion in the trend graphs (see Figure A.2).

In all AQMAs there was a noticeable decrease in NO_2 in 2020, which was to be expected after the implementation of travel restrictions during the COVID-19 pandemic. In subsequent years, concentrations have remained below those observed pre-pandemic in 2019 and have remained roughly the same as those observed in 2020. The exception to this has been in the Glasgow Road AQMA where there has been a noticeable increase in concentration after 2020; Glasgow Road is one of the main thoroughfares into and out of Western Edinburgh. All annual means remain below the objective.

3.2.2 Particulate Matter (PM_{10})

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

Table A.11 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.

During 2023, all automatic monitoring sites had annual data capture greater than 75%. Annualisation was not required at any automatic monitoring site.

All monitoring locations reported concentrations below the annual mean objective for PM_{10} (18 µg/m^3) in 2023.

At Tower Street, within the Salamander Street AQMA there were three days when the daily mean exceeded 50 µg/m^3 during 2023, in May, June and October, respectively. A similar pattern in increased concentrations of PM_{10} was observed at St Leonard's (urban background) and Currie (suburban), which suggests a regional pollution event. The site immediately adjacent to the Tower Street station had been used as a storage area for building materials, however during 2023 it was cleared, and ground works commenced for future construction work, which could partly account for the increased concentrations observed, especially in October.

There were no exceedances of the 24-hour mean objective in 2023.

Although there continues to be no exceedances of the objectives in the Salamander Street AQMA, there was marginal compliance with the 24-hour objective in 2022. Monitoring will continue in the AQMA which was declared for exceedances of both the PM_{10} annual, and 24-hour mean objectives. The AQMA will remain in place while there is a risk of

exceedance of the objectives. An AQAP is being devised to reduce pollution and maintain lower concentrations.

Trends

Trends in PM_{10} concentration have been assessed where five or more years of data is available and are shown in Figure A.3.

Overall, long-term trends show a reduction in PM_{10} concentration at Queensferry Road, Glasgow Road and Salamander Street. Since installation in 2019, the Tower Street site has shown a small decrease in PM_{10} overall. Both Tower Street and Salamander Street are situated in an AQMA which is declared for PM_{10}. At St John's Road, Currie and St Leonard's, there have been flucuations, but over the entire monitoring period there is little change in PM_{10} concentration.

It should be noted that the PM_{10} concentrations in 2020 and 2021 were during the COVID-19 pandemic, therefore lower PM_{10} concentrations were recorded during these two years.

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.12 in Appendix A compares the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years with the air quality objective of 10µg/m^3.

During 2023, all monitoring sites had annual data capture greater than 75%. Annualisation was not required at any site.

At all sites, annual mean concentrations of $PM_{2.5}$ were below the objective of 10µg/m^3.

Only three sites had five years or more data available: St Leonards, St John's Road and Tower Street, and the concentration trend is shown in Figure A.4. All three sites show a noticeable reduction in $PM_{2.5}$ concentration in 2020. St Leonard's has shown a significant overall reduction in $PM_{2.5}$ since measurements began in 2009, whilst at both St John's Road and Tower Street there has been only minimal reduction in $PM_{2.5}$.

3.2.4 Sulphur Dioxide (SO_2)

Table A.13 in Appendix A compares the ratified continuous monitored SO_2 concentrations for 2023 with the air quality objectives for SO_2. There were no exceedances of the objectives, which is consistent with previous years.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

Carbon monoxide was measured only at the AURN urban background site at St Leonard's in 2023. This is not required as part of the LAQM regime in Edinburgh but is used in UK-wide monitoring. The objective is >10 mg m^{-3} as an 8-hour running mean. No exceedances were reported.

Lead and 1,3-Butadiene are not measured at any site in Edinburgh.

3.2.6 Other Pollutants Monitored

The following pollutants were also monitored in the City of Edinburgh at the AURN urban background site at St Leonard's in 2023. The data is presented in Appendix A. These are not required as part of the LAQM regime but are part of specific UK-wide monitoring and compliance networks. The UK and Scottish Governments and Devolved Administrations are responsible for the review and assessment of these pollutants.

Ozone (O_3)

Table A.14 shows the continuous monitored Ozone concentrations in 2023. The objective is the daily maximum 8-hour running mean is not to exceed 100 µg/m^3 on more than 10 days per year. The objective was not exceeded.

Polycyclic Aromatic Hydrocarbons (PAHs)

There are many different PAHs, but benzo(a)pyrene (BaP) is used a marker to assess against the National Air Quality Objective. The concentration monitored in 2023 at St Leonard's complies with the UK Objective. Monitoring is undertaken using a Digitel sampler. Concentrations since 2009 are shown in Table A.15.

4 New Local Developments

The Forth Green Freeport (FGF) aims to drive a transition to net zero by 2045 with a focus on renewables manufacturing, alternative fuels, carbon capture utilisation and storage and shipbuilding. The FGF includes the ports at Leith (Port of Leith), Grangemouth, Rosyth and Burntisland, as well as Edinburgh Airport. A consortium of private and public sector partners have now produced a Full Business Case (FBC) for the venture which has been agreed by Council. The finalised document will be presented to the United Kingdom (UK) and Scottish Governments for approval, triggering the release of £24.5m of seed capital. With part of the freeport being within the Salamander Street AQMA and adjacent to the Great Junction Street AQMA, it will be necessary to consider relevant air quality impacts as detailed plans continue to develop.

Planning applications

In terms of planning applications for new developments, summaries of relevant submissions that included an air quality impact assessment (AQIA) are detailed below. Full details can be found on the Council's Planning Portal here: https://www.edinburgh.gov.uk/planningcomments using the planning reference numbers in square brackets below.

An application [24/02971/FUL] for the demolition of existing office buildings and redevelopment of site for mixed-use development comprising purpose-built student accommodation at 595 & 597 Calder Road adjacent to the Edinburgh By-pass (A702) is currently being considered by the Council. An air quality impact assessment was submitted in support of the application. The assessment states it was undertaken to demonstrate compliance with air quality objectives. Detailed dispersion modelling using the ADMS-Roads modelling software was undertaken to predict the concentrations of NO_2, PM_{10} and $PM_{2.5}$ due to emissions from road traffic in conjunction with existing background concentrations at the proposed development's façades. The maximum predicted annual mean concentrations of NO_2, PM_{10} and $PM_{2.5}$ are below the AQOs where they are applicable on each façade and each floor of the development. The short-term mean concentrations, which are relevant for the duration of exposure of members of public within the Proposed Development, comply with the relevant air quality objectives for NO_2. In

summary, the proposed development based on the proposed layout is considered suitable for its proposed use.

The Council is also considering an application to erect extensions to a hotel including car parking, near Edinburgh airport at 5 Almond Avenue, Ingliston [23/04655/FUL]. The applicant submitted a supporting Air Quality Impact assessment in support of the application. The assessment concludes that the proposal will not lead to unacceptable effects during construction from dust or particulate matter, while during the operational phase the development's impact on air quality is concluded not to be significant. Comments from the Council's Environmental Protection service confirm that the proposal is acceptable in terms of the effect on air quality due to the hotel extension causing a reduction in existing surface car parking at the application site. Comments further advise that the inclusion of 18 new EV car parking spaces is supported as a suitable form of mitigation along with the provision of secure cycle parking to foster sustainable travel methods. The use of air source heat pumps and photovoltaic panels rather than carbon-based energy sources is also consistent with air quality objectives. No new cooking facilities are proposed meaning no further ventilation or odour management is necessary.

A proposal for demolishing an office building and developing residential properties with associated parking at 525 Ferry Road was approved by the Council [23/03649/FUL]. The applicant has provided an air quality impact assessment in support of the application which concludes the proposed development would have no significant impact upon the local air quality of existing residents. The Inverleith Row air quality management area (AQMA) was situated to the east, however this AQMA has now been revoked. 77 car parking spaces are proposed on site within the basement, a reduction from the existing 220 parking spaces. One third of the car parking will be electric charging enabled. The development is well located to take advantage of local amenities and public transport network and proposes cycle parking. The site is currently well served by existing bus services operated by Lothian Buses. The application also proposes to incorporate a ‘green travel plan’ and 2 City Car Club spaces. The air quality assessment was undertaken to investigate if there was potential for traffic emissions associated with the development to impact upon the air quality of the existing residents in the vicinity of the development. The model predicted no significant change in NO_2, PM_{10} or $PM_{2.5}$ concentrations at all sensitive receptors on comparison of the ‘with and without’ development scenarios. The impact magnitude for all investigated sensitive receptors was categorised as “Negligible” for NO_2, PM_{10} or $PM_{2.5}$. The AQIA therefore predicts no significant impact on existing residents as a

result of the development. However, the Environmental Protection team would have preferred a zero-parking space development in this area, as per pre-application discussions, although they did not object to this aspect of the proposal due to the overall decrease in parking space numbers and the increase in EV charging proposed.

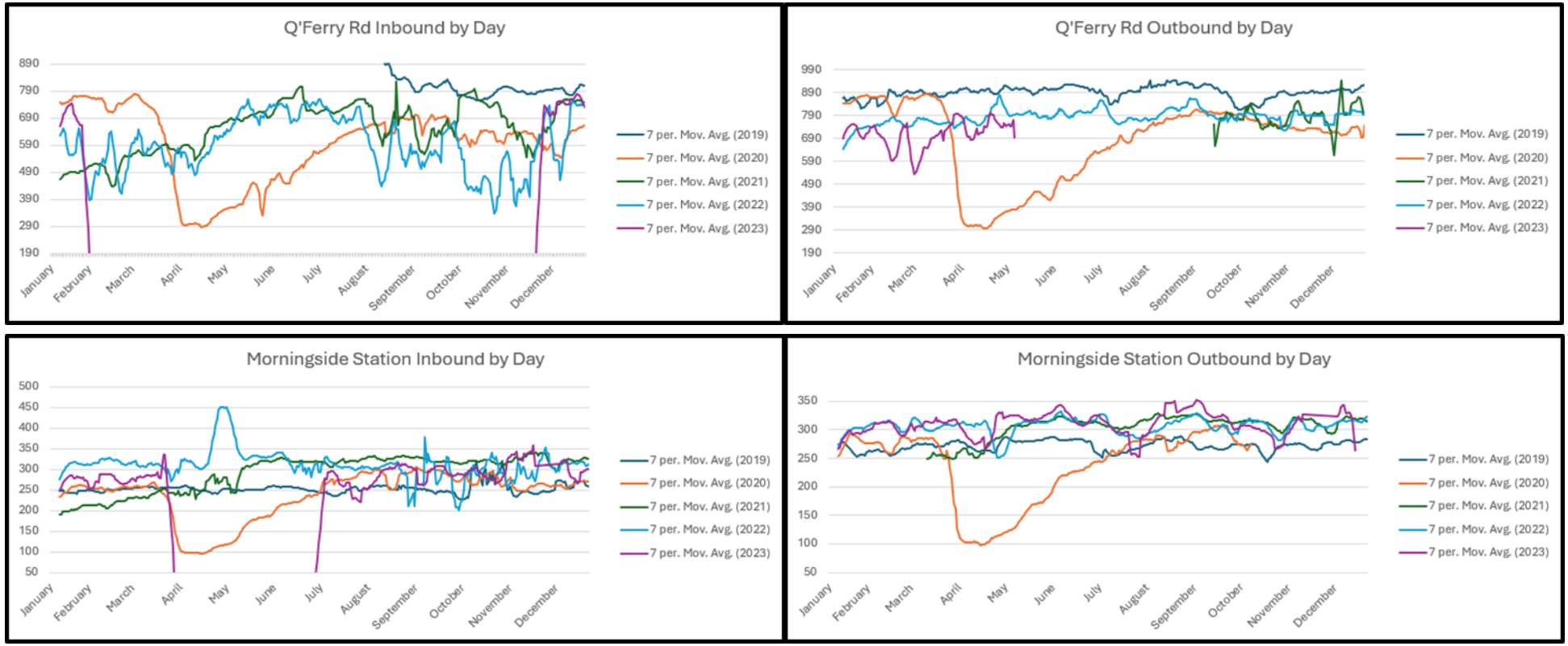
The Council is currently considering an application [23/03962/FUL] for demolition of yard buildings and garages serving existing tenement properties; construction of replacement parking court comprising twelve garages and four parking spaces to serve existing tenement properties; erection of 63 new homes with associated access, landscaping, parking and services at 495 Gorgie Road. The AQIA drew the following conclusions: the proposed development will not generate significant road traffic and the impacts at existing sensitive receptors will therefore be of negligible significance in terms of the assessment framework proposed in the Institute of Air Quality Management's professional guidance. Local air quality on the A71 nearby, at a kerbside location has complied with the statutory Limit Value for NO_2 for all recent years and is expected to decline further. Mitigation measures proposed will include the provision of two electrical charging points within the development. At the pre-application stage it had been stated that car parking provision would not be supported because the site would feed traffic directly into an AQMA. The level of mitigation is not seen as adequately offsetting the pollution impact on the AQMA.

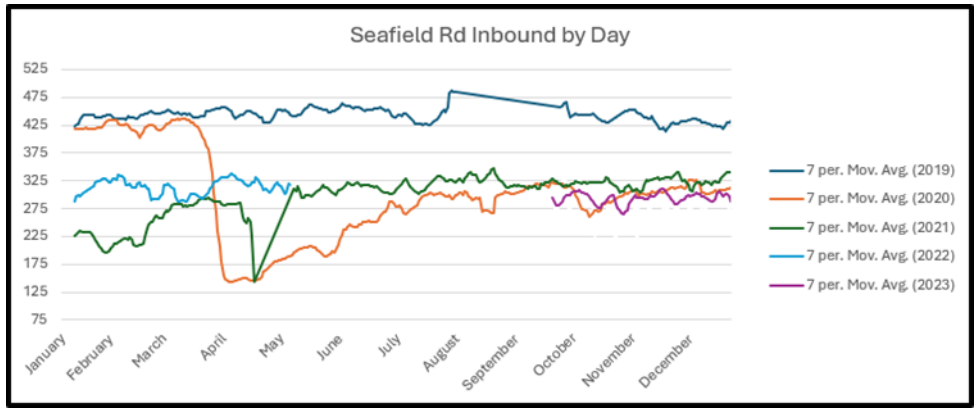
4.1 Road Traffic Sources

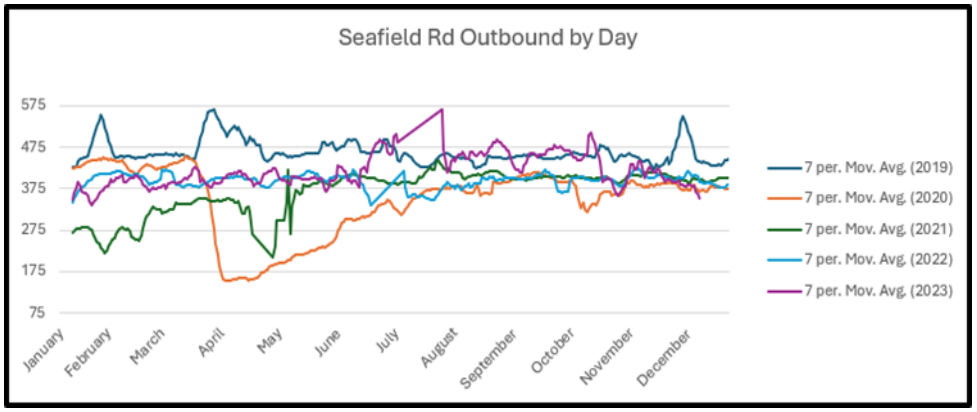
For indicative traffic monitoring purposes, data from the SCOOT traffic management system from selected sites across the city is presented in Figure 4.1. As a result of the COVID-19 pandemic, traffic levels decreased substantially during 2020; this resulted in a decrease in NO_2 concentrations in urban settings. The indicative data from 2021 to 2023 indicates that traffic levels across Edinburgh have remained relatively stable since the latter half year of 2021 and slightly below pre-pandemic levels at most locations.

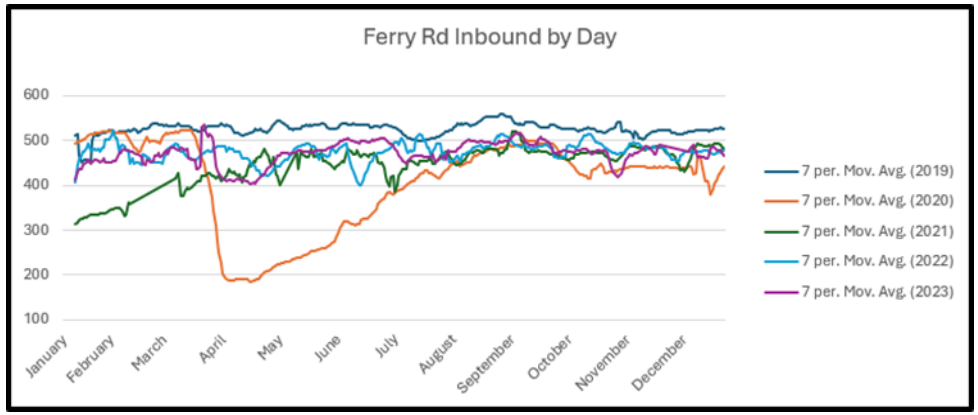
A detailed traffic survey in Edinburgh has been undertaken in association with the implementation of the Low Emission Zone. Analysis of this data is ongoing and will provide further insight into these factors.

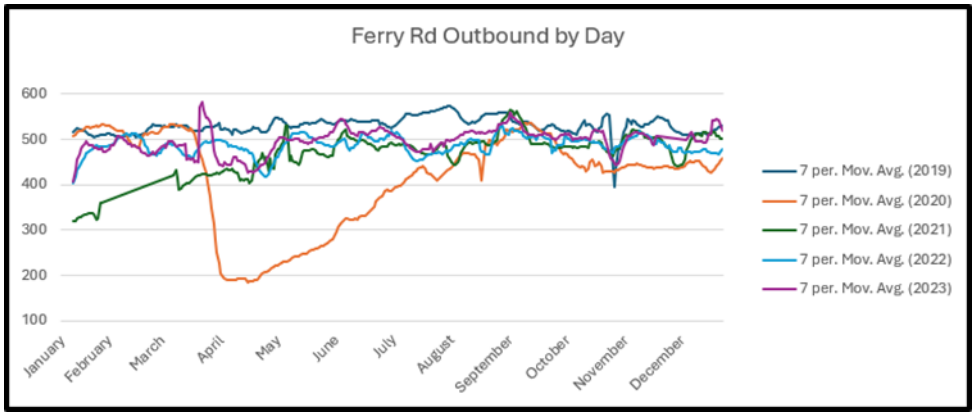
Figure 4.1 - Inbound and outbound traffic counts for Edinburgh, 2019 - 2023 (7-day moving average)

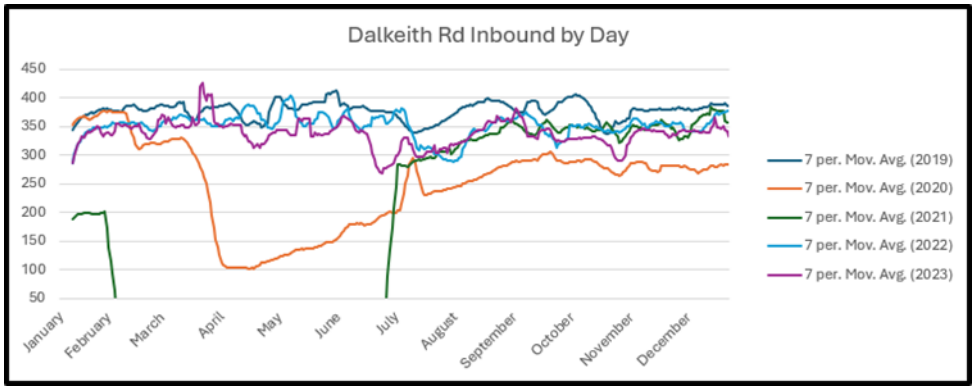


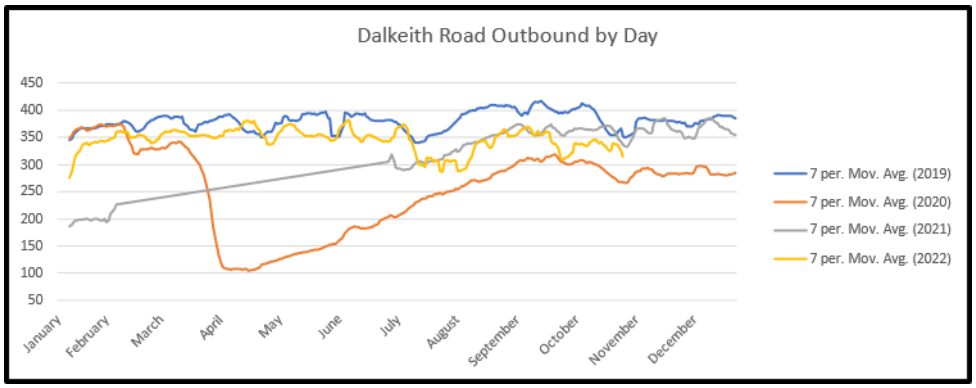

Seafield Rd Inbound by Day
525
475
425
375
325
275
225
175
125
75
January
February
March
April
May
June
July
August
September
October
November
December
7 per. Mov. Avg. (2019)
7 per. Mov. Avg. (2020)
7 per. Mov. Avg. (2021)
7 per. Mov. Avg. (2022)
7 per. Mov. Avg. (2023)


Seafield Rd Outbound by Day
575
475
375
275
175
75
January
February
March
April
May
June
July
August
September
October
November
December
7 per. Mov. Avg. (2019)
7 per. Mov. Avg. (2020)
7 per. Mov. Avg. (2021)
7 per. Mov. Avg. (2022)
7 per. Mov. Avg. (2023)


Ferry Rd Inbound by Day
600
500
400
300
200
100
January
February
March
April
May
June
July
August
September
October
November
December
7 per. Mov. Avg. (2019)
7 per. Mov. Avg. (2020)
7 per. Mov. Avg. (2021)
7 per. Mov. Avg. (2022)
7 per. Mov. Avg. (2023)


Ferry Rd Outbound by Day
600
500
400
300
200
100
January
February
March
April
May
June
July
August
September
October
November
December
7 per. Mov. Avg. (2019)
7 per. Mov. Avg. (2020)
7 per. Mov. Avg. (2021)
7 per. Mov. Avg. (2022)
7 per. Mov. Avg. (2023)





Notes: Used for comparison between years rather than absolute numbers

(1) Y-axis shows mean vehicles per hour (calculated from a 24-hour total)

(2) Steep drops and rises due to faults in data collection

(3) Due to technical issues there is no data for 2023 at Dalkeith Road outbound

4.2 Other Transport Sources

There are no new airports or locations where diesel or steam trains are regularly stationary or locations with a large number of movements of diesel locomotives.

There is a new riverside berth at Port of Leith which can accommodate offshore wind installation shipping vessels and large cruise ships. At this stage it is not known whether new operations with the freeport status will fundamentally change vessel numbers other than traffic to the new outer berth at Leith, which may be larger. It is proposed that the berth will be *shore power ready*, so able to offer a “plug in” option to vessels. However, the Council has received complaints in relation to odour and emissions coming from shipping vehicles and is considering what action might be possible with colleagues in Transport Scotland and the Maritime and Coastguard Agency. Under the International Convention for the Prevention of Pollution from Ships, MARPOL the International Maritime Organisation were responsible for emissions and implementation in the United Kingdom by the Maritime and Coastguard Agency.

4.3 Industrial Sources

In March 2024, SEPA’s records showed there were no new or substantial changes to Pollution Preventions Control (PPC) permits (Part A and B) and Waste Management Licences in the local authority area within the last year.

4.4 Commercial and Domestic Sources

The City Plan 2030 to be adopted in Nov 2024 states heat generation from biomass is not supported given adverse impacts on air quality. As a significant policy intervention, it also supports the transition to low and zero carbon technologies.

Combined Heat and Power (CHP) gas units are now commonly installed in new developments. Planning applicants are asked to submit a chimney height application if they are installing any CHP or heating that is larger than 366 kW output. This will ensure they comply with the Clean Air Act and provide the Council with upfront details on the height of the proposed flue/chimney. It should be noted that the applicants don’t always take this advice on board. An *informative* is normally attached to any planning permission given to ensure this is carried out, although there is no recourse to enforcement.

If a new or proposed CHP/energy plant is larger than 1 MW (cumulative) the Council will request that the plant be fitted with secondary abatement technology.

The Pollution Prevention and Control (Scotland) Regulations 2012 were amended in December 2017 to transpose the requirements of the Medium Combustion Plant Directive (MCPD –Directive (EU) 2015/2193 of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants). The purpose of the MCPD is to improve air quality. All combustion plant between 1 and 50 MW (net rated thermal input) require to register or have a permit from SEPA.

The primary CHP plant at the University of Edinburgh's Pleasance site was approved, installed and part-operational in 2013, hence does not have abatement technology. It comprises of a single, internal combustion, spark ignition engine with an electrical power output of 1.5 MWe and two 9 MWth boilers supplying district heating and electric networks serving nearly 20 academic and student accommodation buildings. Screening of the plant indicated a contribution of NOx at the nearest receptor in excess of 70µg/m3. Although it is recognised the screening tool errs on the side of caution by considering the impact based on ground level release. Edinburgh University were considering options for the engine operation, particularly whether it can operate to a low NOx specification. The aforementioned MCP regulation will not apply to the installation. The Council commenced monitoring of NO_2 in January 2017 by installing passive diffusion tubes in the Pleasance and View Craigs area. Results continue to show that concentration are in keeping with general low background levels in the area.

Within the Council administration area, there has been an increasing number of complaints about domestic burning. Most complaints about burning concern smoke from chimneys despite the entire city being a Smoke Control Area. The powers within the Clean Air Act 1993 have not however been able to be used formally to address such complaints – many of which, on investigation, are found to be caused by the use of "exempt fireplaces" or the use of "authorised fuels". Burning of fuels in such fireplaces still results in emissions which can be visible and cause odours which give rise to concerns about air quality. Further investigation of complaints, hot spot areas and whether any action is required will be undertaken as part of the AQAP.

In 2024 the Council developed a Local Heat and Energy Efficiency Strategy which will establish plans and priorities for systematically improving the energy efficiency of buildings and decarbonising heat in Edinburgh.

4.5 New Developments with Fugitive or Uncontrolled Sources

The number of construction sites and planned construction is of some concern to the Council. Careful management of activity will be required especially within the City Centre where population exposure is significant. Through the Planning process developers are expected to manage dust during this phase of development.

Scottish Government grant funding has been obtained to install new particulate matter monitoring capability adjacent to the existing Salamander Street AQMA, which was identified due to emissions from industrial and fugitive sources from operations in and around Leith Docks, as well as traffic. The adjacent area was not included in the original assessment as there were no relevant receptors. However, now, there are newly constructed residential properties and other residential and commercial properties under construction. Survey work has commenced to find a suitable location for the new monitoring.

5 Planning Applications

City Plan 2030 is the name of the Council's proposed local development plan and once adopted, it will replace the current Local Development Plan 2016. A local development plan sets a strategy for future development proposals and policies which are used to determine planning applications in the City.

City Plan 2030 is now in its final stage. The plan has been through its statutory stages of Main Issues Report and consultation, Proposed Plan and representations, summary of and response to representations, submission for Examination and the Examination itself. The Examination was concluded in April 2024 with the publication of the Report of Examination. City Plan 2030 was modified in response to the largely binding recommendations contained within the Report of Examination, with all recommendations accepted.

City Plan 2030 (as modified) was reported to Planning Committee on 19 June and Council on 27 June 2024 where it resolved to adopt the plan. On 3 July 2024, the plan was submitted to Scottish Ministers signalling the Council's intention to adopt the plan. Ministers have an initial 28 days in which to consider whether the Council should be informed it can adopt the plan, or whether further amendments should be required by Ministerial Direction.

The aims of City Plan 2030 are to direct development to, and maximise the use of, brownfield land rather than greenfield land; delivering a network of 20-minute neighbourhoods and embedding a place-based approach to the creation of high-density, mixed-use communities linked better by active travel and public transport. The strategy supports the strong direction of policy required by the Climate Change Act, the National Transport Strategy, Housing for 2040 and National Planning Framework 4. Alignment with local air quality management and developing local and national air quality strategies will be crucial to ensuring sustainable economic growth.

On adoption, work on the delivery of City Plan 2030, including statutory Supplementary Guidance on Developer Contributions, non-statutory guidance on Student Accommodation, Affordable Housing and Town and Local Centres along with a new style Delivery Programme replacing the Action Programme, will continue to be required

alongside preparation of City Plan 2040. Non-statutory Edinburgh Design Guidance will also be reviewed.

Planning is at the preliminary stages of the preparation of City Plan 2040 which will be the next local development plan after City Plan 2030. It will be prepared under new legislation and guidance. The current evidence gathering stage will include the preparation of an Evidence Report and this will contain spatial information to support an understanding of places, their characteristics and needs including the principal physical and environmental characteristics. The Evidence Report will be informed, for example, by studies on transport infrastructure capacity, transport planning, energy developments, greenhouse gas emissions and climate risks; and will require engagement with key agencies and stakeholders. The Evidence Report will be subject to a Gate Check assessment by a government appointed Reporter.

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

Nitrogen dioxide

Monitoring results for nitrogen dioxide show that during 2023 one monitoring location continued to report an exceedance of the annual mean objective (40 µg/m^3). An annual mean concentration of 42.2 µg/m^3 was recorded at diffusion tube 64, located on Queensferry Road, outside of any AQMAs. Following the fall-off with distance calculation, the annual mean NO_2 concentration at the nearest point of relevant exposure is predicted to be 28.8 µg/m^3. This is significantly below the annual mean NO_2 objective. One monitoring location on the same road reported an annual mean concentration within 10% of the objective. 69J, which is about 10 metres further west from 64, had an annual mean concentration of 38.7 µg/m^3. A distance correction was undertaken and the annual mean NO_2 concentration at the nearest point of exposure was predicted to be 27.0 µg/m^3.

Overall, NO_2 concentrations are broadly similar to those in 2022. Where any significant increase in concentration has been observed, this has largely been at sites of known congestion and where there have been works or signalling issues that have affected traffic flows. Concentrations still remain below the objective. This increase is to be expected in certain areas of the city, with traffic levels returning following the easing of the COVID-19 pandemic restrictions. It is notable that concentrations remain below those observed in 2019 before the travel restrictions imposed during the pandemic. Long-term improvements in NO_2 pollution at urban background and roadside locations is likely a combination of lower traffic flows since the COVID-19 pandemic and a cleaner fleet. A detailed traffic survey in Edinburgh has been undertaken in association with the implementation of the Low Emission Zone. Analysis of this data is ongoing and will provide further insight into these factors.

Whilst 2020 and 2021 monitoring data should be taken with a degree of caution, the Council will consider reducing the boundary of the Central AQMA once the implications of the Edinburgh Low Emission Zone (LEZ) become evident.

All monitoring locations within the Great Junction Street AQMA have maintained compliance with the annual average NO_2 objective for the past five years. However, this AQMA may be impacted by the recently commenced tram operations from the City Centre to Newhaven (June 2023) and implementation of the Low Traffic Neighbourhood (LTN) – Leith Connections. Further traffic restrictions in the area were also implemented in October 2023 as part of the LTN project. The Council will consider revoking the Great Junction Street AQMA once the impact of these transport interventions is known.

In the Glasgow Road AQMA there have been no exceedances of the NO_2 annual mean objective since 2019. There are plans in place for a package of public transport and active travel interventions in the area as part of the West Edinburgh Transport Improvement Programme (WETIP) to support sustainable development and target improved air quality. Monitoring will continue and a decision on revocation will be made based on the final design and the findings of the air quality impact assessment.

Over the past five years there have been no sites reporting an exceedance or likely exceedance of the hourly objective within the St John's Road AQMA. As such, the AQMA was amended to revoke the designation for the NO_2 1-hour mean objective. The AQMA remains in place for the NO_2 annual mean objective and further consideration to revocation will be considered once the impact of any decisions on the Corstorphine Connections LTN are known.

No diffusion tube monitoring locations reported an annual mean concentration in excess of 60 µg/m^3 during 2023, suggesting that there have not been any exceedances of the hourly mean objective. There were no hourly concentrations reported in excess of 200 µg/m^3 at any of the automatic monitoring locations.

PM_{10} and $PM_{2.5}$

PM_{10} and $PM_{2.5}$ monitoring data shows that for all locations in 2023, there were no exceedances of the annual mean objectives. The PM_{10} and $PM_{2.5}$ annual mean concentrations were lower or were largely stable at all the monitoring stations in 2023 compared to those in 2022.

Overall, long-term trends in both PM_{10} and $PM_{2.5}$ concentrations have remained relatively stable at some sites and show a decreasing trend at other sites, although this decreasing trend has begun to stabilize in recent years with only small or no decreases observed.

Although there continues to be no exceedances of the objectives in the Salamander Street AQMA, there was marginal compliance with the 24-hour objective in 2022. Monitoring will continue in the AQMA which was declared for exceedances of both the PM_{10} annual, and 24-hour mean objectives. The AQMA will remain in place while there is a risk of exceedance of the objectives. An AQAP is being devised to reduce pollution and maintain lower concentrations of particulates.

6.2 Conclusions relating to New Local Developments

With part of the Forth Green Freeport being within the Salamander Street AQMA and adjacent to the Great Junction Street AQMA, it will be necessary to consider relevant air quality impacts as detailed plans continue to develop.

A detailed traffic survey in Edinburgh has been undertaken in association with the implementation of the Low Emission Zone. Analysis of this data is ongoing in conjunction with SEPA.

The number of construction sites and planned construction is of some concern to the Council. Careful management of activity will be required especially within the City Centre where population exposure is significant. Through the Planning process developers are expected to manage dust during this phase of development.

Scottish Government grant funding has been obtained to install new particulate matter monitoring capability adjacent to the existing Salamander Street AQMA, which was identified due to emissions from industrial and fugitive sources from operations in and around Leith Docks, as well as traffic. Survey work has commenced to find a suitable location for the new monitoring.

6.3 Proposed Actions

In terms of local air quality management, the priority for the Council in 2024/5 will be:

- Continued monitoring of the Low Emission Zone, including:

  - On-going public and stakeholder communication to ensure maximum early compliance
  - Continued engagement with the Scottish Government, Transport Scotland and the Scottish Environmental Protection Agency (SEPA) to monitor and evaluate the LEZ, including by publishing regular updates on performance
  - Continue to update the LEZ City Model developed under the National Modelling Framework to reflect changes to the road network and fleet predictions from traffic surveys, which will form part of the scheme's overall monitoring and evaluation regime
- Following on from meeting with SEPA and the Scottish Government to discuss the themes for the new Salamander Street AQAP to deal with PM_{10}, the Council will reconvene the steering group to consider draft actions in detail, prior to a public consultation of a Draft AQAP in 2025. With the feedback analysis from the consultation process, a final AQAP will be produced and presented to the Council's Transport and Environment Committee for approval before the end of 2025. Then the Action Plan will be submitted to the Scottish Government, under the requirements of the Environment Act 1995 (as amended).

The City of Edinburgh Council also expects the following measures to be completed over the course of the next reporting year:

- Detailed design stage to be completed for the new traffic management scheme in Glasgow Road AQMA – an Outline Business Case has already been agreed
- Update Edinburgh Planning Guidance to incorporate the provision of electric vehicle infrastructure in new developments. Draft Edinburgh Design Guidance review has been undertaken and will go through public consultation in 2024/2025
- To discourage the uptake and use of biomass in commercial settings the City Plan 2030 states that heat generation from biomass is not supported. The Plan is going through the final stages of adoption
- Vehicle engine idling public awareness is to be a focus of Clean Air Day 2025
- Consultation to begin on the strategic business case for new tram lines, taking the trams from Granton to the Royal Infirmary of Edinburgh and the Bioquarter and beyond
- General activity in respect to annual measures - Clean Air Day, encouraging air quality education in schools, supporting sensors projects, assessment of traffic management schemes and public transport improvements - will also continue

- Implement new PM_{10} monitoring adjacent to the Salamander Street AQMA, considering the extensive building of new residential properties in the area.

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)
ID4	Gorgie Road	Roadside	323121	672314	NO_2	Yes – Central AQMA	Chemiluminescent	0	2.5	2.63
ID5	St. John's Road	Kerbside	320101	672907	NO_2; PM_{10}; $PM_{2.5}$	Yes – St John's Road	Chemiluminescent; FIDAS® 200	0	0.5	1.98
ID6	Currie High School	Suburban	317595	667909	NO_2; PM_{10}; $PM_{2.5}$	No	Chemiluminescent; TEOM; FIDAS® 200	N/A	N/A	3.59 – NO_2; 3.24 – PM_{10}
ID7	St. Leonard's	Urban Background (AURN)	326265	673129	NO_2; PM_{10}; $PM_{2.5}$; O_3; CO; SO_2; PAH	No	Chemiluminescent; FIDAS® 200; UV Adsorption; IR Adsorption; Digitel sampler	N/A	35	3.4 – NO_2, O_3, CO, SO_2, PAH; 3.2 – PM_{10}; 3.1 – $PM_{2.5}$
ID8	Salamander Street	Roadside	327616	676343	NO_2; PM_{10}; $PM_{2.5}$	Yes – Salamander Street	Chemiluminescent; TEOM; FIDAS® 200	0	2.13	2.86
ID9	Queensferry Road	Roadside	318736	674930	NO_2; PM_{10}; $PM_{2.5}$	No	Chemiluminescent; FIDAS® 200	6.5	1.7	2.96

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)
ID10	Glasgow Road	Roadside	313085	672656	NO_2; PM_{10}; $PM_{2.5}$	Yes – Glasgow Road	Chemiluminescent; TEOM; FIDAS® 200	0	6	2.84
EDNS	Nicolson Street	Roadside	326151	673041	NO_2; PM_{10}; $PM_{2.5}$	Yes – Central AQMA	Chemiluminescent; FIDAS® 200	2.2	2.9 (3)	2
ED012	Tower Street	Urban Industrial	327467	676537	PM_{10}; $PM_{2.5}$	Yes – Salamander Street	FIDAS® 200	0	N/A	2
ED011	Drumsheugh Place	Roadside	324407	673843	NO_2	NO	Chemiluminescent	0	1.0	2.0

Notes:

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

(2) N/A if not applicable.

(3) Distance to nominal kerb, due to parking bay/parking restrictions/cycle lane in front of monitoring location

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)
NORTH WEST LOCALITY										
13a	Deanhaugh Street	Roadside	324533	674655	NO_2	No	0.0	2.0	No	2.0
16	Glasgow Road 68/adj	Roadside	313028	672633	NO_2	Glasgow Rd	4.4	1.8	No	2.0
15a	Glasgow Road Facade/9	Roadside	312711	672674	NO_2	Glasgow Rd	0.0	7.5	No	2.0
58i, 58ii	Glasgow Rd Newbridge	Roadside	312693	672670	NO_2	Glasgow Rd	5.2	2.8	No	2.0
15	Glasgow Rd Newbridge	Roadside	312664	672672	NO_2	Glasgow Rd	3.8	4.0	No	2.0
56	Glasgow Road/Drumbrae	Roadside	319208	672917	NO_2	No	4.6	2.6	No	2.0
143a	Hamilton Place	Roadside	324699	674651	NO_2	No	0.0	2.1	No	2.0
41	Hillview Terrace	Urban Background	320081	673232	NO_2	No		1.0	No	2.0
55i, 55ii	Inverleith Row/Ferry Rd	Roadside	324638	675993	NO_2	Inverleith Row	0.0	4.7	No	2.0
63A	Queensferry Road 540	Roadside	318749	674959	NO_2	No	0.0	13.5	No	2.0
64	Queensferry Road 550	Roadside	318698	674955	NO_2	No	9.2	1.5	No	2.0
64b	Queensferry Road 550F	Roadside	318701	674964	NO_2	No	0.0	11.0	No	2.0
64a	Queensferry Road 552	Roadside	318698	674964	NO_2	No	0.0	10.5	No	2.0
69J	Queensferry Road 554	Roadside	318682	674957	NO_2	No	8.6	1.4	No	2.0
69I	Queensferry Rd/Lyle Ct	Roadside	318616	674968	NO_2	No	7.5	2.0	No	2.0
40	Queensferry Rd/Hillhouse	Roadside	322144	674497	NO_2	No	0.0	2.0	No	2.0
23	Roseburn Terrace	Kerbside	323007	673198	NO_2	Centre	2.3	0.2	No	2.0
22a	Roseburn Terrace (W)	Kerbside	322984	673189	NO_2	Centre	1.7	2.5	No	2.0
1d	St John's Road 131	Roadside	320096	672907	NO_2	St John's Road	0.0	2.1	No	2.0
1b	St John's Road IR	Roadside	320136	672914	NO_2	St John's Road	0.0	2.0	No	2.0
1	St John's Road SB	Kerbside	320122	672917	NO_2	St John's Road	1.8	0.5	No	2.0
39	St John's/Victor Park Terr	Roadside	319677	672991	NO_2	St John's Road	4.2	1.6	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)
SOUTH WEST LOCALITY										
76b	Angle Park Terrace 74	Roadside	323527	672285	NO_2	Centre	0.0	2.1	No	2.0
78a	14 Appin Street	Other	322783	671530	NO_2	No	0.0	65.0	No	2.0
80e	Balgreen Rd/Library	Roadside	322110	672268	NO_2	No	0.0	2.0	No	2.0
4a	Calder Road	Roadside	318894	670493	NO_2	No	5.0	12.0	No	2.0
145	1 Corstorphine High St	Roadside	319990	672707	NO_2	No	0.0	1.4	No	2.0
145a	Corstorphine P. School	Roadside	319834	672678	NO_2	No	0.0	2.0	No	2.0
79d	Dundee St/Yeaman Pl	Roadside	323926	672550	NO_2	Centre	0.0	2.3	No	2.0
79B	Fountainbridge 158	Roadside	324451	672864	NO_2	No	0.0	2.0	No	2.0
80	Gorgie Road - Delhaigh	Roadside	321967	671666	NO_2	Centre	0.0	2.6	No	2.0
80f	Gorgie Road No160	Roadside	323141	672345	NO_2	Centre	0.0	3.2	No	2.0
80g	Gorgie Road No173	Kerbside	323083	672311	NO_2	Centre	2.9	1.8	No	2.0
5	Gorgie Rd/Murieston Rd	Kerbside	323484	672478	NO_2	Centre	4.9	0.3	No	2.0
11	Lanark Road 610	Roadside	319527	668420	NO_2	No	3.7	1.5	No	2.0
77b	Slateford Road 93/95	Roadside	322999	671876	NO_2	Centre	0.0	2.6	No	2.0
80h	Wardlaw Street No2	Roadside	323065	672295	NO_2	Centre	0.0	5.0	No	2.0
NORTH EAST LOCALITY										
29a	Bernard Street	Roadside	327137	676529	NO_2	G. Junction St	0.0	2.1	No	2.0
29ci,29cii	Bernard Street/PS	Roadside	327135	676515	NO_2	G. Junction St	0.0	2.1	No	2.0
29	Bernard Street	Roadside	327148	676507	NO_2	G. Junction St	0.0	2.2	No	2.0
119	Bonnington Rd/GJ St	Roadside	326723	676136	NO_2	No	0.0	1.4	No	2.0
9d	Commercial Street	Roadside	326477	676759	NO_2	G. Junction St	0.0	2.6	No	2.0
9	Commercial Street 88	Roadside	326879	676626	NO_2	G. Junction St	0.0	2.6	No	2.0
9a	Commercial /Portland Pl	Roadside	326430	676754	NO_2	G. Junction St	3.9	1.5	No	2.0
30f	Duke Street	Roadside	327106	675816	NO_2	No	0.0	2.2	No	2.0
25c	Easter Road 105/109	Roadside	326958	674770	NO_2	Centre	0.0	3.3	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)
25e	Easter Road 198	Roadside	326999	674940	NO_2	No	0.0	4.0	No	2.0
20a	East London Street	Roadside	325956	674725	NO_2	No	0.0	8.0	No	2.0
25	Easter Road/CH shop	Roadside	326934	674503	NO_2	Centre	0.0	2.3	No	2.0
25b	Easter Rd/Rossie Place	Roadside	326950	674624	NO_2	Centre	0.0	3.3	No	2.0
18A	Ferry Road 203	Roadside	325873	676283	NO_2	No	2.4	1.6	No	2.0
53	Ferry Road/ 6 Bowhill Ter	Roadside	324726	676004	NO_2	Inverleith Row	1.6	4.6	No	2.0
45b	Ferry Road/1 Madeira St	Roadside	326359	676420	NO_2	No	0.0	8.6	No	2.0
45d	Ferry Road/N.Junction St	Roadside	326503	676436	NO_2	G. Junction St	0.0	3.1	No	2.0
30b	Great Junction Street 137	Roadside	326740	676138	NO_2	G. Junction St	0.0	2.9	No	2.0
30c	Great Junction Street 14	Roadside	326925	675949	NO_2	G. Junction St	0.0	2.8	No	2.0
30e	Great Junction/ Pirrie St	Roadside	326845	676015	NO_2	G. Junction St	0.0	2.7	No	2.0
30	Great Junction Street/FV	Roadside	326884	675997	NO_2	G. Junction St	0.0	2.8	No	2.0
20	Leith Walk/McDonald Rd	Roadside	326361	674882	NO_2	Centre	3.1	1.2	No	2.0
67	London Road/Earlston Pl	Roadside	327190	674433	NO_2	Centre	0.0	2.7	No	2.0
81	London Rd/East Norton P	Roadside	326980	674446	NO_2	Centre	0.0	2.5	No	2.0
116	London Rd/Jocks Lodge	Roadside	328245	674166	NO_2	Centre	0.0	2.3	No	2.0
46	London Rd/Easter Road	Roadside	326944	674472	NO_2	Centre	0.0	5.6	No	2.0
69	London Rd/Wolseley Pl	Roadside	328272	674143	NO_2	Centre	0.0	2.6	No	2.0
70	London Rd/Wolseley Terr	Roadside	328337	674129	NO_2	Centre	0.0	4.6	No	2.0
32	Niddrie Mains Road 28	Kerbside	328889	671649	NO_2	No	4.7	2.6	No	2.0
71	Portobello High Street	Roadside	330533	673850	NO_2	No	0.0	3.0	No	2.0
30X	Rodney Street 31	Roadside	325443	674969	NO_2	No	0.0	2.4	No	2.0
51c	Salamander St/Baltic St	Roadside	327476	676418	NO_2	No	0.0	2.3	No	2.0
90F*	Southfield Place	Roadside	330210	673556	NO_2	No	0.0	5.0	No	2.0
SOUTH EAST LOCALITY										
10B	Bank Street	Roadside	325598	673616	NO_2	No	0.0	2.7	No	2.0
98	Bernard Terrace	Roadside	326383	672622	NO_2	No	1.7	3.3	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)
44	Broughton Street	Roadside	325918	674430	NO_2	No	0.0	3.4	No	2.0
8A	Brougham Street 9	Roadside	324967	672916	NO_2	No	0.0	3.7	No	2.0
6a	Bruntsfield Place 210	Roadside	324495	672035	NO_2	No	0.0	2.8	No	2.0
48G	Cannongate	Roadside	326173	673700	NO_2	No	0.0	2.6	No	2.0
48h	Canongate 206	Roadside	326271	673722	NO_2	No	0.0	2.8	No	2.0
94	Chester Street 29	Roadside	324071	673608	NO_2	No	0.0	6.9	No	2.0
138	Clerk Street 15	Roadside	326229	672789	NO_2	No	0.0	4.4	No	2.0
151	Comiston Road No.116	Roadside	324367	670473	NO_2	No	0.0	2.7	No	2.0
48f	Cowgate/St Mary's St	Roadside	326198	673587	NO_2	No	0.0	2.6	No	2.0
48c	Cowgate/Blackfriars	Roadside	326047	673519	NO_2	Centre	0.0	2.4	No	2.0
48a	Cowgate/Blair Street	Roadside	325929	673490	NO_2	Centre	0.0	3.2	No	2.0
48e	Cowgatehead 2	Roadside	325537	673405	NO_2	Centre	0.0	1.9	No	2.0
123	Dalkeith Road 16/PS	Roadside	326629	672524	NO_2	No	0.0	2.2	No	2.0
93	Drumsheugh Gardens 20	Roadside	324326	673815	NO_2	No	0.0	8.9	No	2.0
97	Dumbiedykes Road	Other	326565	673616	NO_2	No	0.0		No	2.0
128	Dundas Street 9	Roadside	325253	674362	NO_2	No	7.4	2.2	No	2.0
8C	Earl Grey Street 22	Roadside	324864	673008	NO_2	Centre	0.0	3.4	No	2.0
124	East Preston/Dalkeith Rd	Roadside	326645	672481	NO_2	No	0.0	2.1	No	2.0
126	East Preston Street 32	Roadside	326588	672461	NO_2	No	0.0	6.4	No	2.0
74f	George Street 112	Roadside	324880	673891	NO_2	Centre	0.0	6.8	No	2.0
37ai, 37aii	Grassmarket 41	Roadside	325401	673340	NO_2	Centre	0.0	3.4	No	2.0
37b	Grassmarket 75	Roadside	325471	673369	NO_2	Centre	0.0	5.0	No	2.0
37c	Grassmarket/Thomsons Ct	Urban Background	325397	673377	NO_2	No	0.0	22.8	No	2.0
75e	Gt Stuart Street 9	Roadside	324476	673967	NO_2	No	0.0	9.4	No	2.0
HT1	Haymarket Terrace (N)	Roadside	323985	673219	NO_2	Centre	0.0	3.7	No	2.0
HT2	Haymarket Terrace (S)	Kerbside	323787	673212	NO_2	Centre	1.8	0.5	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)
10	Home Street/Tollcross	Roadside	324904	672906	NO_2	No	0.0	2.0	No	2.0
140	Hope Park Terr/Clerk St	Roadside	326323	672596	NO_2	Centre	3.5	1.3	No	2.0
34	India Street	Urban Background	324790	674341	NO_2	No		2.5	No	2.0
8B	Lauriston Place	Roadside	324989	673016	NO_2	No	0.0	4.9	No	2.0
74g	Leith Street	Roadside	325897	674051	NO_2	Centre	0.0	3.7	No	2.0
62A	Lothian Road 45	Roadside	324777	673425	NO_2	Centre	0.0	4.1	No	2.0
62B	Lothian Road 139	Roadside	324827	673138	NO_2	No	3.2	3.5	No	2.0
62X	Lothian Road/Rutland St	Roadside	324711	673635	NO_2	Centre	0.0	4.8	No	2.0
130	Market Street 6	Roadside	325804	673752	NO_2	No	0.0	4.5	No	2.0
38	Melville Drive	Roadside	325141	672733	NO_2	No	10.0	2.8	No	2.0
42	Midmar Drive	Urban Background	325105	670511	NO_2	No		1.4	No	2.0
79E	Morrison Crescent	Roadside	324170	672919	NO_2	No	0.0	15.0	No	2.0
62C	Morrison Street 91	Roadside	324541	673183	NO_2	Centre	0.0	2.4	No	2.0
49	Morrison Street	Roadside	324167	673249	NO_2	Centre	2.4	2.2	No	2.0
135b	Nicholson Street 59-61	Roadside	326099	673140	NO_2	Centre	0.0	2.8	No	2.0
136	Nicholson Street 92	Roadside	326164	673054	NO_2	Centre	0.0	5.7	No	2.0
95	Palmerston/Lansdowne	Kerbside	324105	673457	NO_2	No	5.0	0.8	No	2.0
96	Palmerston Place 7	Roadside	324190	673380	NO_2	No	0.0	6.3	No	2.0
27	North Bridge South	Roadside	325944	673670	NO_2	Centre	0.0	3.5	No	2.0
47	Princes Street (EB)	Roadside	325049	673791	NO_2	Centre	6.5	9.0	No	2.0
24	Princes Street/Mound	Kerbside	325397	673869	NO_2	Centre	10.2	1.0	No	2.0
33a	Queen Street/Albyn Pl	Roadside	324817	674077	NO_2	Centre	0.0	6.0	No	2.0
33	Queen St/North David St	Roadside	325467	674229	NO_2	Centre	0.0	6.5	No	2.0
SH1	Shandwick Place Hostel	Roadside	324513	673556	NO_2	Centre	0.0	2.5	No	2.0
144	South Bridge 59	Roadside	326020	673370	NO_2	Centre	0.0	2.3	No	2.0
141	South Clerk Street 84	Roadside	326383	672472	NO_2	Centre	0.0	2.6	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)
75d	St Colme Street/4	Roadside	324646	674025	NO_2	No	0.0	6.2	No	2.0
28e	St Leonards Street 145a	Roadside	326559	672610	NO_2	No	0.0	3.4	No	2.0
3b	Torphichen Place 1	Roadside	324277	673309	NO_2	Centre	0.0	4.8	No	2.0
3	Torphichen Place	Roadside	324258	673295	NO_2	Centre	0.0	2.3	No	2.0
162	Viewcraig Gardens 19	Other	326443	673433	NO_2	No	4.9	2.4	No	2.0
2	W. Maitland/Palmerston	Kerbside	324193	673346	NO_2	No	5.2	0.5	No	2.0
28d	West Port 42	Roadside	325203	673250	NO_2	Centre	0.0	2.7	No	2.0
28b	West Port 62	Roadside	325166	673242	NO_2	Centre	0.0	1.4	No	2.0
28c	West Port Opp 50	Roadside	325184	673261	NO_2	Centre	0.0	3.0	No	2.0
91	West Preston Street 40	Roadside	326309	672397	NO_2	No	0.0	4.0	No	2.0
36	York Place	Roadside	325828	674362	NO_2	No	2.7	5.5	No	2.0
CO-LOCATED TUBES										
CL1, CL2, CL3	Queensferry Road	Roadside	318736	674930	NO_2	No	6.5	1.7	Yes	2.0
CL4, CL5, CL6	Gorgie Road	Roadside	323121	672314	NO_2	Centre	0.0	6.0	Yes	2.4
CL7, CL8, CL9	Salamander Street*	Roadside	327616	676343	NO_2	No	0.0	2.1	Yes	2.4
CL13, CL14, CL15	St Johns Road	Kerbside	320101	672907	NO_2	St John's Road	0.0	0.5	Yes	1.8
CL16, CL17, CL18	Nicolson Street	Roadside	326151	673041	NO_2	Centre	2.2	2.9	Yes	1.8

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)

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.

(3) Site ID with * represents changes to grid references following the 2023 diffusion tube review

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
ID4	Gorgie Road	Roadside	-	98.0	27.0	18.4	18.2	17.4	17.7
ID5	St. John's Road	Kerbside	-	99.7	**41.9**	25.6	28.7	29.2	29.8
ID6	Currie High School	Suburban	-	99.6	9.9	5.3	5.1	4.8	5.3
ID7	St. Leonard's	Background	-	97.9	20.8	13.7	13.7	13.0	11.4
ID8	Salamander Street	Roadside	-	87.6	24.3	19.5	22.1	17.8	16.5
ID9	Queensferry Road	Roadside	-	99.7	36.9	25.8	29.2	25.9	26.0
EDNS	Nicolson Street	Roadside	-	96.0	**50.4**	27.2	28.5	23.8	25.1

Notes:

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

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%).

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 (%) [3]	Valid Data Capture 2023 (%) [4]	2019	2020	2021	2022	2023
North-West Locality										
13a	324533	674655	Roadside	-	100.0	22.1	15.4	16.3	15.7	15.6
16	313028	672633	Roadside	-	100.0	**40.9**	26.7	27.9	27.7	32.0
15a	312711	672674	Roadside	-	100.0	32.0	17.3	21.5	25.3	26.0
58i, 58ii	312693	672670	Roadside	-	92.3	**46.0**	29.2	30.7	34.8	31.2
15	312664	672672	Roadside	-	82.7	39.2	24.3	26.6	31.8	27.7
56	319208	672917	Roadside	-	100.0	25.3	14.3	20.4	17.4	18.6
143a	324699	674651	Roadside	-	80.8	25.0	26.0	19.2	16.5	19.3
41	320081	673232	Urban Background	-	100.0	16.7	11.3	12.9	10.9	13.7
55i, 55ii	324638	675993	Roadside	-	100.0	33.4	26.2	27.3	26.2	25.7
63A	318749	674959	Roadside	-	100.0	18.0	16.6	16.4	16.2	15.9
64	318698	674955	Roadside	-	73.1	**56.9**	38.4	38.1	**41.3**	**42.2**
64b	318701	674964	Roadside	-	100.0	27.2	20.9	20.7	21.2	18.9
64a	318698	674964	Roadside	-	100.0	26.4		20.1	19.6	19.4
69J	318682	674957	Roadside	-	100.0		35.0	38.5	37.3	38.7
69I	318616	674968	Roadside	-	100.0	**40.3**	28.2	31.6	31.4	32.5
40	322144	674497	Roadside	-	92.3	24.7	19.1	17.4	18.9	16.7
23	323007	673198	Kerbside	-	100.0	35.3	21.0	24.9	21.6	20.4
22a	322984	673189	Kerbside	-	100.0	36.5	23.1	25.9	23.9	23.9
1d	320096	672907	Roadside	-	100.0	37.7	28.8	29.1	29.3	28.5
1b	320136	672914	Roadside	-	100.0	27.3	17.4	20.8	19.2	19.5
1	320122	672917	Kerbside	-	100.0	31.8	16.9	20.4	18.9	20.5
39	319677	672991	Roadside	-	100.0	30.4	19.1	21.6	21.0	18.9
South-West Locality										
76b	323527	672285	Roadside	-	90.4	33.8	25.6	24.3	21.1	21.3
78a	322783	671530	Other	-	100.0				9.4	9.9
80e	322110	672268	Roadside	-	100.0	28.0	18.5	20.7	19.5	18.8
4a	318894	670493	Roadside	-	38.5	22.7	15.4	16.5	13.0	16.1
145	319990	672707	Roadside	-	92.3				16.7	15.6
145a	319834	672678	Roadside	-	65.4				13.6	12.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [3]	Valid Data Capture 2023 (%) [4]	2019	2020	2021	2022	2023
79d	323926	672550	Roadside	-	92.3	34.5	24.4	22.7	22.6	22.6
79B	324451	672864	Roadside	-	100.0			20.3	17.6	19.0
80	321967	671666	Roadside	-	92.3	33.3	20.7	26.3	24.0	23.6
80f	323141	672345	Roadside	-	100.0	32.5	20.0	22.3	20.5	20.1
80g	323083	672311	Kerbside	-	90.4	31.1	21.8	24.2	21.4	20.6
5	323484	672478	Kerbside	-	100.0	33.3	25.6	23.7	20.8	24.3
11	319527	668420	Roadside	-	82.7	20.5	13.7	13.7	10.7	12.9
77b	322999	671876	Roadside	-	92.3	34.2	27.2	23.1	20.3	20.2
80h	323065	672295	Roadside	-	92.3	27.2	17.5	21.0	16.2	19.0
North-East Locality										
29a	327137	676529	Roadside	-	90.4	27.1	25.0	23.9	20.8	20.7
29ci, 29cii	327135	676515	Roadside	-	100.0	35.4	28.4	28.5	26.7	24.2
29	327148	676507	Roadside	-	92.3	25.9	21.7	21.2	20.9	20.7
119	326723	676136	Roadside	-	92.3		18.2	20.8	18.7	18.4
9d	326477	676759	Roadside	-	84.6	33.6	28.3	28.2	24.9	24.8
9	326879	676626	Roadside	-	100.0	26.3	20.6	25.3	21.0	20.8
9a	326430	676754	Roadside	-	100.0	32.8	29.2	27.6	26.5	23.0
30f	327106	675816	Roadside	-	92.3	32.3	26.9	28.0	21.6	22.3
25c	326958	674770	Roadside	-	100.0	33.2	27.0	32.1	28.0	30.1
25e	326999	674940	Roadside	-	100.0	25.5	17.9	21.9	20.1	20.3
20a	325956	674725	Roadside	-	59.6					13.8
25	326934	674503	Roadside	-	92.3	33.2	25.8	29.1	25.5	23.5
25b	326950	674624	Roadside	-	84.6	30.1	21.5	24.9	21.6	19.5
18A	325873	676283	Roadside	-	100.0	31.8	23.1	26.6	25.4	25.3
53	324726	676004	Roadside	-	100.0	28.8	22.2	22.5	22.3	22.7
45b	326359	676420	Roadside	-	100.0		19.5	20.6	22.0	27.7

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [3]	Valid Data Capture 2023 (%) [4]	2019	2020	2021	2022	2023
45d	326503	676436	Roadside	-	100.0	31.2	25.9	25.7	24.7	23.0
30b	326740	676138	Roadside	-	100.0	30.8	19.7	24.2	23.5	21.8
30c	326925	675949	Roadside	-	100.0	33.1	22.7	25.1	22.6	24.2
30e	326845	676015	Roadside	-	92.3	33.3	20.2	28.0	21.1	21.8
30	326884	675997	Roadside	-	92.3	32.8	23.8	28.1	23.9	23.3
20	326361	674882	Roadside	-	100.0	37.9			23.2	22.4
67	327190	674433	Roadside	-	100.0	36.9	25.5	30.1	27.4	29.0
81	326980	674446	Roadside	-	100.0	50.0	44.0	40.6	29.9	25.0
116	328245	674166	Roadside	-	100.0		21.6	31.0	25.4	25.6
46	326944	674472	Roadside	-	90.4	34.9	22.8	27.1	22.6	24.3
69	328272	674143	Roadside	-	100.0	35.4	39.3	27.8	26.3	24.2
70	328337	674129	Roadside	-	92.3	37.6	32.3	32.6	34.1	28.3
32	328889	671649	Kerbside	-	100.0	26.4	20.5	20.6	21.9	20.6
71	330533	673850	Roadside	-	92.3	25.1	27.1	22.6	21.6	18.8
30X	325443	674969	Roadside	-	100.0	25.2	18.0	19.7	16.2	17.9
51c	327476	676418	Roadside	-	92.3	26.5	22.4	21.4	23.5	19.9
90F	330210	673556	Roadside	-	100.0			21.4	19.3	18.1
South-East Locality										
10B	325598	673616	Roadside	-	100.0	36.5	24.1	28.0	30.8	25.7
98	326383	672622	Roadside	-	100.0				18.2	16.5
44	325918	674430	Roadside	-	100.0	27.4	23.3	23.8	19.5	23.5
8A	324967	672916	Roadside	-	92.3	37.7	26.7	23.4	25.1	19.7
6a	324495	672035	Roadside	-	57.7	25.4	17.4	18.4	15.6	15.7
48G	326173	673700	Roadside	-	100.0	**42.7**	28.0	29.2	27.2	28.9
48h	326271	673722	Roadside	-	100.0			23.9	28.2	29.8
94	324071	673608	Roadside	-	100.0		19.6	18.1	18.7	15.7
138	326229	672789	Roadside	-	92.3	33.4	27.3	23.7	20.4	24.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [3]	Valid Data Capture 2023 (%) [4]	2019	2020	2021	2022	2023
151	324367	670473	Roadside	-	100.0	21.2	17.3	15.8	15.7	16.2
48f	326198	673587	Roadside	-	90.4	34.6	24.0	25.1	23.1	24.1
48c	326047	673519	Roadside	-	100.0	36.0	31.0	24.0	24.4	25.7
48a	325929	673490	Roadside	-	65.4	38.2	21.5	22.7	20.9	21.1
48e	325537	673405	Roadside	-	100.0	29.6	23.6	26.1	24.5	25.9
123	326629	672524	Roadside	-	92.3		13.8	13.9	16.6	15.8
93	324326	673815	Roadside	-	100.0	23.0	18.1	17.9	14.9	15.7
97	326565	673616	Other	-	100.0		13.0	15.4	15.6	13.7
128	325253	674362	Roadside	-	92.3		20.4	18.9	18.3	19.4
8C	324864	673008	Roadside	-	90.4			24.0	22.4	22.7
124	326645	672481	Roadside	-	92.3		18.4	15.9	17.0	15.7
126	326588	672461	Roadside	-	100.0		14.6	14.9	13.8	15.7
74f	324880	673891	Roadside	-	100.0	25.7	19.5	21.3	19.1	20.8
37ai, 37aii	325401	673340	Roadside	-	100.0	**52.5**	33.4	23.4	25.0	24.5
37b	325471	673369	Roadside	-	67.3	38.8	21.7	21.1	22.2	23.2
37c	325397	673377	Urban Background	-	82.7	25.1	17.9	15.9	16.2	18.6
75e	324476	673967	Roadside	-	100.0	19.7	15.3	15.0	15.1	16.8
HT1	323985	673219	Roadside	-	92.3	36.5	22.7	25.1	24.7	24.9
HT2	323787	673212	Kerbside	-	90.4	**40.8**	22.9	26.2	29.3	29.5
10	324904	672906	Roadside	-	90.4	30.7	24.5	21.2	19.1	22.6
140	326323	672596	Roadside	-	92.3	26.5	24.7	22.7	20.5	18.9
34	324790	674341	Urban Background	-	100.0	17.7	13.8	13.5	13.2	13.0
8B	324989	673016	Roadside	-	92.3	31.2	24.1	24.4	21.8	22.9
74g	325897	674051	Roadside	-	100.0	**44.4**	27.3	31.2	26.8	33.3
62A	324777	673425	Roadside	-	73.1	**56.6**	31.3	33.9	24.2	36.5
62B	324827	673138	Roadside	-	100.0	**43.9**	26.3	30.7	29.3	34.7
62X	324711	673635	Roadside	-	84.6	46.1	30.6	30.5	35.1	31.5

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [3]	Valid Data Capture 2023 (%) [4]	2019	2020	2021	2022	2023
130	325804	673752	Roadside	-	80.8		25.7	26.5	29.0	29.1
38	325141	672733	Roadside	-	100.0	22.8	18.6	15.8	17.4	15.5
42	325105	670511	Urban Background	-	100.0	12.6	8.1	9.5	8.4	9.0
79E	324170	672919	Roadside	-	100.0			18.7	15.6	17.6
62C	324541	673183	Roadside	-	100.0	**42.2**	29.4	25.0	23.5	28.2
49	324167	673249	Roadside	-	75.0	37.2	26.1	27.0	23.2	25.1
135b	326099	673140	Roadside	-	100.0	37.8	36.9	34.4	28.5	29.2
136	326164	673054	Roadside	-	100.0	32.2	20.8	23.6	20.0	22.3
95	324105	673457	Kerbside	-	100.0		19.1	19.0	17.5	18.7
96	324190	673380	Roadside	-	100.0		24.9	26.1	22.5	24.0
27	325944	673670	Roadside	-	92.3	**40.6**	23.0	28.8	23.9	31.0
47	325049	673791	Roadside	-	100.0	36.2	26.4	26.0	25.2	27.4
24	325397	673869	Kerbside	-	73.1	53.2	29.1	34.4	36.4	39.4
33a	324817	674077	Roadside	-	100.0	28.7	19.7	23.7	22.9	25.4
33	325467	674229	Roadside	-	100.0	36.0	27.5	23.5	26.7	24.4
SH1	324513	673556	Roadside	-	100.0	37.0	28.8	29.7	27.5	26.4
144	326020	673370	Roadside	-	100.0	38.1	27.0	28.1	27.6	29.5
141	326383	672472	Roadside	-	100.0	32.9	22.9	22.9	20.6	22.2
75d	324646	674025	Roadside	-	100.0	22.9	17.5	19.5	16.7	18.1
28e	326559	672610	Roadside	-	100.0				19.5	16.8
3b	324277	673309	Roadside	-	100.0	**40.0**	30.0	28.9	29.7	30.2
3	324258	673295	Roadside	-	100.0	**40.5**	29.1	31.1	33.3	32.3
162	326443	673433	Other	-	90.4		12.0	13.3	11.0	11.6
2	324193	673346	Kerbside	-	100.0	**45.8**	34.2	35.4	35.6	35.4
28d	325203	673250	Roadside	-	100.0	**44.0**	24.5	23.6	26.9	32.1
28b	325166	673242	Roadside	-	92.3	**54.2**	24.8	23.0	26.0	38.9
28c	325184	673261	Roadside	-	92.3	35.0	22.2	21.0	21.7	25.4
91	326309	672397	Roadside	-	100.0		13.7	16.2	17.0	14.7

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [3]	Valid Data Capture 2023 (%) [4]	2019	2020	2021	2022	2023
36	325828	674362	Roadside	-	100.0	29.5	20.9	23.9	20.7	19.8
Co-located tubes										
CL1, CL2, CL3	318736	674930	Roadside	-	100.0	**44.8**	27.5	28.3	25.9	27.3
CL4, CL5, CL6	323121	672314	Roadside	-	100.0	30.4	20.1	18.2	16.1	17.8
CL7, CL8, CL9	327616	676343	Roadside	-	100.0	27.8	20.7	20.7	19.2	17.6
CL13, CL14, CL15	320101	672907	Kerbside	-	100.0	**46.6**	25.9	27.2	28.9	27.7
CL16, CL17, CL18	326151	673041	Roadside	-	100.0	-	30.3	26.7	23.2	25.4

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

☒ **Diffusion tube data has been bias adjusted.**

☒ **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.**

Notes:

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

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%).

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

Site ID	Site Name	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
ID4	Gorgie Road	Roadside	Automatic	-	98.0	0 (87.6)	0	0	0 (74.0)	0
ID5	St. John's Road	Roadside	Automatic	-	99.7	0	0	0	0	0
ID6	Currie High School	Suburban	Automatic	-	99.6	0 (79.4)	0 (32.0)	0	0	0
ID7	St. Leonard's	Urban Background	Automatic	-	97.9	0	0	0 (66.1)	0	0
ID8	Salamander Street	Roadside	Automatic	-	87.6	0	0 (90.8)	0	0	0
ID9	Queensferry Road	Roadside	Automatic	-	99.7	0	0	0	0	0
EDNS	Nicolson Street	Kerbside	Automatic	-	96.0	4	0 (100.6)	0 (102.6)	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%).

Figure A.1– NO_2 concentration trends at continuous monitoring locations

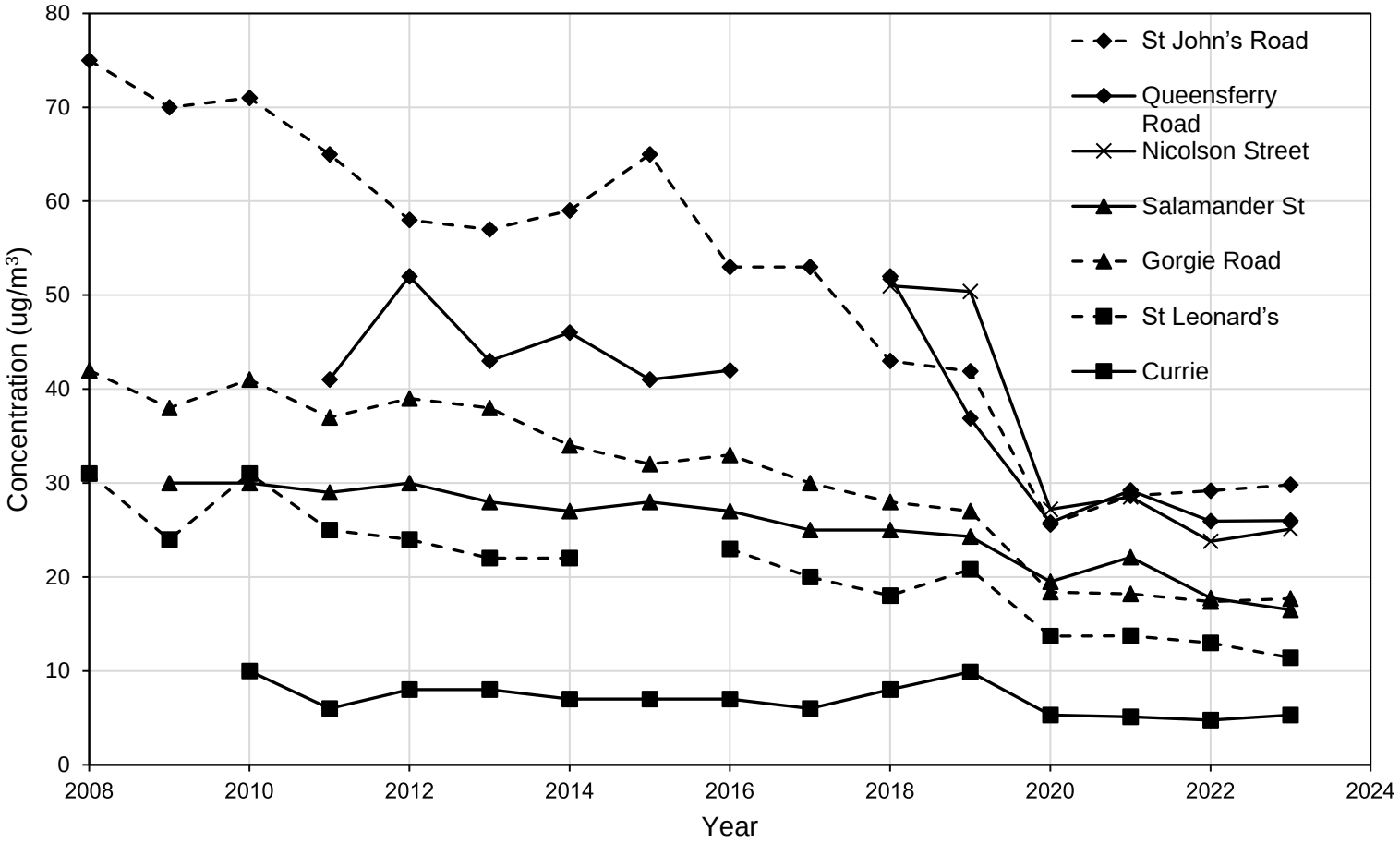


Figure A.2 – NO_2 concentration trends at passive diffusion tube monitoring locations

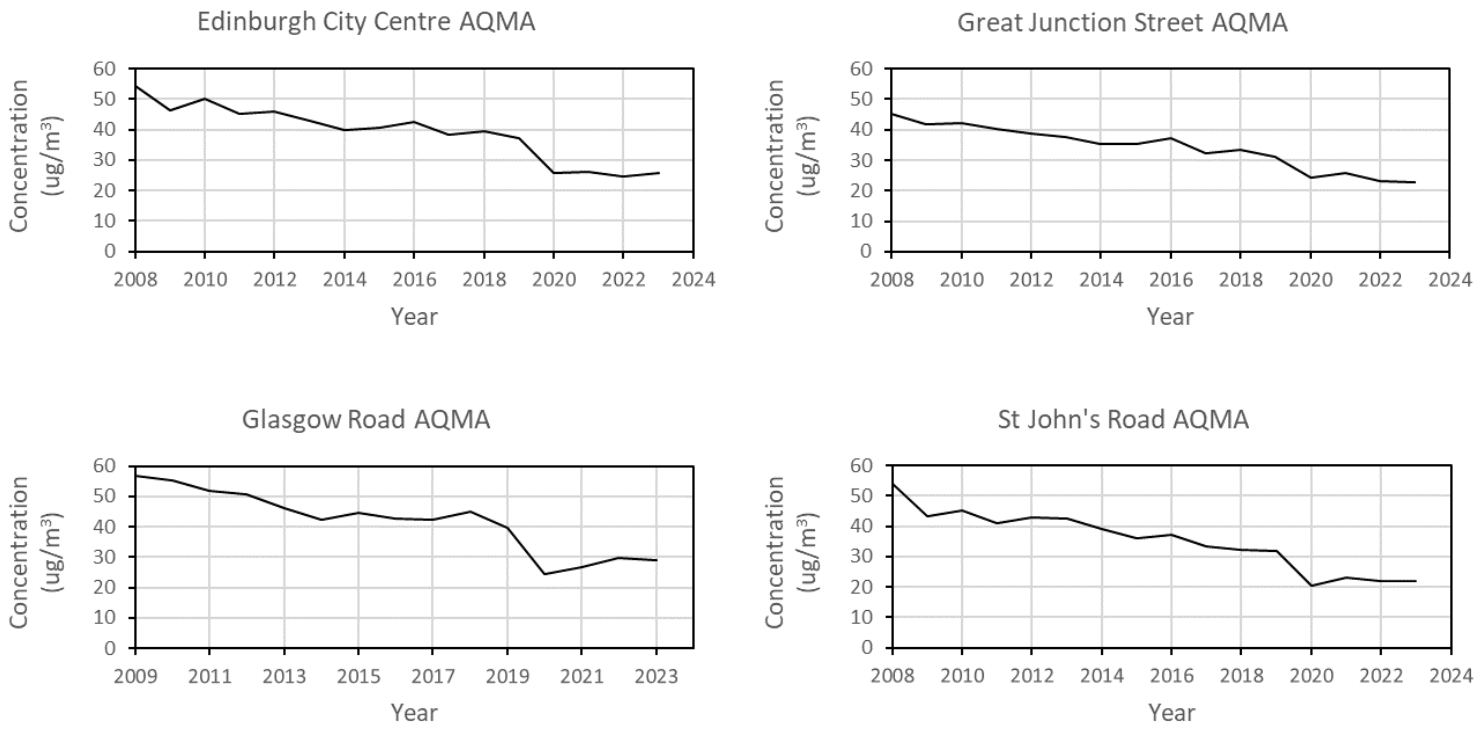


Table A.6 - Data used to establish the trend of annual mean concentrations of nitrogen dioxide at passive diffusion tube sites within the City Centre AQMA (µg/m^3)

Site ID	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
3	58.2	26.3	55.6	55.1	48.0	43.0	43.0	45.0	49.6	41.8	43.2	40.5	29.1	31.1	33.3	32.3
3b	N/A	N/A	N/A	N/A	N/A	N/A	45.0	42.0	44.0	41.0	43.0	40.0	30.0	28.9	29.7	30.2
5	N/A	58.2	60.1	54.3	51.9	48.5	43.3	42.0	44.0	42.7	42.0	33.3	25.6	23.7	20.8	24.3
20	53.1	36.8	38.1	N/A	35.0	34.0	32.0	33.0	39.7	N/A	45.3	37.9	-	-	23.2	22.4
23	N/A	47.5	58.2	41.4	45.1	41.2	45.7	37.0	39.7	34.3	37.1	35.3	21.0	24.9	21.6	20.4
24	N/A	46.2	73.0	N/A	49.7	59.9	N/A	54.0	56.7	54.2	52.7	53.2	29.1	34.4	36.4	39.4
25	58.2	50.8	49.7	43.6	45.0	41.0	39.0	40.0	45.7	37.9	37.1	33.2	25.8	29.1	25.5	23.6
27	52.3	48.4	49.4	48.7	52.0	47.0	48.0	N/A	53.0	37.4	40.4	40.6	23.0	28.8	23.9	31.0
46	52.3	43.4	46.2	40.4	46.0	38.0	38.0	37.0	39.3	39.7	37.4	34.9	22.8	27.1	22.6	24.3
47	N/A	31.6	47.5	39.0	N/A	41.0	41.1	38.0	40.8	38.1	35.5	36.2	26.4	26.0	25.2	27.4
49	N/A	48.2	54.5	53.5	50.8	46.8	39.3	36.0	41.7	38.1	37.0	37.2	26.1	27.0	23.2	25.1
67	N/A	47.9	51.3	45.5	46.0	46.0	39.0	42.0	40.5	42.1	41.7	36.9	25.5	30.1	27.4	29.0
69	N/A	56.2	50.6	50.4	42.0	40.0	42.0	43.0	39.3	36.5	37.8	35.4	39.3	27.8	26.3	24.2
70	N/A	47.3	46.1	42.4	41.0	44.0	38.0	44.0	40.0	38.2	40.1	37.6	32.3	32.6	34.1	28.3
80	N/A	N/A	47.4	42.2	42.0	44.0	37.0	33.0	38.0	34.2	36.5	33.3	20.7	26.3	24.0	23.6
81	N/A	N/A	N/A	51.2	46.0	44.0	43.0	50.0	56.7	40.9	42.6	50.0	44.0	40.6	29.9	25.0
22a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35.0	42.0	36.5	23.1	25.9	23.9	23.9
25b	44.9	38.8	39.1	35.8	35.0	34.0	31.0	31.0	34.7	29.9	31.8	30.1	21.5	24.9	21.6	19.5
25c	43.8	38.0	37.7	41.0	41.0	37.0	29.0	31.0	33.1	30.5	32.6	33.2	27.0	32.1	28.0	30.1
28b	72.5	66.7	62.4	57.0	61.0	52.0	56.0	58.0	58.9	N/A	64.9	54.2	24.8	23.0	26.0	38.9
28c	51.5	43.5	41.5	39.0	N/A	39.0	N/A	46.0	43.5	35.9	38.3	35.0	22.2	21.0	21.7	25.4
28d	66.6	60.2	54.9	55.2	60.0	58.0	51.0	52.0	50.8	46.9	51.4	44.0	24.5	23.6	26.9	32.1
33a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	29.0	33.0	28.7	19.7	23.7	22.9	25.4
37ai, 37aii	42.3	40.5	60.0	42.0	43.0	44.0	40.0	42.0	54.1	56.5	56.3	52.5	33.4	23.4	25.0	24.5
37b	N/A	N/A	N/A	37.1	39.0	37.0	35.0	36.0	36.7	34.1	37.1	38.8	21.7	21.1	22.2	23.2
48a	N/A	N/A	37.7	31.4	40.0	35.0	36.0	34.0	37.4	27.6	35.6	38.2	21.5	22.7	20.9	21.1
48c	N/A	N/A	N/A	N/A	43.0	42.0	34.0	41.0	40.0	41.0	34.0	36.0	31.0	24.0	24.4	25.7

Site ID	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
48e	N/A	N/A	N/A	N/A	N/A	39.0	35.0	44.0	41.0	48.0	37.0	29.6	23.6	26.1	24.5	25.9
74f	N/A	N/A	43.4	44.7	47.0	34.0	30.0	26.0	30.8	30.4	30.3	25.7	19.5	21.3	19.1	20.8
76b	N/A	N/A	N/A	N/A	51.0	46.0	41.0	46.0	44.0	39.0	40.0	33.8	25.6	24.3	21.1	21.3
77b	N/A	N/A	N/A	N/A	46.0	42.0	38.0	38.0	36.0	33.0	36.0	34.2	27.2	23.1	20.3	20.2
79d	N/A	N/A	N/A	N/A	N/A	46.0	41.0	42.0	39.0	38.0	40.0	34.5	24.4	22.7	22.6	22.6
80f	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35.0	32.5	20.0	22.3	20.5	20.1
80g	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	39.0	31.1	21.8	24.2	21.4	20.6
80h	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	28.0	27.2	17.5	21.0	16.2	19.0
HT1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	37.0	42.0	41.0	31.0	36.5	22.7	25.1	24.7	24.9
HT2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	39.0	39.0	33.0	41.0	40.8	22.9	26.2	29.3	29.5
SH1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	39.0	36.0	N/A	40.0	37.0	28.8	29.7	27.5	26.4
Mean	54.2	46.1	50.2	45.0	45.9	42.9	39.7	40.6	42.6	38.3	39.6	37.0	25.5	26.2	24.7	25.6

Table A.7 - Data used to establish the trend of annual mean concentrations of NO_2 at passive diffusion tube sites within the Glasgow Road AQMA ($\mu g/m^3$)

Site ID	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
16	57.3	54.7	50.9	54.8	44.9	45.6	46.0	44.8	39.6	46.0	40.9	26.7	27.9	27.7	32.0
15a	N/A	N/A	N/A	N/A	N/A	34.0	39.0	33.0	35.0	38.0	32.0	17.3	21.5	25.3	26.0
58i, 58ii	61.8	65.0	59.3	54.8	52.0	51.9	51.3	49.0	50.9	52.0	46.0	29.2	30.7	34.8	31.2
15	51.4	45.7	45.9	42.5	41.4	38.6	42.8	44.0	44.4	43.7	39.2	24.3	26.6	31.8	27.7
Mean	**56.8**	**55.1**	**52.0**	**50.7**	**46.1**	**45.4**	**46.7**	**45.9**	**45.0**	**47.2**	**42.0**	**26.7**	**28.4**	**29.9**	**29.2**

Table A.8 - Data used to establish the trend of annual mean concentrations of NO_2 at passive diffusion tube sites within the Great Junction Street AQMA (µg/m^3)

Site ID	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
29	45.3	45.1	43.7	38.9	37.0	36.0	31.0	32.0	33.2	32.1	29.8	25.9	21.7	21.2	20.9	20.7
29a	48.0	42.0	44.6	41.9	40.0	38.0	34.0	34.0	37.2	27.4	31.1	27.1	25.0	23.9	20.8	20.7
29ci, 29cii	53.4	48.2	49.4	44.6	44.0	42.0	39.0	40.0	41.6	35.9	36.5	35.4	28.4	28.5	26.7	24.2
9	40.4	31.6	36.7	31.2	35.0	32.0	30.0	29.0	32.0	26.3	29.1	26.3	20.6	25.3	21.0	20.8
9a	-	-	45.5	46.2	44.0	41.0	41.0	42.0	39.8	35.1	36.5	32.8	29.2	27.6	26.5	23.0
9d	N/A	N/A	N/A	N/A	N/A	N/A	42.0	36.0	42.0	36.0	35.0	33.6	28.3	28.2	24.9	24.8
45d	42.4	40.9	38.3	39.6	37.0	34.0	34.0	37.0	33.2	33.2	32.0	31.2	25.9	25.7	24.7	23.0
30b	38.4	38.5	39.9	40.0	38.0	36.0	33.0	38.0	32.8	32.8	31.7	30.8	19.7	24.2	23.5	21.8
30c	50.2	42.6	44.1	38.4	38.0	39.0	37.0	34.0	40.3	34.2	37.1	33.1	22.7	25.1	22.6	24.2
30e	43.1	41.9	38.7	41.2	37.0	36.0	33.0	32.0	34.0	-	33.9	33.3	20.2	28.0	21.1	21.8
30	44.6	44.1	41.8	39.1	38.0	41.0	-	33.0	42.1	31.7	36.9	32.8	23.8	28.1	23.9	23.3
Mean	**45.1**	**41.7**	**42.3**	**40.1**	**38.8**	**37.5**	**34.7**	**35.1**	**36.6**	**32.1**	**33.5**	**30.9**	**23.7**	**25.8**	**23.1**	**22.6**

Table A.9 - Data used to establish the trend of annual mean concentrations of NO_2 at passive diffusion tube sites within the St John's Road AQMA (µg/m^3)

Site ID	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1	50.0	43.0	47.0	39.0	43.0	42.0	39.0	35.0	37.3	32.2	29.2	31.8	16.9	20.4	18.9	20.5
1b	48.8	44.2	43.5	38.4	44.0	41.0	37.0	33.0	36.1	28.5	27.7	27.3	17.4	20.8	19.2	19.5
1d	84.9	57.8	58.8	56.3	52.0	52.0	48.0	46.0	45.1	42.0	40.1	37.7	28.8	29.1	29.3	28.5
39	31.7	28.2	31.1	30.0	32.0	35.0	32.0	30.0	30.0	30.0	32.0	30.4	19.1	21.6	21.0	18.9
Mean	**61.2**	**48.3**	**49.8**	**44.6**	**46.3**	**45.0**	**41.3**	**38.0**	**39.5**	**34.2**	**32.3**	**32.3**	**21.0**	**23.4**	**21.5**	**21.9**

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

Site ID	Site Name	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
ID5	St. John's Road	Roadside	-	98.9	13.6	9.9	11.0	14.3	11.1
					15.0	10.9	12.1	15.7	12.2
ID6	Currie High School	Suburban	-	99.8	9.5	8.6	7.3	8.6	7.7
							8	9.4	8.5
ID7	St. Leonard's	Urban Background	-	99.9	10.9	8.1	8.5	9.2	8.6
					11.3	8.9	9.3	10.1	9.4
ID8	Salamander Street	Roadside	-	98.4	**18.1**	14.8	15.4	14.3	14.3
							17.0	15.7	15.7
ID9	Queensferry Road	Roadside	-	81.8	-	11.2	12.0	13.1	11.5
					-	12.3	13.2	14.4	12.6
ID10	Glasgow Road	Roadside	-	87.0	15.9	12.4	10.2	11.8	11.3
							11.3	13.0	12.5
ED012	Tower Street	Urban Industrial	-	99.9	10.7	8.6	9.9	10.0	9.2
					11.8	9.5	10.9	11	10.1
EDNS	Nicolson Street	Kerbside	-	99.8	-	9.5	10.1	12.1	10.9
						10.5	11.1	13.3	12.0

Notes:

Exceedances of the PM_{10} annual mean objective of 18 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.

Data in grey coloured cells is corrected FIDAS® data under terms of the LAQM Scottish Guidance Note, May 2023.

(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.11 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	Site Name	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
ID5	St. John's Road	Roadside	-	98.9	3	0	0	**12**	0
								12	0
ID6	Currie High School	Suburban	-	99.8	1	0	1	2	0
								2	0
ID7	St. Leonard's	Urban Background	-	99.9	1	0	0	1	0
								2	0
ID8	Salamander Street	Roadside	-	98.4	5	2 (51.2)	3	5	0
								6	0
ID9	Queensferry Road	Roadside	-	81.8	0	2	0	3	0 (26.2)
								3	0 (28.8)
ID10	Glasgow Road	Roadside	-	87.0	3	0 (37.4)	3	2	0
								4	0
ED012	Tower Street	Urban Industrial	-	99.9	1	0	0	1	2
								3	3
EDNS	Nicolson Street	Kerbside	-	99.8	-	0	0	2	0
								3	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.

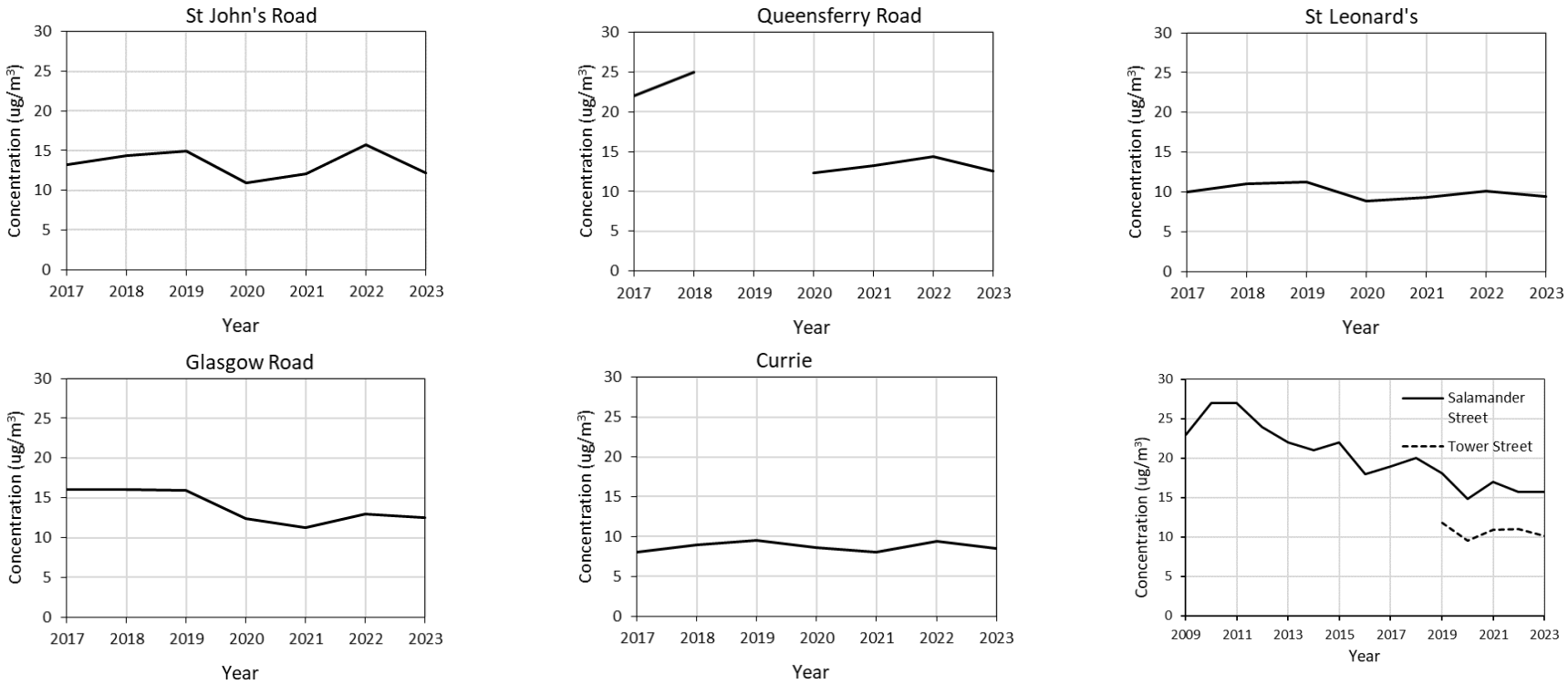
If the period of valid data is less than 85%, the 98.1st percentile of 24-hour means is provided in brackets.

Data in grey coloured cells is corrected FIDAS® data under terms of the LAQM Scottish Guidance Note, May 2023. Not undertaken retrospectively.

(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 – PM_{10} concentration trends at continuous monitoring locations



Notes:

- Salamander Street and Tower Street grouped together since both in the same AQMA for PM_{10}. Tower Street did not start data collection until 2019

- gap in data at Queensferry Road in 2019 due to instrument breakdown and no data collection

Table A.12 – Annual Mean $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	Site Name	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
ID5	St. John's Road	Roadside	-	98.9	7.0	4.9	5.5	6.0	5.4
					7.4	5.2	5.8	6.4	5.8
ID6	Currie High School	Suburban	-	99.8	-	-	4.3	4.7	4.2
					-	-	4.6	5.0	4.5
ID7	St. Leonard's	Urban Background	-	99.9	6.3	4.4	4.8	5.1	4.6
						4.7	5.1	5.4	4.9
ID8	Salamander Street	Roadside	-	98.4	-	-	5.9	6.3	5.5
					-	-	6.3	6.7	5.8
ID9	Queensferry Road	Roadside	-	81.8	-	5.2	5.5	5.9	5.3
					-	5.5	5.8	6.3	5.6
ID10	Glasgow Road	Roadside	-	87.0	-	-	5.1	5.7	5
					-	-	5.4	6.0	5.3
ED012	Tower Street	Urban Industrial	-	99.9	5.7	4.2	4.7	4.9	4.3
					6.0	4.5	5.0	5.2	4.5
EDNS	Nicolson Street	Kerbside	-	99.8	-	5.0	5.4	6.3	5.6
					-	5.3	5.8	6.7	5.9

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.

Data in grey coloured cells is corrected FIDAS® data under terms of the LAQM Scottish Guidance Note, May 2023.

(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.4– $PM_{2.5}$ concentration trends at continuous monitoring locations

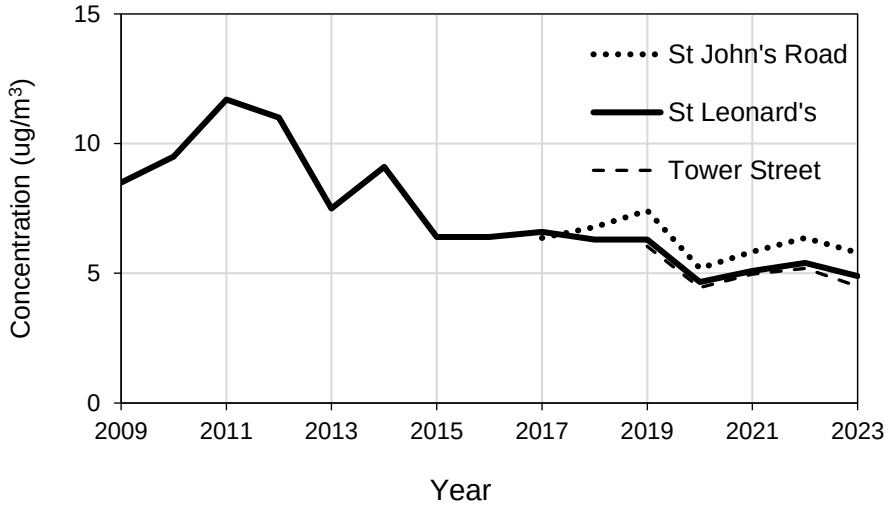


Table A.13 – SO_2 2023 Monitoring Results, Number of Relevant Instances

Site ID	Site Name	Site Type	Valid Data Capture for monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	Number of 15-minute Means > 266 µg/m	Number of 1-hour Means > 350 µg/m	Number of 24-hour Means > 125 µg/m
ID7	St Leonard's	Urban Background	-	97.0	0	0	0

Notes:

Exceedances of the SO_2 objectives are shown in bold (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed a year)

(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.14 - Number of Ozone exceedances at St Leonards

Site ID	Site Name	Site Type	Valid Data Capture for monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	Number of 8-hour Means > 100 µg/m
ID7	St. Leonard's	Urban Background	-	99.1	1

Notes: Exceedances of the O_3 objective are shown in red and bold

(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.15- PAH (B(a)P) Monitoring at St Leonard's

St Leonard's Urban Background	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Annual mean concentration (ng/m^3)	0.131	0.129	0.099	0.109	0.084	0.056	0.073	0.077	0.047	0.055	0.061	0.037	0.049	0.061	0.047

Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO_2 2023 Monthly Diffusion Tube Results ($\mu g/m^3$)

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
13a	324533	674655	22.2	18.8	20.0	22.1	19.6	14.4	12.4	15.1	17.7	13.5	16.5	19.1	17.6	15.6		
16	313028	672633	30.8	27.5	36.9	41.3	41.6	32.2	33.4	34.7	44.9	36.0	42.7	32.7	36.2	32.0		
15a	312711	672674	35.2	31.3	32.6	28.8	26.9	27.0	23.0	27.6	30.1	19.5	36.5	34.5	29.4	26.0		
58i	312693	672670	39.1	37.8	35.0	10.9	37.0	33.2	31.7	41.6	34.9	28.1	40.1		-	-		Duplicate Site with 58i and 58ii - Annual data provided for 58ii only
58ii	312693	672670	38.4	33.8	46.2	27.1	44.8	36.7	36.4	37.3	38.7	29.0	40.5		35.4	31.2		Duplicate Site with 58i and 58ii - Annual data provided for 58ii only
15	312664	672672	32.3	31.3			36.1	29.9	33.1	33.0	33.4	20.8	34.3	29.8	31.4	27.7		
56	319208	672917	26.4	24.4	20.5	22.2	23.5	18.2	17.1	17.4	17.9	15.8	24.0	25.3	21.1	18.6		
143a	324699	674651	24.8	20.3	46.4	19.4	20.4		13.1		18.5	15.3	22.1	18.4	21.9	19.3		
41	320081	673232	20.8	24.3	15.5	12.0	15.0	12.7	8.9	11.6	13.2	12.7	21.7	17.7	15.5	13.7		
55i	324638	675993	37.5	20.7	31.2	29.4	32.2	28.2	25.2	27.7	29.7	25.6	35.1	29.9	-	-		Duplicate Site with 55i and 55ii - Annual data provided for 55ii only
55ii	324638	675993	36.9	29.4	29.8	28.7	30.6	24.8	29.2	29.9	26.3	23.7	32.5	25.3	29.1	25.7		Duplicate Site with 55i and 55ii - Annual data provided for 55ii only
63A	318749	674959	22.9	15.9	20.3	12.5	18.5	12.4	14.6	15.1	17.4	13.5	28.6	24.2	18.0	15.9		
64	318698	674955	46.3	42.2	49.6	39.4	54.1		80.6			34.8	57.4	25.5	47.8	**42.2**	28.8	
64b	318701	674964	25.7	22.6	23.1	18.9	24.4	13.8	18.0	21.3	18.9	17.5	31.2	21.2	21.4	18.9		
64a	318698	674964	27.8	20.1	25.1	17.3	25.0	20.0	19.8	20.0	21.5	16.0	32.2	19.2	22.0	19.4		
69J	318682	674957	41.5	44.6	49.3	43.2	49.0	42.0	42.2	45.0	39.0	38.7	54.2	36.8	43.8	38.7	27.0	
69I	318616	674968	37.5	39.3	34.8	33.4	36.8	37.1	33.0	36.3	37.6	28.7	48.6	38.9	36.8	32.5		
40	322144	674497	22.6	13.1	20.6	27.7	26.5	19.4	13.7	17.4	17.7	21.8	7.2		18.9	16.7		
23	323007	673198	24.0	27.0	33.5	33.2	20.8	20.5	16.4	19.2	20.3	21.7	17.2	23.8	23.1	20.4		
22a	322984	673189	30.7	16.3	36.8	31.3	27.2	25.2	21.9	27.3	20.9	24.5	31.9	30.4	27.0	23.9		
1d	320096	672907	37.0	25.8	25.2	31.1	28.6	22.0	29.9	30.9	36.1	25.3	36.6	58.5	32.3	28.5		
1b	320136	672914	19.1	22.8	26.3	27.5	25.5	24.1	17.3	22.4	14.8	16.7	29.0	20.0	22.1	19.5		
1	320122	672917	21.9	32.6	26.7	24.0	24.9	24.5	16.6	20.3	18.4	17.7	28.0	22.6	23.2	20.5		
39	319677	672991	28.6	25.2	19.3	25.9	19.8	15.0	19.1	19.1	18.1	13.6	28.2	24.5	21.4	18.9		
76b	323527	672285	25.4	24.3		26.2	23.6	24.0	19.2	22.1	24.9	18.9	32.3	25.0	24.2	21.3		
78a	322783	671530	11.7	13.3	13.7	10.7	11.9	8.7	7.3	8.2	7.4	9.3	20.2	11.6	11.2	9.9		
80e	322110	672268	26.4	24.2	25.2	24.3	21.2	17.4	17.8	17.1	21.9	18.3	23.6	17.5	21.2	18.8		
4a	318894	670493	18.3	16.2		17.8					15.1	20.6			17.6	16.1		

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
145	319990	672707	23.5	21.0	19.8	18.1		9.4	13.9	10.8	14.7	14.9	24.2	24.2	17.7	15.6		
145a	319834	672678				15.0	15.0		10.8	10.8	10.1	11.8	24.4	13.6	13.9	12.2		
79d	323926	672550	24.5		28.4	29.7	29.2	22.5	23.0	22.1	24.9	25.3	31.3	20.8	25.6	22.6		
79B	324451	672864	23.5	23.0	26.9	21.0	24.6	17.7	18.8	16.7	19.0	14.4	31.4	21.3	21.5	19.0		
80	321967	671666	26.0	27.3	26.3	34.4	28.1	18.8	21.1	19.3	31.2		34.5	27.1	26.7	23.6		
80f	323141	672345	10.2	24.1	27.2	29.4	25.8	23.0	18.9	21.1	18.7	20.9	29.9	24.2	22.8	20.1		
80g	323083	672311	28.6	28.8		26.5	22.9	18.5	18.3	19.8	24.0	18.7	28.6	21.6	23.3	20.6		
5	323484	672478	28.3	27.4	29.2	30.1	32.2	19.7	20.2	24.9	25.9	25.3	40.7	26.7	27.6	24.3		
11	319527	668420	15.7	14.7	14.1	15.0	16.0	12.8	10.9			13.8	22.5	10.8	14.6	12.9		
77b	322999	671876	21.3		27.7	23.4	21.2	21.8	19.8	20.7	20.2	16.9	35.4	22.9	22.8	20.2		
80h	323065	672295	27.4	21.8	27.2	22.9	20.4	15.7	15.7	14.9	17.9		31.9	20.4	21.5	19.0		
29a	327137	676529	24.1	20.9	27.2	27.9	27.2	21.2	18.1		20.8	21.7	25.9	22.8	23.4	20.7		
29ci	327135	676515	31.8	26.4	30.9	26.6	24.9	17.6	20.5	21.7	25.9	48.7	52.5	29.9	-	-		Duplicate Site with 29ci and 29cii - Annual data provided for 29cii only
29cii	327135	676515	31.1	29.0	30.3	26.5	28.0	18.2	18.9	20.1	20.5	22.0	28.9	26.3	27.4	24.2		Duplicate Site with 29ci and 29cii - Annual data provided for 29cii only
29	327148	676507	32.8	26.0	22.6	22.2	25.2	14.9		16.6	20.2	21.4	31.3	24.5	23.4	20.7		
119	326723	676136	23.8	22.5	20.6	25.4	17.7	15.7		18.6	21.7	16.6	24.4	22.6	20.9	18.4		
9d	326477	676759		24.3	33.3	27.7	30.7	31.5	24.7	23.3	27.5	22.9	35.4		28.1	24.8		
9	326379	676626	23.0	20.8	27.2	26.4	28.0	22.7	17.0	16.7	19.9	22.0	29.9	28.5	23.5	20.8		
9a	326430	676754	39.0	20.9	30.3	25.7	31.1	17.6	28.6	23.8	19.5	21.1	31.7	23.0	26.0	23.0		
30f	327106	675816	28.9	24.5	26.1	24.2	25.9	20.6	20.9	25.6		25.2	32.9	23.4	25.3	22.3		
25c	326958	674770	43.7	26.7	48.4	23.1	21.7	23.3	22.4	26.6	42.5	42.9	56.7	31.7	34.1	30.1		
25e	326999	674940	26.9	24.0	24.1	21.4	24.1	18.8	21.2	19.9	19.2	17.1	37.1	21.4	22.9	20.3		
20a	325956	674725		17.4	18.0		15.1	11.3	13.9			14.2	24.7		16.4	13.8		
25	326934	674503	26.1	24.1	29.3	28.6	28.6	25.5	22.1	25.4	24.9		30.8	26.8	26.6	23.5		
25b	326950	674624	24.0	21.8	28.0	12.7	20.3	19.5		22.3	20.4		29.4	23.0	22.1	19.5		
18A	325873	676283	38.0	31.2	30.1	27.6	24.0	25.7	25.8	28.3	30.8	22.0	33.0	27.3	28.7	25.3		
53	324726	676004	36.1	30.5	26.4	22.7	22.1	17.7	21.4	24.2	26.2	21.3	32.2	27.5	25.7	22.7		
45b	326359	676420	31.3	19.4	22.7	19.5	27.8	16.3	23.0	17.1	25.4	53.4	66.3	54.2	31.4	27.7		
45d	326503	676436	36.4	26.4	28.9	26.6	21.0	19.1	23.1	22.2	27.8	21.4	35.6	24.3	26.1	23.0		
30b	326740	676138	33.4	28.2	27.0	23.1	24.0	16.9	7.3	25.1	29.7	17.7	32.1	31.1	24.6	21.8		
30c	326925	675949	23.4	21.8	30.0	32.7	29.4	32.0	23.8	21.7	24.6	26.1	37.2	25.7	27.4	24.2		
30e	326845	676015	29.0	24.7	28.9	24.3		21.2	21.3	21.7	25.0	20.1	30.6	24.3	24.6	21.8		
30	326884	675997	26.0	24.9	24.7	27.5	25.1	29.8		23.4	25.6	25.3	33.4	24.5	26.4	23.3		
20	326361	674882	14.6	21.8	24.4	27.4	26.2	20.1	24.3	29.7	27.6	23.8	36.6	28.4	25.4	22.4		
67	327190	674433	35.2	34.1	32.5	32.7	39.9	34.5	24.8	33.0	32.1	25.8	40.4	29.7	32.9	29.0		
81	326980	674446	36.5	23.3	29.5	20.3	27.4	18.9	30.1	28.4	33.5	28.4	33.3	29.5	28.3	25.0		
116	328245	674166	35.7	24.4	30.5	26.6	37.9	28.0	22.2	24.7	24.7	24.2	33.9	34.8	29.0	25.6		
46	326944	674472	31.8	29.3	25.7	22.6	28.5		23.9	28.5	23.8	21.6	31.3	35.3	27.5	24.3		
69	328272	674143	36.4	31.0	27.4	24.3	27.5	19.7	23.7	24.0	22.6	28.2	26.4	38.3	27.5	24.2		

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
70	328337	674129	37.6	27.4	42.0	23.7	29.9	30.2	25.0	31.3	38.1	23.1	44.3		32.1	28.3		
32	328889	671649	27.2	24.2	23.6	21.7	24.2	19.7	19.3	18.9	24.6	20.4	30.0	26.7	23.4	20.6		
71	330533	673850	28.4	22.9	24.2	20.9	24.0	15.9	17.4	19.7	25.3	12.7	22.4		21.3	18.8		
30X	325443	674969	26.2	19.3	24.6	25.2	18.4	14.4	17.3	18.3	18.9	16.5	24.9	18.6	20.2	17.9		
51c	327476	676418	32.2	24.0	21.7	21.5	22.0	13.4	17.6	17.3		19.6	32.5	26.7	22.6	19.9		
90F	330123	673554	26.5	22.9	16.8	23.3	19.5	18.3	14.6	17.9	18.4	18.5	31.1	18.8	20.6	18.1		
10B	325598	673616	35.2	38.8	31.4	29.9	31.5	17.6	24.9	26.9	27.6	20.3	38.0	27.2	29.1	25.7		
98	326383	672622	25.5	18.0	20.0	15.6	16.9	12.3	18.2	17.3	15.8	12.3	32.7	19.5	18.7	16.5		
44	325918	674430	28.7	23.1	27.7	29.0	28.8	25.9	21.2	23.8	25.5	24.2	36.0	25.6	26.6	23.5		
8A	324967	672916		24.0	23.2	18.2	25.5	18.0	17.3	22.4	22.6	21.1	25.1	28.2	22.3	19.7		
6a	324495	672035	18.3					13.4	13.9		20.2	17.2	28.6	19.5	18.7	15.7		
48G	326173	673700	40.3	33.5	32.9	36.5	33.7	24.7	30.8	31.6	32.2	30.4	34.4	32.2	32.8	28.9		
48h	326271	673722	34.7	30.1	30.1	27.6	27.4	27.1	26.6	23.9	44.0	39.7	40.6	53.6	33.8	29.8		
94	324071	673608	24.1	19.6	12.4	15.2	20.5	1.9	15.5	18.5	19.5	19.1	23.8	23.8	17.8	15.7		
138	326229	672789	28.4		27.1	17.1	22.7	15.1	21.6	21.3	46.3	31.3	41.3	30.3	27.5	24.3		
151	324367	670473	22.0	18.3	21.0	15.7	12.4	12.5	13.9	15.5	16.5	21.6	30.7	20.3	18.4	16.2		
48f	326198	673587	32.6	28.9		29.8	25.9	27.4	20.9	23.5	22.1	25.4	33.9	29.5	27.3	24.1		
48c	326047	673519	41.6	31.1	32.5	24.7	29.5	21.0	21.4	29.6	32.2	24.0	34.7	27.0	29.1	25.7		
48a	325929	673490	31.2	24.7	25.3	29.6	26.7				25.4		24.2	30.8	27.2	21.1		
48e	325537	673405	27.4	30.4	28.3	31.1	28.9	26.7	28.3	24.2	25.3	48.5	25.4	27.9	29.4	25.9		
123	326629	672524	23.0	18.2	18.6	17.7	17.4	13.0	12.7	18.4		13.2	26.7	18.3	17.9	15.8		
93	324326	673815	20.3	17.8	20.1	15.0	19.4	14.9	12.8	13.0	14.4	16.5	21.6	27.6	17.8	15.7		
97	326665	673616	25.0	9.7	14.8	12.3	14.4	12.9	10.0	13.0	13.7	13.9	28.7	17.5	15.5	13.7		
128	325253	674362	26.1	22.2	22.8	28.8	22.2	17.5	14.2	13.8		18.6	27.7	27.3	21.9	19.4		
8C	324864	673008	26.4	26.9	26.5	20.8	30.3	19.8	21.6		27.2	23.2	35.4	24.6	25.7	22.7		
124	326645	672481		17.3	18.6	13.9	18.6	12.8	13.7	15.2	15.7	19.9	30.1	19.3	17.7	15.7		
126	326588	672461	19.6	15.2	18.6	16.2	18.3	11.7	12.9	12.7	13.9	13.6	44.7	15.4	17.7	15.7		
74f	324880	673891	28.5	22.6	19.7	25.2	20.0	13.0	15.5	17.3	18.6	22.1	33.9	46.5	23.6	20.8		
37ai	325401	673340	41.5	23.6	33.7	19.1	25.8	24.3	38.6	24.3	27.2	38.7	32.1	29.0	-	-		Duplicate Site with 37ai and 37aii - Annual data provided for 37aii only
37aii	325401	673340	26.7			23.6	23.7		22.1	23.1	24.6	25.9	30.1	26.1	27.7	24.5		Duplicate Site with 37ai and 37aii - Annual data provided for 37aii only
37b	325471	673369	25.9		23.3	29.1			26.1	28.1	26.1	29.0	32.1		27.5	23.2		
37c	325397	673377	24.1	20.4	16.6	21.6	21.8	15.2			18.3	22.6	29.0	21.3	21.1	18.6		
75e	324476	673967	20.3	13.8	19.8	19.2	14.7	9.7	12.5	11.9	14.1	23.5	25.5	42.9	19.0	16.8		
HT1	323985	673219	30.1	34.1	28.8	30.3	24.2	23.6		25.3	22.2	28.7	32.5	29.9	28.2	24.9		
HT2	323787	673212	39.2	29.9	31.3	37.8	33.1	24.4	30.0		36.3	36.2	36.0	33.5	33.4	29.5		
10	324904	672906	25.0	23.6	22.0	21.3	25.9		41.2	19.5	7.8	19.7	30.7	45.2	25.6	22.6		
140	326323	672596		21.6	21.6	23.4	20.2	16.6	19.4	22.0	18.8	18.8	29.6	23.2	21.4	18.9		
34	324790	674341	19.9	16.8	15.3	15.6	15.0	9.7	9.6	10.7	10.3	13.6	20.7	19.7	14.7	13.0		
8B	324989	673016	25.2	27.0	26.6	23.1	26.2	21.3	18.7	22.3	22.4		34.7	37.8	25.9	22.9		

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
74g	325897	674051	36.7	26.8	38.4	41.1	46.6	37.9	38.3	39.5	36.8	33.6	38.4	38.3	37.7	33.3		
62A	324777	673425	46.8	45.0	48.1	31.7	41.7		39.7	39.1		40.0		40.0	41.3	36.5		
62B	324827	673138	33.2	38.8	41.4	37.1	33.6	36.3	28.0	35.2	38.6	26.0	95.6	27.4	39.3	34.7		
62X	324711	673635	46.5	38.4	41.3		32.2	24.7	29.7	31.2		28.0	38.5	45.7	35.6	31.5		
130	325804	673752	35.6	26.8		35.1	38.0		29.0	39.2	30.3	27.3	36.6	32.2	33.0	29.1		
38	325141	672733	24.3	20.2	18.8	12.5	19.6	9.1	11.7	16.5	14.9	16.4	28.6	18.7	17.6	15.5		
42	325105	670511	11.5	11.1	11.8	11.5	10.9	7.8	7.9	7.7	7.7	6.9	18.8	8.9	10.2	9.0		
79E	324170	672919	26.7	19.1	25.1	22.9	22.1	17.2	15.3	17.9	15.3	13.8	23.9	20.3	20.0	17.6		
62C	324541	673183	37.5	31.7	29.1	33.1	26.8	25.2	25.6	26.6	28.4	57.1	31.5	31.3	32.0	28.2		
49	324167	673249	32.1	32.1	29.9	27.9	30.0	24.8	27.4				25.2	26.5	28.4	25.1		
135b	326099	673140	30.2	36.4	32.3	25.0	34.5	32.7	47.7	35.0	28.3	20.5	41.2	32.5	33.0	29.2		
136	326164	673054	19.7	24.6	27.7	27.5	28.4	24.0	20.6	21.6	25.5	22.3	32.1	29.4	25.3	22.3		
95	324105	673457	25.4	23.4	17.9	24.8	20.1	14.6	17.0	19.7	20.6	19.7	26.0	24.5	21.1	18.7		
96	324190	673380	28.0	24.2	31.6	39.4	30.4	30.8	22.5	22.5	25.5	26.4	26.5	17.9	27.1	24.0		
27	325944	673670	28.0	26.9	32.3	42.5	40.2	34.1	37.9	40.8	35.7		31.3	36.5	35.1	31.0		
47	325049	673791	37.4	31.0	33.4	28.5	31.3	27.5	25.6	30.2	29.8	32.6	34.8	30.7	31.1	27.4		
24	325397	673869	48.2	52.4	33.7	50.5	49.0				33.5	46.5	43.7	44.4	44.7	39.4	30.6	
33a	324817	674077	32.6	25.1	28.3	25.1	25.5	20.6	23.1	24.5	23.8	26.6	29.1	61.0	28.8	25.4		
33	325467	674229	31.9	28.3	27.6	30.5	21.6	17.2	22.9	25.0	25.8	22.8	37.4	40.4	27.6	24.4		
SH1	324513	673556	24.1	21.2	28.6	37.2	28.6	31.5	25.8	27.9	28.8	34.3	38.1	32.9	29.9	26.4		
144	326020	673370	30.7	24.9	29.8	30.5	35.4	33.4	31.4	37.7	37.3	31.0	49.6	28.9	33.4	29.5		
141	326383	672472	25.2	20.9	21.6	21.9	25.4	19.1	22.4	25.0	20.1	21.8	43.9	34.6	25.2	22.2		
75d	324646	674025	20.2	17.4	22.6	25.3	21.0	15.7	12.5	15.5	16.1	16.9	42.0	21.1	20.5	18.1		
28e	326559	672610	21.6	19.8	17.9	18.6	22.5	14.2	16.2	16.5	19.4	15.4	28.0	18.5	19.1	16.8		
36	324277	673309	41.6	32.1	38.0	42.5	37.6	35.4	31.1	27.5	28.0	32.0	33.7	31.1	34.2	30.2		
3	324258	673295	48.1	35.0	33.3	40.8	34.7	33.7	34.6	34.1	35.0	40.4	38.1	30.6	36.5	32.3		
162	326443	673433	18.2	14.8	9.9	11.3	13.1		8.0	11.5	9.9	10.4	23.2	14.0	13.1	11.6		
2	324193	673346	52.5	41.9	46.1	43.9	43.0	34.5	35.7	36.5	36.8	30.9	38.5	40.5	40.1	35.4		
28d	325203	673250	35.9	42.1	34.4	34.6	38.0	31.2	34.7	40.6	33.6	29.4	46.4	35.1	36.3	32.1		
28b	325166	673242	41.9	39.0	44.4	43.9	43.9	44.1	43.2	53.0	36.6		44.7	49.8	44.0	38.9		
28c	325184	673261		33.0	26.5	27.2	30.3	27.2	24.9	30.4	25.2	27.2	37.5	27.2	28.8	25.4		
91	326309	672397	21.1	16.6	17.9	17.1	16.1	12.3	13.3	14.0	15.6	15.0	23.2	17.6	16.7	14.7		
36	325828	674362	29.8	15.3	24.9	26.4	21.6	19.3	20.3	19.8	24.6	23.1	21.0	22.9	22.4	19.8		
CL1	318736	674930	32.3	29.5	31.5	24.0	36.3	32.6	29.7	30.6	34.0	32.0	40.7	29.3	-	-		Triplicate Site with CL1, CL2 and CL3 - Annual data provided for CL3 only
CL2	318736	674930	31.3	28.5		26.8	32.5	28.5	29.2	25.0	30.4	34.2	39.6	27.6	-	-		Triplicate Site with CL1, CL2 and CL3 - Annual data provided for CL3 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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
CL3	318736	674930	28.4	29.5	30.4	27.3	34.8	26.4	29.8	27.8	28.7	35.2	40.4		31.0	27.3		Triplicate Site with CL1, CL2 and CL3 - Annual data provided for CL3 only
CL4	323121	672314		26.9	26.0	20.9	23.0	13.4	15.7	14.0	20.3	18.0	25.1	15.7	-	-		Triplicate Site with CL4, CL5 and CL6 - Annual data provided for CL6 only
CL5	323121	672314	25.4	26.3	27.6	20.7	20.3	13.3	14.0	15.0	17.0	15.6	23.8	18.7	-	-		Triplicate Site with CL4, CL5 and CL6 - Annual data provided for CL6 only
CL6	323121	672314	26.2	24.0	25.9	21.8	20.3	14.6	14.5	14.4		16.0	27.3	20.5	20.2	17.8		Triplicate Site with CL4, CL5 and CL6 - Annual data provided for CL6 only
CL7	327616	676343	25.9	21.5	16.8	21.6	17.3	14.0	16.4	15.0	22.2	16.7	27.0	18.9	-	-		Triplicate Site with CL7, CL8 and CL9 - Annual data provided for CL9 only
CL8	327616	676343	26.3	21.0	21.5	21.7	17.8		15.1	16.2	17.2	15.4	37.2	19.6	-	-		Triplicate Site with CL7, CL8 and CL9 - Annual data provided for CL9 only
CL9	327616	676343	28.9	20.8	24.4	17.3	20.1	13.1	17.2	17.2	18.2	14.6	28.2	20.0	19.9	17.6		Triplicate Site with CL7, CL8 and CL9 - Annual data provided for CL9 only
CL13	320101	672907	34.6	34.0	31.8	31.6	31.5	28.1	29.5	27.5	29.9	27.9	36.8	29.8	-	-		Triplicate Site with CL13, CL14 and CL15 - Annual data provided for CL15 only
CL14	320101	672907		34.5	29.7	25.4	35.3	25.0	27.2		35.1	23.6	43.5	36.9	-	-		Triplicate Site with CL13, CL14 and CL15 - Annual data provided for CL15 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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
CL15	320101	672907	35.5		27.8	31.7	32.2		28.9	30.3	32.0	25.3	36.8	33.0	31.3	27.7		Triplicate Site with CL13, CL14 and CL15 - Annual data provided for CL15 only
CL16	326151	673041	30.6	28.3	21.9	21.0	33.4	23.7	31.6	28.5	27.6	25.6	44.9	29.0	-	-		Triplicate Site with CL16, CL17 and CL18 - Annual data provided for CL18 only
CL17	326151	673041	37.1	27.3	25.2	22.4	30.1	22.8	28.2	27.6	27.9	24.1	41.8	30.6	-	-		Triplicate Site with CL16, CL17 and CL18 - Annual data provided for CL18 only
CL18	326151	673041	29.6	30.1	29.6	24.1	22.2	20.8	30.6	29.3	26.7		44.6	31.3	28.7	25.4		Triplicate Site with CL16, CL17 and CL18 - Annual data provided for CL18 only

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1. or was missing on collection.**

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

☒ **Local bias adjustment factor used.**

□ **National bias adjustment factor used.**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column.**

☒ **Edinburgh City Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

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 the City of Edinburgh Council During 2023

The City of Edinburgh Council has not identified any new sources relating to air quality within the reporting year of 2023.

Additional Air Quality Works Undertaken by the City of Edinburgh Council During 2023

The City of Edinburgh Council has not completed any additional works within the reporting year of 2023.

QA/QC of Diffusion Tube Monitoring

City of Edinburgh Council's diffusion tubes in 2023 were supplied and analysed by Edinburgh Scientific Services (ESS), using the 50% Triethanolamine (TEA) in acetone preparation method. ESS's laboratory is UKAS accredited, participating in the AIR-PT Scheme for NO_2 tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high caliber. In the AIR-PT results available for 2023, AIR PT AR055 (January – February 2023) ESS scored 100%, in AIR PT AR056 (May – June 2023) ESS scored 75%, in AIR PT AR058 (July - August 2023) ESS scored 100% and in AR059 (September – October 2023) ESS scored 50%. The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$.

The Council currently operate five co-location studies, all of which were rated as 'good' in 2023, as shown by the precision summary results. This precision reflects the laboratory's performance and consistency in preparing and analysing the tubes, as well as the subsequent handling of the tubes in the field. Tubes are considered to have a "good" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight

or more monitoring periods during a year is less than 20% and the average CV of all monitoring periods is less than 10%.

Monitoring in 2023 was completed in adherence with the 2023 Diffusion Tube Monitoring Calendar, whereby changeovers were completed within ±2 days of the specified date.

Diffusion Tube Annualisation

Annualisation is required for any site with data capture less than 75% but greater than 25%; consequently, 6 sites required annualisation in 2023. This was conducted using the latest version of the Diffusion Tube Data Processing Tool utilising data from the four nearest automatic background monitoring sites: Edinburgh St Leonards, Bush Estate, Peebles (all AURN) and Edinburgh Currie (Scottish Air Quality Network and known to be monitored and audited to AURN standards). These sites, alongside the details of the calculation method undertaken, are provided in Table C.2.

Diffusion Tube Bias Adjustment Factors

Edinburgh City Council have applied a local bias adjustment factor of 0.88 to the 2023 monitoring data. A summary of bias adjustment factors used by Edinburgh City Council over the past five years is presented in Table C.1. The bias adjustment factor is an estimate of the difference between diffusion tube concentration and automatic continuous monitoring.

Edinburgh co-locates triplicate tubes on the sampler head cages at roadside and kerbside monitoring stations: Gorgie Road, Queensferry Road, Salamander Street, St John's Road and Nicolson Street. Due to low automatic monitoring data capture at the Salamander Street station, these co-located tubes were not considered in the calculation of the local bias adjustment factor. Only data from the remaining four co-location sites were considered, and the local bias adjustment factor calculation was performed using the Diffusion Tube Data Processing Tool (see Table C.3).

The national bias adjustment factor for Edinburgh Scientific Services (ESS) in 2023, obtained from the national bias adjustment spreadsheet (v03/24) is 0.81 (based on one study).

The Council chose to use the local factor based on prior experience and guidance in Defra LAQM.TG(22):

- It is recommended by Defra LAQM.TG(22) and the LAQM Helpdesk that the local bias adjustment factor should be used where available and relevant
- the national bias adjustment spreadsheet notes that where there is only one study - which was the case for Edinburgh in March 2024 – the national adjustment factor should be used with caution, hence, this was not the preferred option.
- All four local sites in the co-location study used high quality chemiluminescence results with instruments and data maintained to AURN standards in the Scottish Air Quality Network.
- All four sites showed “good” precision with regards to the diffusion tubes
- The automatic monitoring sites are located in areas where a number of diffusion tubes are sited and, thus, a local factor is more relevant to the local conditions
- The higher local bias adjustment factor takes a more precautionary approach to analysing the passive diffusion tube data.

Although slightly higher than in recent years, the bias adjustment factor for 2023 remains commensurable with historical factors used in Edinburgh (see Table C.1).

Table C.1– Bias Adjustment Factor

Year	Local, National or Combined	If National, Version of National Spreadsheet	Adjustment Factor
2023	Local	-	0.88
2022	Combined	-	0.82
2021	Combined	-	0.84
2020	Combined	-	0.84
2019	Combined	-	0.84

NB - combined factor was calculated using Edinburgh’s local factor combined with data from the national study site at Marylebone Road

NO_2 Fall-off with Distance from the Road

Wherever possible, local authorities should ensure that monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure should be estimated using the Diffusion Tube

Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website.

Fall-off with distance calculations were undertaken at three sites where the site is not representative of relevant exposure and annual mean NO_2 concentrations were greater than 36 µg/m^3. This was completed using the latest version of the Diffusion Tube Data Processing Tool, and the output from this is presented in Table C.4.

QA/QC of Automatic Monitoring

All monitoring stations are subject to an independent audit and stringent QA/QC procedures which are undertaken by Ricardo Energy & Environment on behalf of the Scottish Government. This agreement commenced in 2007 (2013 for Currie). In addition, all data, including calibration data, are scrutinised daily by the Council (Monday to Friday) by visual examination, to check for any unusual measurements. Any suspicious data (e.g. large spikes) are flagged to undergo further checks. All data presented in this report have been ratified by Ricardo Energy & Environment to the relevant standards.

Staff competence

Council officers are trained as local site operators in relation to the management of the stations and undertake the necessary calibrations and basic maintenance. Shadow training is carried out where appropriate during half yearly audits (performed by Ricardo E&E).

Calibration procedures

All sites are visited fortnightly to perform calibration checks, apart from the National Network site at St Leonards which is managed as part of the AURN and is visited monthly. Manual calibration checks are performed using a zero-air scrubber and certified Nitric Oxide gas at approximately 450 ppb. Certified gas is supplied by BOC. Due to a calibration gas shortage in the UK throughout most of 2023, sites gradually moved to monthly calibrations to preserve on-site gas, as required. Data was analysed and ratified as normal.

Servicing

All instruments are serviced and recalibrated every six months by an appropriate supplier. The service contracts include a support package for software and replacement parts, plus any necessary call outs to the sites. Filters are changed on the Fidas® (particulate measurement) instruments every six months. Servicing follows half-yearly audits completed by Ricardo E&E.

During all visits to the monitoring stations, actions taken and activities noted adjacent to the site are recorded in the site logbook.

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

All eight monitoring sites in Edinburgh currently use the Fidas® 200 instrument to measure particulate matter. Following Scottish Government Guidance Note (May 2023) in relation to the measurement of ambient Particulate Matter (PM_{10} and $PM_{2.5}$) and the LAQM reporting of measured concentrations, correction factors are applied to data monitored by the Fidas® 200 instrument. The following correction factors have been applied to Fidas® data:

- Fidas® 200 PM_{10} data collected within the SAQD should be corrected by dividing ratified data (provided by the Air Quality in Scotland website) by 0.909
- Fidas® 200 $PM_{2.5}$ data collected within the SAQD should be corrected by multiplying ratified data (provided by the Air Quality in Scotland website) by 1.06

Automatic Monitoring Annualisation

All automatic monitoring locations within the City of Edinburgh Council recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data.

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within City of Edinburgh Council required distance correction during 2023.

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

Site ID	Annualisation Factor Edinburgh St Leonards	Annualisation Factor Edinburgh Currie	Annualisation Factor Bush Estate	Annualisation Factor Peebles	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
4a	1.0283	1.1015	1.0432	0.9723	1.0363	17.6	18.2	
145a	0.9777	0.9785	0.9616	1.0408	0.9896	13.9	13.8	
20a	0.9811	0.9251	0.9408	0.9630	0.9525	16.4	15.6	
6a	0.9600	0.9549	0.9734	0.9024	0.9477	18.7	17.7	
48a	0.8665	0.9089	0.9048	0.8328	0.8782	27.2	23.9	
37b	0.9396	0.9800	0.9705	0.9382	0.9571	27.5	26.3	

Table C.3 – Local Bias Adjustment Calculations

	Local Bias Adjustment Input 1 Queensferry Road	Local Bias Adjustment Input 2 Gorgie Road	Local Bias Adjustment Input 3 St Johns Road	Local Bias Adjustment Input 4 Nicolson Street
Periods used to calculate bias	12	12	12	11
Bias Factor A	0.84 (0.78 - 0.91)	0.87 (0.8 - 0.95)	0.95 (0.89 - 1.03)	0.88 (0.81 - 0.96)
Bias Factor B	19% (10% - 29%)	15% (5% - 24%)	5% (-3% - 13%)	14% (4% - 24%)
Diffusion Tube Mean (µg/m^3)	31.0	20.2	31.3	28.8
Mean CV (Precision)	5.4%	6.4%	7.0%	6.3%
Automatic Mean (µg/m^3)	25.9	17.6	29.8	25.2
Data Capture	100%	98%	100%	98%
Adjusted Tube Mean (µg/m^3)	26 (24 - 28)	18 (16 - 19)	30 (28 - 32)	25 (23 - 28)

Notes:

A local bias adjustment factor of 0.88 has been calculated using the Diffusion Tube Data Processing Tool

Table C.4– NO_2 Fall off With Distance Calculations (concentrations presented in µg/m^3)

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
64	1.5	10.7	42.2	11.2	28.8	
69J	1.4	10.0	38.7	11.2	27.0	
24	1.0	11.2	39.4	21.2	30.6	

Appendix D: Maps of Monitoring Sites

Figure D.1- Automatic Monitoring Locations

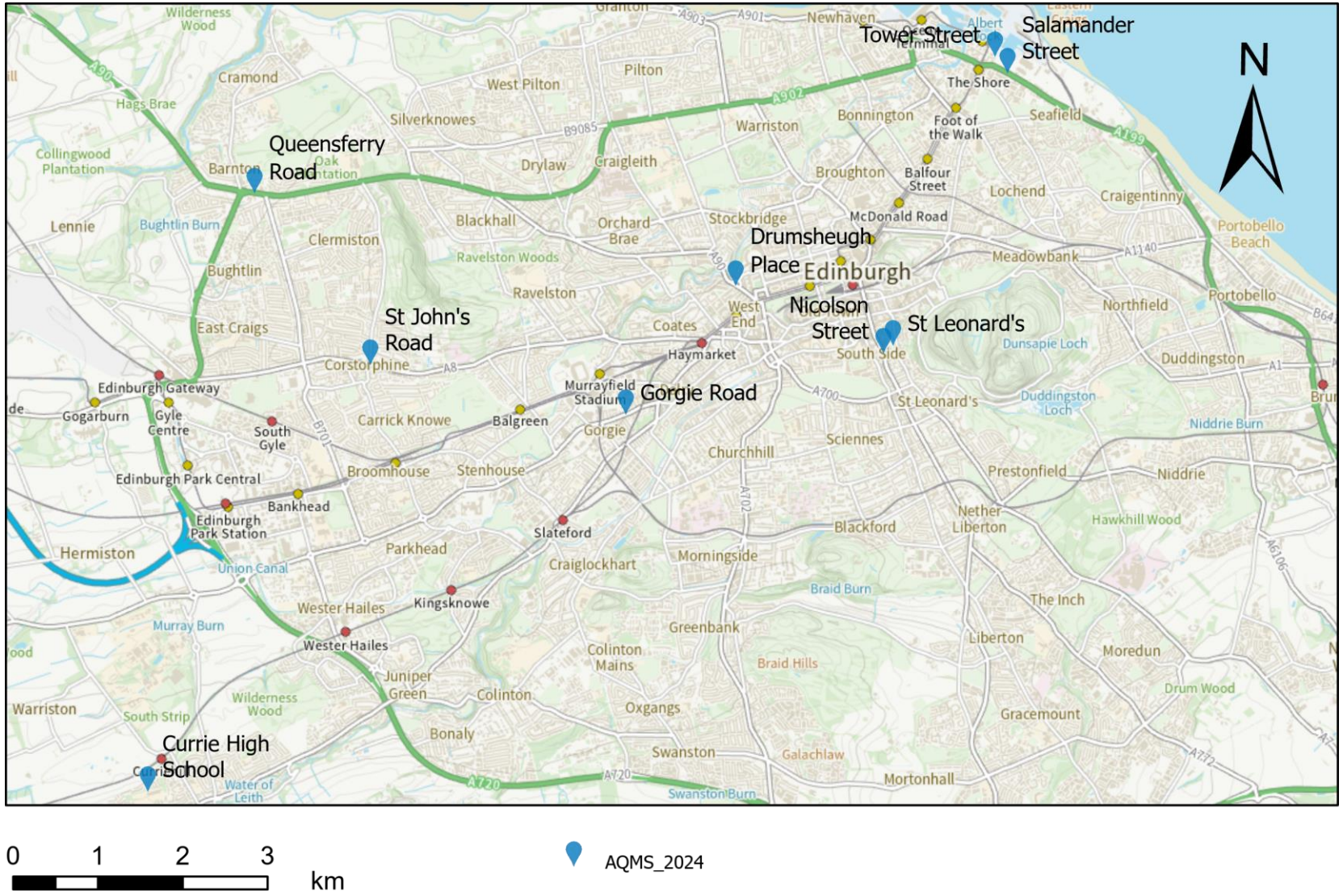


Figure D.2– Diffusion Tube Locations: City Centre AQMA

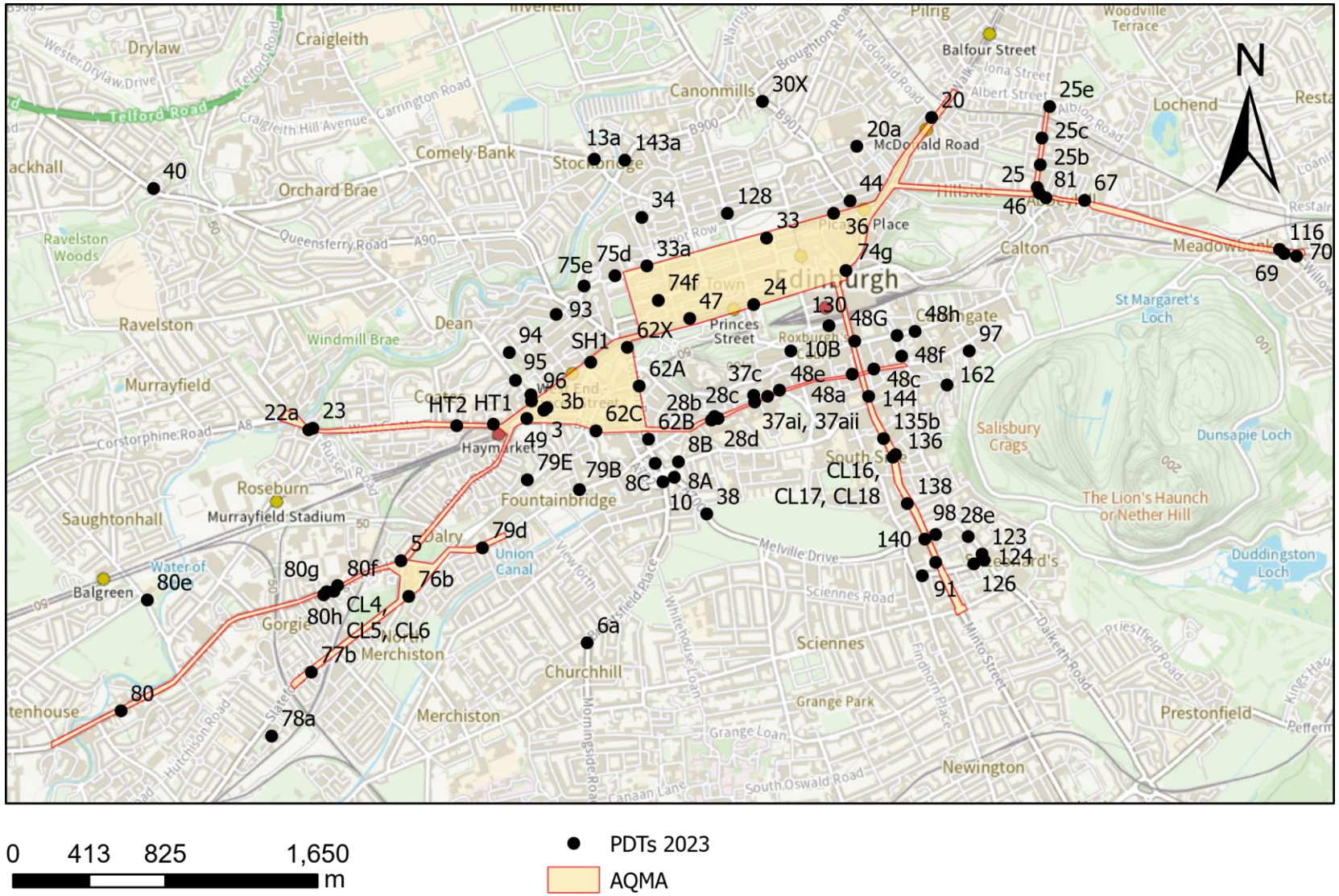


Figure D.3 - Diffusion Tube Locations: Glasgow Road AQMA

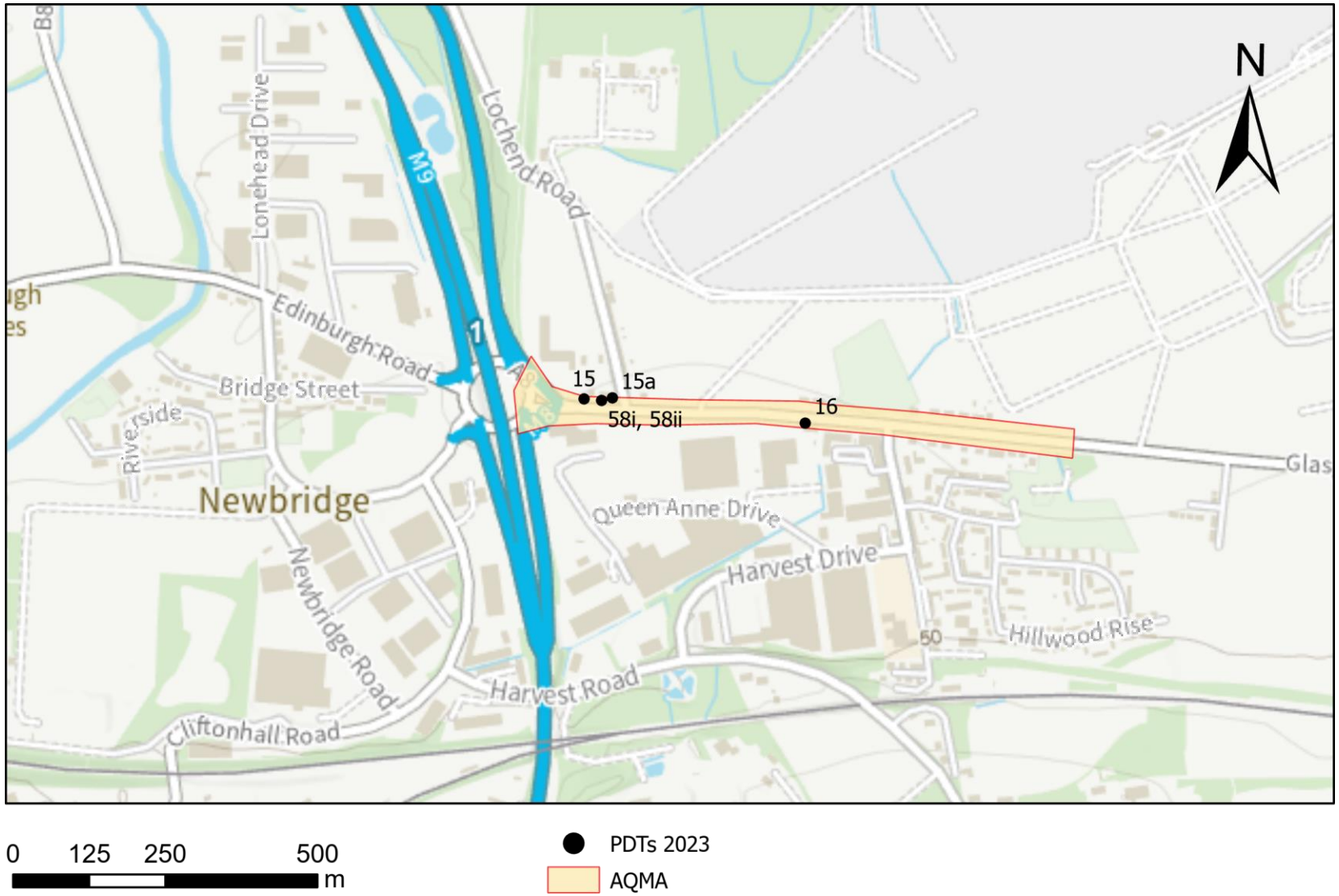


Figure D.4 - Diffusion Tube Locations: St John's Road

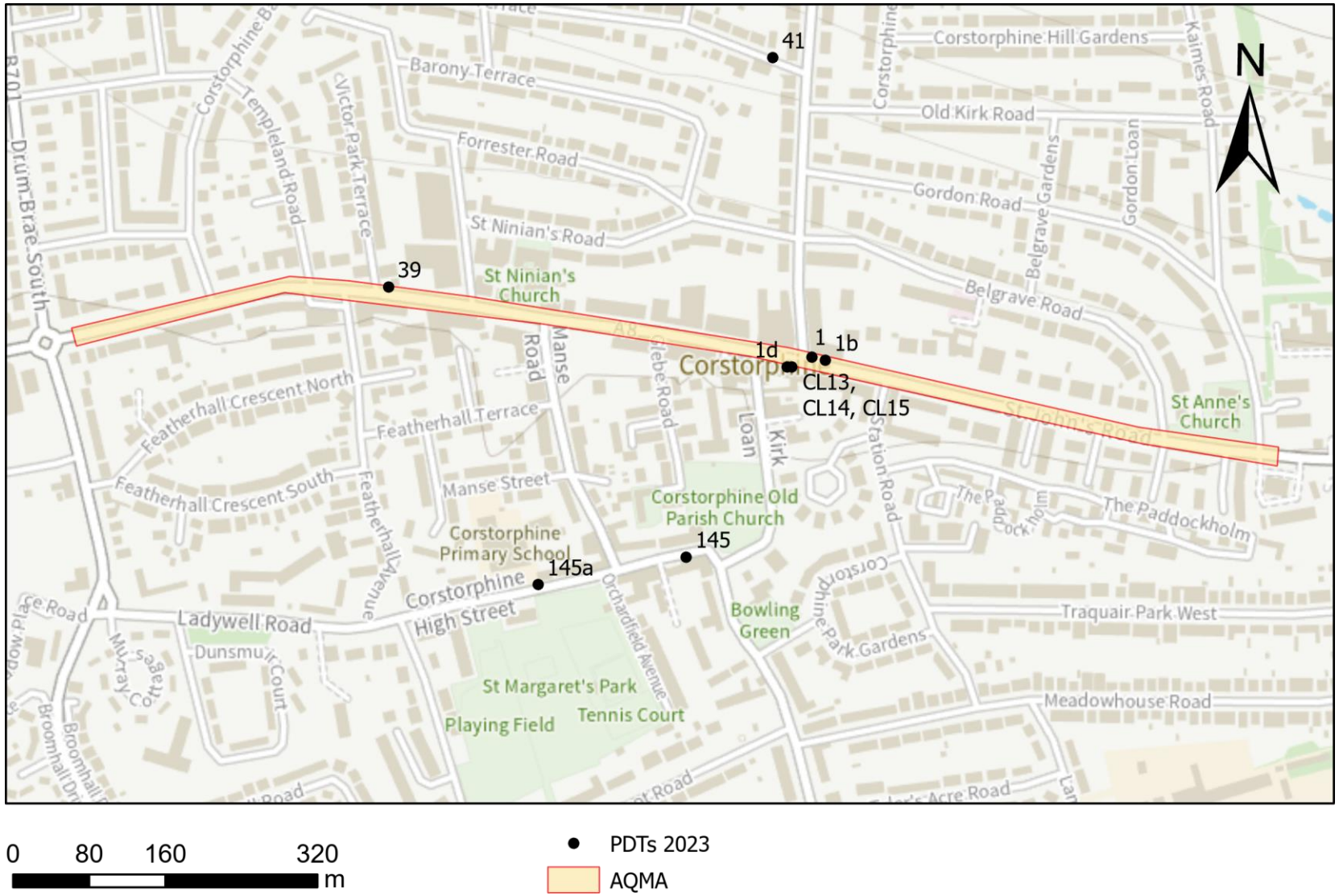


Figure D.5 - Diffusion Tube Locations: Great Junction Street and Salamander Street AQMAs

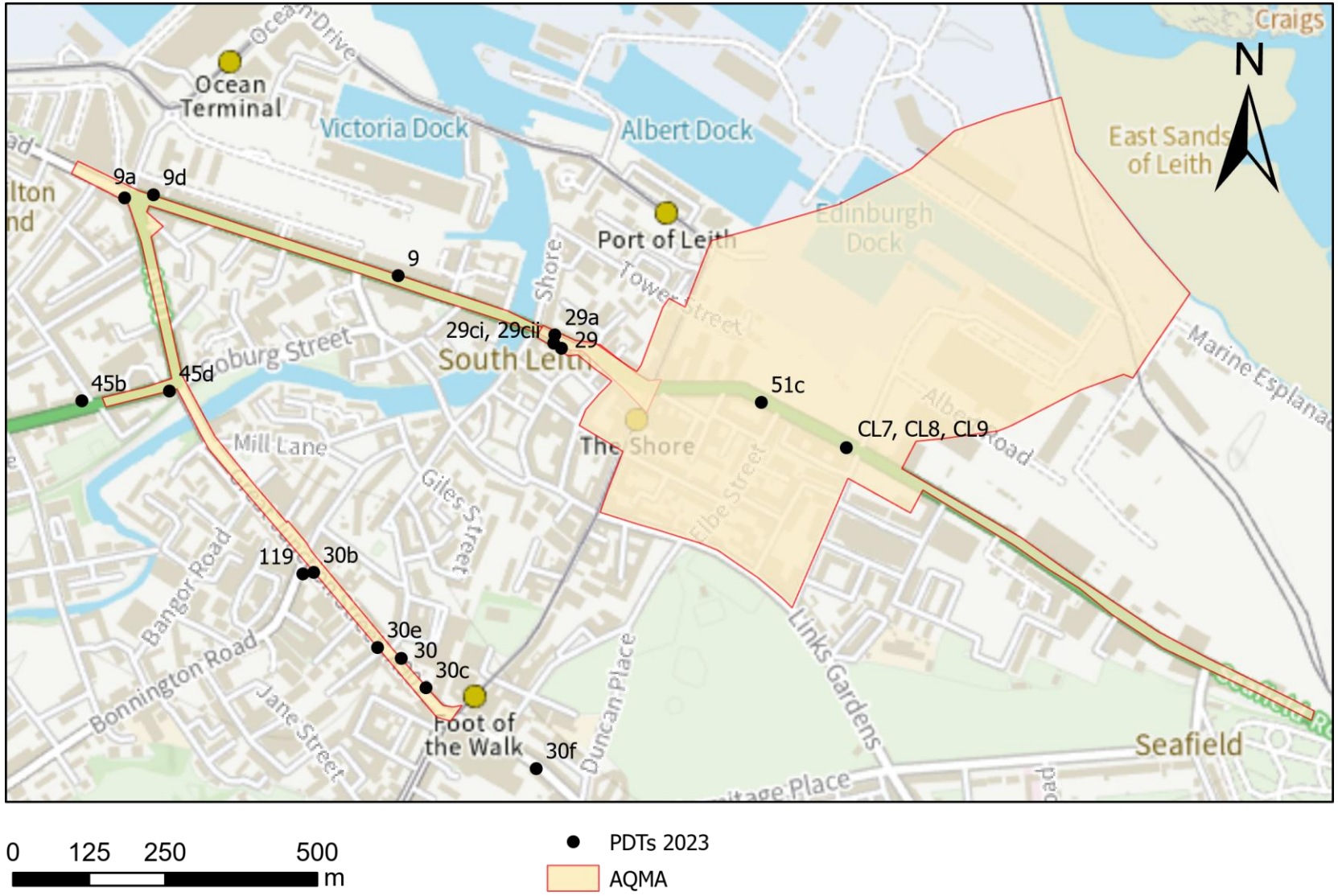
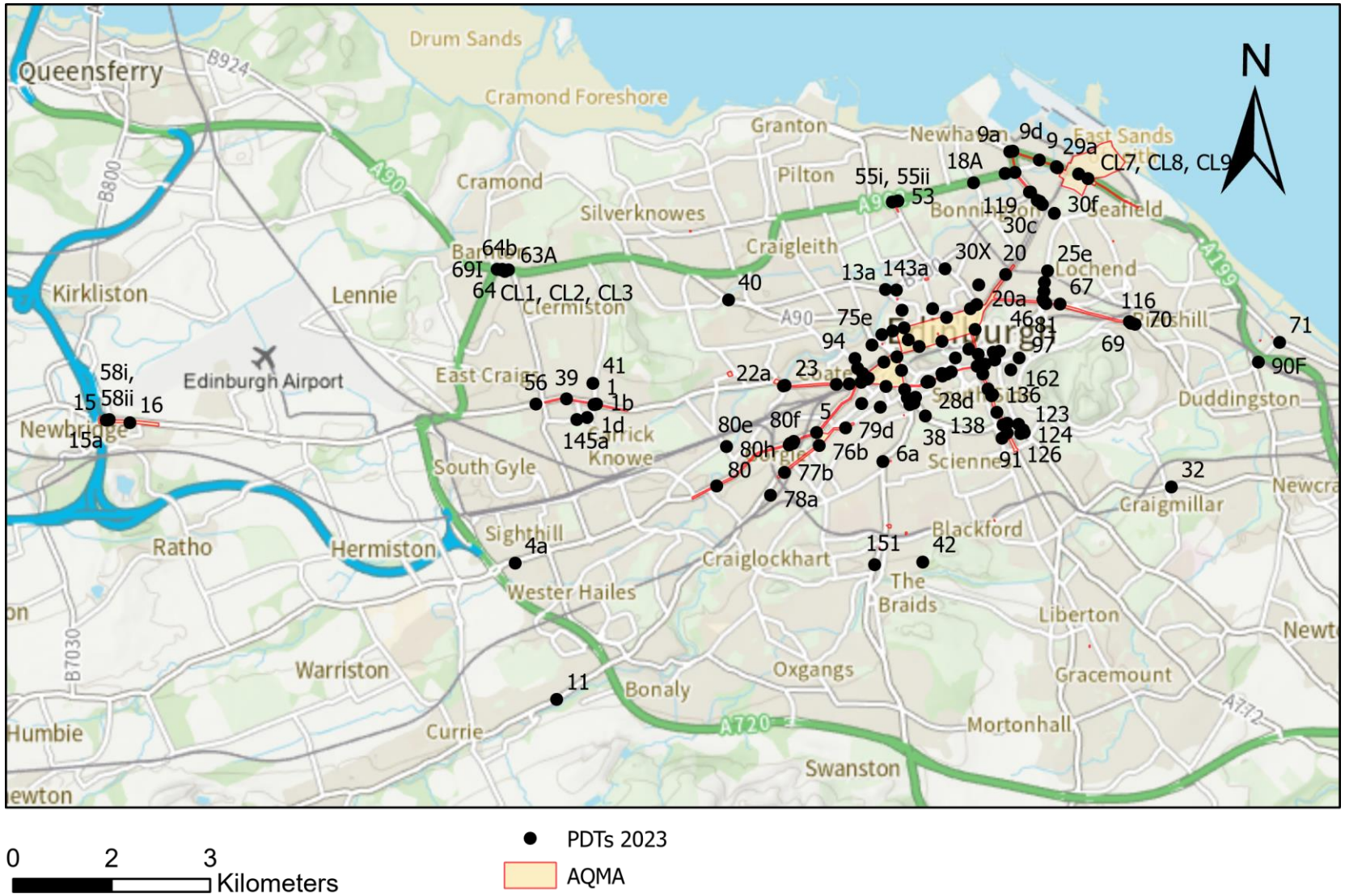


Figure D.6 - Diffusion Tube Locations: Overview



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'
AQIA	Air Quality Impact Assessment
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)
CCWEL	City Centre West East Link cycle route
CEC	The City of Edinburgh Council
CMP	City Mobility Plan (the Local Transport Strategy)
Defra	Department for Environment, Food and Rural Affairs
EDG	Edinburgh Design Guidance
EPOG	(The Council's) Events Planning and Oversight Group
LB	Lothian Buses
LAQM	Local Air Quality Management
NLEF	National Low Emission Framework (Scotland)
NMF	National Modelling Framework
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
PDT	Passive Diffusion Tube
PDR	Permitted Development Rights
PG(S)23	Policy Guidance (Scotland) 2023

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
WETIP	West Edinburgh Transport Improvement Programme