Annual Progress Report (APR)

2024 Air Quality Annual Progress Report (APR) for Aberdeen City Council

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

Local Air Quality Management

June 2024

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Executive Summary: Air Quality in Our Area

Air Quality in Aberdeen City

The Annual Progress Report has been undertaken to fulfil Aberdeen City Council's duty to annually review and assess air quality. The report provides the latest monitoring results and discusses the implications for air quality management in Aberdeen.

The main pollutants of concern in Aberdeen City are nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$), related to road traffic emissions.

There was no exceedance of the NO_2 annual mean objective of 40 µg/m^3 recorded at any monitoring location across the city in 2023. This is the first time this has occurred since monitoring records commenced.

Trends in NO_2 levels suggest that air quality continues to improve across the city.

There were no exceedances of the NO_2 one hour objective at any of the monitoring locations, nor were there any exceedances of the annual or 24-hour mean PM_{10} objectives. There were also no exceedances of the $PM_{2.5}$ annual mean objective.

The Anderson Drive and Wellington Road AQMAs will be reviewed in 2024, with a view to revocation of the AQMAs, due to improving air quality and continued compliance with the objective levels for NO_2 and PM_{10}.

The City Centre AQMA will be reviewed in 2024 with a view to amending the AQMA to remove the PM_{10} annual mean and 24 hour mean from the order, due to continued compliance with the objective levels.

The City Centre AQMA remains valid for the NO_2 annual mean objective. The recently established vehicle access restrictions have resulted in a significant improvement in air quality at city centre locations, and it is anticipated further improvement will be observed with the enforcement of the LEZ in 2024. Monitoring will continue to determine whether the objective continues to be met. The Air Quality Action Plan 2011 has been updated and is due to be published in 2024.

Actions to Improve Air Quality

This section provides a brief summary of core actions to target sources of pollution in Aberdeen City over the past year.

Low Emission Zone (LEZ):

- Procurement and installation of supporting infrastructure in preparation for enforcement starting in June 2024.

Policy and Strategy:

- Development of, and consultation upon, a revised draft Local Transport Strategy and supporting Air Quality Action Plan;
- Adoption of the Aberdeen Local Development Plan 2023, with supporting Planning Guidance on Transport and Accessibility, and Air Quality.
- Consultation on Aberdeen City Council's own Staff Travel Plan.

Active Travel:

- New segregated cycle facilities delivered as part of Phase 1 of the South College Street improvements;
- Pedestrianisation of Schoolhill/Upperkirkgate introduced;
- Continued delivery of cycle parking facilities, including the first phase of a roll-out of safe and secure parking in areas of high residential density;
- Continued progression of a programme of multimodal corridor studies, considering opportunities for improved active travel infrastructure on key transport corridors to and from the city centre;
- Commencement of a Regional Active Travel Network Review, to identify a prioritised programme of future walking, wheeling and cycling projects;
- Continued delivery of a travel behaviour change programme, including I Bike Schools and I Bike Communities.

Public Transport:

- Bus priority measures delivered on Market Street / Bridge Street / Guild Street;
- Continued progression of Aberdeen Rapid Transit (ART) Business Case;

- Continued progression of a programme of multimodal corridor studies considering opportunities for improved bus infrastructure on key transport corridors to and from the city centre.
- Installation of more sedum roof and solar powered bus shelters in the city.

Clean Vehicles:

- Continued expansion of the Car Club, with more electric and hydrogen vehicles added to the fleet for the public to use;
- Installation of more electric vehicle (EV) charge points in the city

Road Improvements:

- Completion of South College Street Improvements Phase 1.

Local Priorities and Challenges

This section provides a brief summary of the priorities and challenges for Aberdeen City Council in addressing air quality for the coming year.

Priorities:

- Full implementation of the LEZ, with enforcement commencing from June 2024;
- Commencement of Union Street Central streetscape works, including delivery of segregated cycle facilities;
- Completion and adoption of a revised Local Transport Strategy and Air Quality Action Plan;
- Completion of the Active Travel Network Review;
- Update the Strategic Car Parking Review;
- Publication of the second Walking and Cycling Index (WACI);
- Launch of second phase of residential cycle parking in high-density areas;
- Continued progression of ART and supporting corridor study Business Cases;
- Continued development of a revised Council Travel Plan and Staff Travel Policy;
- Continuing actions under the Council Climate Change Plan, including increasing access to car club vehicles for members of the public and Council staff;
- Growing and maintaining the network of publicly available EV charge points across the city;

- Continuing a behaviour change programme, centred around promoting and enabling active and sustainable travel.

Challenges:

The main challenges facing the Council are likely to be around public acceptability of traffic management and travel restraint measures.

The LEZ has been subject to severe scepticism and criticism and there is a need to keep the public and stakeholders ‘on side’ as we move towards enforcement. An intensive communication campaign is planned for 2024, with messages about the health benefits particularly prominent.

The recent bus priority measures in the city centre have also suffered a significant backlash from residents and the business community. With the Experimental Traffic Regulation Order (ETRO) expiring in 2024, the Council is likely to face a number of objections which will have to be navigated and addressed should the Council wish to make the measures permanent.

Similarly as ART and the supporting corridor studies move through the appraisal and business case process, maintaining political and public support may be challenging, given that reallocation of road space from the private car to public transport is likely to be required in some areas.

The resourcing of these projects also remains a challenge in the face of funding and resource constraints.

How to Get Involved

Further information on the Local Transport Strategy, City Centre Masterplan, Low Emission Zone, electric vehicle charge points and Car Club is available at the following websites:

Local Transport Strategy

City Centre Masterplan

Low Emission Zone

Car Club

Electric vehicle charging points | Aberdeen City Council

Table of Contents

List of Tables

List of Figures

1 Local Air Quality Management

This report provides an overview of air quality in Aberdeen City during 2023. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Progress Report (APR) summarises the work being undertaken by Aberdeen City Council to improve air quality and any progress that has been made.

Table 1 – Summary of Air Quality Objectives in Scotland

Pollutant	Air Quality Objective Concentration	Air Quality Objective Measured as	Date to be Achieved by
Nitrogen dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
Nitrogen dioxide (NO_2)	40 µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
Particulate Matter (PM_{10})	18 µg/m^3	Annual mean	31.12.2010
Particulate Matter ($PM_{2.5}$)	10 µg/m^3	Annual mean	31.12.2021
Sulphur dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide (SO_2)	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide (SO_2)	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	3.25 µg/m^3	Running annual mean	31.12.2010
1,3 Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon Monoxide	10.0 mg/m^3	Running 8-Hour mean	31.12.2003

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by Aberdeen City Council can be found in Table 2 . Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at AQMA webpage.

We propose to amend the City Centre AQMA and revoke Anderson Drive AQMA and Wellington Road AQMA (see monitoring section).

Table 2 – Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town	Description	Action Plan
City Centre	NO_2 annual mean PM_{10} annual mean & 24 hour mean.	Aberdeen	Declared 2001, extended in 2003. PM_{10} included in 2005 & 2011. Amended 2018. An area encompassing several properties Union St, King St, Market St, Holburn St and Victoria Road.	Air Quality Action Plan 2011
Anderson Drive	NO_2 annual mean PM_{10} annual mean	Aberdeen	Declared in 2008, amended 2011 and 2018. Pockets of exceedances at residential properties along Anderson Drive and Auchmill Road.	Air Quality Action Plan 2011
Wellington Road	NO_2 annual mean PM_{10} annual mean & 24 hour mean	Aberdeen	Declared 2008. Residential properties along Wellington Road (Queen Elizabeth II Bridge to Balnagask Rd)	Air Quality Action Plan 2011

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 Aberdeen City 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.

Aberdeen City Council has had a Council Travel Plan since 2001 which encourages and enables staff and visitors to make healthy and clean travel choices. The Council also has a staff travel policy which contains details of how staff should travel for work purposes and how this will be reimbursed/ funded. Both the Council Travel Plan and Staff Travel Policy are currently under review, with updated documents expected to be adopted during 2024/ 25. The Council undertakes a biennial staff travel survey to identify how staff usually travel to work. The most recent survey was undertaken in 2022 and the outcomes will help inform the revised Plan. The survey will be repeated in 2024.

The Council's Local Transport Strategy (LTS) 2016-2021 identifies "*improved air quality and the environment*" as a key outcome, with an objective "*to improve air quality across the city, so that the existing Air Quality Management Areas are revoked, and no further Air Quality Management Areas are declared"*. In line with the adoption of the new Regional Transport Strategy, NESTRANS 2040, in November 2021 and the Council Delivery Plan commitment to *Refresh the local transport strategy,* a review of the LTS commenced in 2021, with a draft Strategy (and accompanying Air Quality Action Plan) subject to public and stakeholder engagement from late 2023 to early 2024. It is anticipated that a revised LTS and AQAP will be adopted in 2024.

A City Centre and Beach Masterplan (CCBMP) was approved in 2022, encompassing a revised City Centre Masterplan (CCMP) and emerging Beach Development Framework (BDF), with a renewed emphasis on developing places for people, reducing the impacts of vehicular traffic in the city centre and the beach area, and improving active travel and bus connectivity between the city centre and beach. Various projects emerging from the CCBMP are now in progress, with city centre bus priority and traffic management measures introduced in 2023, and Union Street Central streetscape improvements (including segregated cycle lanes) due to commence in 2024.

The Aberdeen Local Development Plan was approved by Scottish Ministers in 2023. This contains a specific policy on Air Quality (WB2) – "*Development proposals which may have*

a detrimental impact on air quality will not be permitted unless measures to mitigate the impact of air pollutants are proposed and agreed with the Planning Authority. Planning applications for such proposals should be accompanied by an assessment of the likely impact of development on air quality and any mitigation measures proposed."

Aberdeen Planning Guidance on Air Quality sets out the likely circumstances in which applicants must submit an assessment of the potential impact of particular types of development on existing and future air quality, particularly in and around AQMAs and the LEZ. It also provides guidance on the process of air quality assessment and how mitigation measures will be assessed and implemented.

In addition to consultations on various transport projects, the inclusion of transport and environmental questions in the Aberdeen City Voice 2023 – a survey distributed to a panel of respondents and members of the public in the city – and a comprehensive travel survey, undertaken by Nestrans in 2023, have all assisted in providing useful data to monitor use and opinions towards the transport network and to inform future plans for it.

2.2.2 Transport – Low Emission Zones

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

Aberdeen's LEZ was formally declared on 30 May 2022, triggering the two-year grace period, meaning enforcement will commence from 1 June 2024. The LEZ has been developed in accordance with the National Low Emission Framework (NLEF) and National Modelling Framework (NMF).

During 2023, procurement of supporting infrastructure (signage, enforcement cameras, etc.) has taken place, and a policy agreed for the use of any net surplus income arising from LEZ enforcement.

2.2.3 Further Actions

Aberdeen City Council has taken forward a number of measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 3. More detail on these measures can be found in the Air Quality Action Plan. Key completed measures are:

Active Travel:

- New segregated cycle facilities delivered as part of Phase 1 of the South College Street improvements;
- Pedestrianisation of Schoolhill/Upperkirkgate introduced;
- Continued delivery of cycle parking facilities, including the first phase of a roll-out of safe and secure parking in areas of high residential density;
- Completion of an Outline Business Case for improvements to the A956/Beach Boulevard junction to make this more pedestrian and cycle-friendly and to improve active travel connections between the city centre and the beachfront;
- Continued delivery of a travel behaviour change programme, including I Bike Schools and I Bike Communities programmes, which look to improve cycling levels amongst school children and in surrounding communities.

Public Transport:

- Bus priority measures delivered on Market Street / Bridge Street / Guild Street;
- Installation of more sedum roof and solar powered bus shelters in the city.

Clean Vehicles:

- Continued expansion of the Car Club, with more electric and hydrogen vehicles added to the fleet for the public to use;
- Installation of more electric vehicle (EV) charge points in the city

Road Improvements:

Completion of South College Street Improvements Phase 1.

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

In order to ensure that local authorities implement the measures within an action plan by the timescales stated within that plan, the Scottish Government expects authorities to submit updates on progress through the APR process. Aberdeen City Council has taken forward a number of measures within the action plan during the current reporting year of 2023 in pursuit of improving local air quality and meeting the air quality objectives within the shortest possible time. Details of all measures completed, in progress or planned are set out in Table 3. More detail on these measures can be found in the air quality Action Plan relating to each AQMA, the Local Transport Strategy for Aberdeen, and revised Aberdeen Local Development Plan. The main actions implemented in the last year to support improved air quality are:

Low Emission Zone:

- Procurement of supporting infrastructure (signage, enforcement cameras, etc.) ;
- Adoption of a policy for the use of any surplus income arising from LEZ enforcement.

Policy and Strategy:

- Development of, and consultation upon, a revised draft Local Transport Strategy and accompanying Air Quality Action Plan;
- Adoption of a revised Aberdeen Local Development Plan, with supporting Planning Guidance on Transport and Accessibility, and Air Quality;
- Consultation on Aberdeen City Council's own Staff Travel Plan.

Active Travel:

- New segregated cycle facilities delivered as part of Phase 1 of South College Street improvements;
- Continued delivery of cycle parking facilities throughout the city, including the first phase of a roll-out of safe and secure parking in areas of high residential density;
- Completion of Outline Business Case for improvements to the A956/Beach Boulevard junction to make this more pedestrian and cycle-friendly and to improve active travel connections between the city centre and the beachfront;

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Progress on the following measures has been slower than expected:

- Council Travel Plan Update – work was paused as a new staff travel policy is being developed. Given the linkages between the two, they will be taken forward as a pair and are due to be updated in 2024;
- Car Parking Framework – originally programmed for 2020, work was paused as a result of the COVID-19 pandemic. Now that traffic and travel patterns are stabilising once again, work to update the Strategic Car Parking Review will take place in 2024, to reflect policy, ambition and socio-economic changes since 2020;
- Multimodal Corridor Studies – progression of these to Outline Business Case stage has been delayed until a preferred Aberdeen Rapid Transit (ART) route network is agreed. Progress should resume in 2024.

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

- Full implementation and enforcement of the LEZ;
- Adoption of a revised Local Transport Strategy and Air Quality Action Plan;
- Adoption of a revised Council Travel Plan;
- Completion of a Regional Active Travel Network Review, resulting in a prioritised programme of walking, wheeling and cycling infrastructure projects;
- Publication of the second Walking and Cycling Index (WACI) whereby via data gathering and public and stakeholder input, a robust assessment is made of the local public's propensity for cycling and what more the local authority can do to enable this.
- Launch of second phase of residential cycle parking in high-density areas.

Table 3 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
1.1	Increase bus use	Alternatives to private vehicle use	Ongoing	In progress	Partially Funded (2023/24 Scottish Government Bus Partnership Fund – annual; 2024/25-2027/28 City Region Deal; Nestrans – annual/3-yearly)	2024/25 – completion of Aberdeen Rapid Transit and Corridor Study Outline Business Cases.	Work is ongoing to deliver measures arising from the North East Bus Alliance's Bus Action Plan. A new bus priority loop around Market Street, Guild Street and Bridge Street was implemented in 2023. Options for increasing bus priority on key corridors to and from the city centre is being looked at in detail via several transport corridor studies: Ellon to Garthdee; A947 Dyce to Bucksburn; A96 Inverurie to Aberdeen; A944/A9119 Westhill to Aberdeen; A93 Banchory to Aberdeen; A92 Bridge of Don to Bridge of Dee; A92/A90 Laurencekirk to Aberdeen. These corridors have been prioritised with agreement from the Bus Alliance. Regional partners are also developing a Business Case for Aberdeen Rapid Transit (ART), envisaged as a high quality and high frequency mass transit solution for the City Region. In parallel, options for a more formal Bus Services Improvement Partnership (BSIP) are being developed.	Recent bus priority measures have seen significant public and stakeholder opposition which is likely to intensify as more ambitious proposals come forward.
1.2	Improve Cycling & Walking Provision	Alternatives to private vehicle use	Ongoing	In progress	Partially Funded (ACC, Nestrans, Sustrans, Transport Scotland, Cycling Scotland – typically annual)	March 2024 – Publication of the second Walking and Cycling Index (WACI) for Aberdeen. 2024 – Completion of Regional Active Travel Network Review. 2024 – Completion of phase 2 of the residential cycle parking project.	Infrastructure improvements are ongoing, with the implementation of segregated cycle facilities as part of the South College Street improvement project recently completed. Various Core Paths continue to be upgraded and installed. An Outline Business Case for improvements to the A956/Beach Boulevard junction to make this more pedestrian and cycle-friendly and to improve active travel connections between the city centre and the beachfront has been completed. A Regional Active Travel Network review commenced in 2023, to identify future walking, wheeling and	Road space reallocation to active travel could see public and stakeholder opposition which is likely to intensify as more ambitious proposals come forward.

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
						2024 – Completion of Craigshaw Drive segregated cycle route. 2025 – Completion of Union Street Central streetscape improvements.	cycling infrastructure priorities, for development into a costed and prioritised improvement programme. A programme of multimodal corridor studies continues to progress, considering opportunities for improved active travel infrastructure on key corridors to and from the city centre. Phase 1 of a roll-out of safe and secure parking in areas of high residential density is now complete, funded via the Scottish Government's Air Quality Action Plan Grant.	
1.3	Travel Plans	Promoting travel alternatives	Ongoing	In progress	Partially funded (ACC, SG, Sustrans - typically annual)	The staff travel policy and Council Travel Plan are due to be reviewed in 2024.	In terms of the Council's own Travel Plan, budget continues to be allocated annually to support measures to encourage staff to travel to, from and during work more sustainably – provision of exclusive use zero emission pool cars, provision of pool bikes, membership of Liftshare and Act Travelwise. Guidance for new developments is contained in the revised Transport and Accessibility Planning Guidance published in 2023. With match-funding from the Scottish Government's Air Quality Action Plan Grant, the I Bike Schools and Communities programmes have continued, encouraging and enabling more active travel to schools and amounts community groups.	Efforts to reduce private car usage may be resisted by internal staff and members of the wider population.
1.4	Improve public awareness of air quality issues	Public information	Ongoing	In progress	Fully Funded (Transport Scotland, SG - typically annual)	1st June 2024 – LEZ enforcement commences	ACC's website continues to be updated to provide members of the public with key information on, for example, the LEZ. A programme of events and campaigns promoting air quality and sustainable travel continue to be delivered with the Getabout Partnership, including an event to mark Clean Air Day 2023, supported by AQAP grant funding.	As above – public acceptability of the LEZ remains a challenge.

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
1.5	Car Clubs / Carpool Schemes	Promoting low emission transport	Ongoing	In progress	Partially Funded (ACC, SG – typically annual)	N/A	Aberdeen continues to be served by 2 Car Club providers – Enterprise and Co-wheels, giving members of the public a choice of 2 car club suppliers. Enterprise are currently the Council's contracted car club supplier. In the Enterprise fleet, there are now 20 alternatively (electric or hydrogen) fuelled vehicles and several petrol hybrid vehicles. Corporate: 10 vehicles (6 x Hydrogen FCEV and 4 x BEV) available for the exclusive use by the Council. Two further BEVs are to join them in 2024, with further vehicles being investigated. These are all zero emission at tailpipe. Action for staff car club redesign stemming from Council Climate Change Plan Mobility Group which will see smarter use of car club by staff to reduce grey fleet use. This will be influenced by the changes to the Staff Travel Policy, which will be further developed in 2024. Budget allocated in the Council's Non-Housing Capital plan to support car club redesign. AQAP funding supported marketing of the Enterprise Car Club and subsidisation of Car Club vehicles in regeneration areas during 2023/24. The car club continues to form part of the Council's Planning Development Management Process where new developments can provide car club provision to residents and occupants as an alternative to car parking. This continues to form part of the Transport and Accessibility Guidance for the Aberdeen Local Development Plan (2023).	N/A
1.6	Rail Improve-ments	Alternatives to private vehicle use	Ongoing	In progress	Partly Funded (Nestrans, SG, City Region Deal – typically annual)	2024/25 – completion of Aberdeen to Laurencekirk Corridor Study Detailed Appraisal.	An appraisal of options for transport improvements between Laurencekirk and Aberdeen is underway, including options for additional rail stations. Campaign for North East Rail (CNER) has received funding from the Scottish Government's Just	New rail stations will be extremely costly and challenging to deliver.

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
							Transition Fund to undertake a study into rail expansion from Aberdeen northwards to the Buchan area. As part of the Aberdeen City Region Deal, options for reducing rail journey times between Aberdeen and the Central Belt continue to be investigated.	
1.7	Rail Freight	Freight and delivery management	Ongoing	In progress	Partially Funded (Nestrans - annual)	N/A	A Rail Freight Terminals (Aberdeen South) study was completed in 2023, confirming the potential for future rail freight growth. The likelihood of an increase in services was identified, linked to the improved commercial viability for rail freight which would occur following completion of the Aberdeen to Central Belt railway infrastructure project. The outcomes of the work will be considered in the light of the progression of Aberdeen to Central Belt infrastructure upgrades, and the outcomes of parallel work considering future rail re-opening north of Aberdeen to Ellon, Peterhead and Fraserburgh.	Progression dependant on Transport Scotland's Aberdeen to Central Belt improvement project.
2.1	Green Vehicle procurement & Fuel/ Charging Infrastruc-ture	Promote low emission transport	Ongoing	In progress	Partially Funded (ACC, SG – typically annual)	N/A	The electric vehicle charging network has continued to expand, with more charging points located at various locations throughout the city. In addition, at least a further 37public EV charge points, each capable of recharging 2 vehicles at once, are due to be delivered in 2024/25 as part of Council contracts which have been awarded. ACC is working with Scottish Futures Trust, Transport Scotland, Highland, Moray and Aberdeenshire Councils as part of a joint procurement exercise, to procure a partner organisation to run and grow the charging networks across all 4 Councils over multiple years. The tendering exercise is due to be launched in early summer 2024. Future ratios and requirements for electrical vehicle charging have been brought in as part of building	N/A

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
							standards changes, to be introduced Scotland-wide in June 2023.	
2.2	Emissions Testing & Idling Enforcement	Public information	Ongoing	In progress	Not funded	N/A	Raise awareness of idling vehicles, air quality and health to promote a change in behaviour, at events such as clean air day.	N/A
2.3	Taxis	Vehicle fleet efficiency	Ongoing	In progress	Partially funded (Transport Scotland - annual)	1st June 2025 – full taxi compliance with the LEZ required.	Taxi and Private Hire Cars have been given an additional year's exemption from the LEZ to allow for additional time for compliance.	N/A
2.4	Low Emission Zone	Environmental Permits	Ongoing	In progress	Fully Funded (Transport Scotland – annual)	1st June 2024 – formal enforcement of the LEZ commences.	Work is underway to install LEZ infrastructure, including signage and enforcement cameras. Policy agreed for the use of any surplus income arising from LEZ enforcement, stating that this must be used for projects that bring further air quality improvements in the city centre.	Public acceptability of the LEZ remains a challenge.
3.1	Pedestrianisation	Transport planning and infrastructure	Ongoing	In progress	Partially Funded (ACC, UK Government Levelling Up Fund - typically annual)	2025 – Completion of Union Street Central streetscape improvements.	Pedestrianisation of Schoolhill/ Upperkirkgate now in place, with formal streetscape measures to follow. Union Street Central streetscape improvements to take place during 2024 and 2025.	Public acceptability of traffic management/restraint measures remains a challenge.
3.2	Road Building / Junction Alterations	Transport planning and infrastructure	Ongoing	In progress	Partially Funded (ACC, Transport Scotland, Nestrans - typically annual)	2024 – agree preferred option for South College Street Phase 2 improvements.	Phase 1 of South College Street Improvement project completed.	N/A
4.1	Intelligent Transport System (ITS)	Traffic management	Ongoing	In progress	Partially Funded (ACC, Transport Scotland, Nestrans - typically annual)	N/A	Ongoing improvements to and enhancements of the ITS network.	N/A

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
4.2	High Occupancy Vehicle (HOV) Lane	Traffic management	2023	Complete	Partially Funded (Nestrans, Transport Scotland –annual)	N/A	Work undertaken so far on corridor studies has not suggested that HOV lanes are appropriate. Attention is instead focussed on bus priority infrastructure.	Road space reallocation unpopular with the public and stakeholders.
4.3	Freight and Commercial Vehicle Access	Freight and delivery management	Ongoing	In progress	Not Funded	2025 – Completion of Union Street Central streetscape improvements.	City Centre streetscape improvements are considering measures to accommodate deliveries and servicing while not detracting from the focus on people and sustainable movement.	Challenges around accommodating competing demands within finite and busy urban space.
5.1	Produce Planning Guidance	Policy guidance and development control	Ongoing	In progress	Not Funded (not required)	Adoption of Planning Guidance on Air Quality on 03 November 2023. Construction Code of Practice: New National Building Standards legislation launched in June 2023.	Adoption of a new Aberdeen Local Development Plan, with supporting Planning Guidance on Transport and Accessibility, and Air Quality. Section 75 monetary contributions continue to be sought for sustainable transport improvements: core paths, car club, public transport infrastructure and pedestrian safety improvements such as pedestrian crossings, etc. Construction Code of Practice: New National Building Standards legislation for Scotland with standards for EV charging in new developments launched in June 2023.	N/A
5.2	Integration of AQAP with LTS and RTS	Policy guidance and development control	2024	In progress	Not Funded (not required)	January 2024 – completion of public engagement on draft LTS and AQAP. End of 2024 – target for adoption of revised LTS and AQAP.	Revised LTS and AQAP are being prepared together to support integration, with draft plans subject to public and stakeholder consultation in late 2023/early 2024.	Public acceptability of car restraint measures.
5.3	Integration of AQAP with Health and Transport Action Plan (HTAP)	Policy guidance and development control	2014	Complete	Not Funded (not required)	N/A	2014 HTAP update includes objective to ‘reduce air pollution, especially within Air Quality Management Areas’.	N/A

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
5.4	Road Hierarchy	Transport planning and infrastructure	2020.	Complete	Fully Funded (Nestrans – annual)	N/A	Formal programme of road reclassifications approved in 2020.	N/A
5.5	Car Parking Policies	Policy guidance and development control	2025/26	Planned	Partially Funded (Nestrans – annual)	2024 – update Strategic Car Parking Review as first step towards new Car Parking Framework.	New development parking standards included in revised Aberdeen Planning Guidance.	Any policies that restrict or increase the cost of car parking are not likely to be popular with the public.
5.6	National Lobbying	Transport planning and infrastructure	Ongoing	In progress	Partially Funded (Transport Scotland – annual)	N/A	In the lead-in to LEZ implementation, the Scottish Government has several grant schemes available to help residents and businesses change vehicle or mode to become LEZ compliant. Several bus and HGV replacement and/or retrofit schemes are being funded by Transport Scotland to support carbon reduction and LEZ development. Grants for home and workplace charging facilities are available through Home Energy Scotland.	N/A

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

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

Aberdeen City Council undertook automatic (continuous) monitoring at six sites during 2023. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at www.scottishairquality.scot

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

The Union Street and Market Street continuous monitoring sites are on busy city centre roads and are representative of population exposure for NO_2, PM_{10} and $PM_{2.5}$. Union Street is the city's main shopping street with shops on the ground level and commercial premises and flats on the 1st, 2nd and 3rd floors. Almost all the city's bus routes pass along at least part of Union Street and the inside lane of both sides of the road are designated bus lanes. A bus gate was installed in June 2022 between the Bridge Street and Market Street junctions of Union Street allowing access to local buses, cycles and emergency vehicles only. In August 2023 three additional bus gates were introduced within the City Centre AQMA.

Market Street is adjacent to Aberdeen Harbour and has a high proportion of HGVs travelling between the north-east of Scotland, the Harbour and locations to the south of Aberdeen. The street is used by pedestrians travelling to the city centre from residential properties to the south of the river Dee, visiting the Union Square retail park and people working around the Harbour area. There are a small number of 1st, 2nd and 3rd floor flats. Emissions from Aberdeen Harbour also contribute to the pollution on Market Street.

The Anderson Drive site is 4m from the kerb and is not representative of population exposure as residential properties are set back 10-20m from the kerb. Similarly, the site at Wellington Road is around 3-4m closer to the kerb than residential properties in the area. The nearest properties are 10m from the King Street site, however the location is typical of flatted properties close to the kerb at other locations on King Street. Errol Park is representative of typical residential properties close to the city centre but not adjacent to a major road and provides urban background data.

The automatic monitoring sites at Union Street, Market Street, Wellington Road and Anderson Drive are located within AQMAs.

The King Street site is not located within an AQMA but is relatively close to the city centre in an area of high traffic flow.

3.1.2 Non-Automatic Monitoring Sites

Aberdeen City Council undertook non- automatic (passive) monitoring of NO_2 at 60 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 E. Figure 2 and at www.scottishairquality.scot/latest. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

Diffusion tubes on Market Street, Union Street, Bridge Street and the majority of those on Holburn Street and King Street within the city centre are at building façade and are representative of population exposure. Some of the tubes out with the city centre are at roadside locations with the façade of the nearest relevant property 5-20m back from the roadside.

3.1.3 Other Monitoring Activities

There were no other monitoring activities undertaken during 2023.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

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

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

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

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

Monitored NO_2 levels at all automatic monitoring sites continue to be below the annual mean air quality objective of 40 µg/m^3. The trend in NO_2 levels over the last 5 years is shown in Appendix D. Figure 1. NO_2 levels have been decreasing since 2015, and levels at all automatic monitoring sites have been below the objective level since 2018. The graph in Appendix D. Figure 2, shows the annual average concentration at each automatic monitoring location since 2019.

Figure 3 in Appendix D provides the statistical significance of NO_2 trend levels declining over the last 5 years at each automatic monitoring site. The data has been de-seasonalised to remove the influence of seasonal cycles.

Automatic monitoring of NO_2 at Wellington Road required to be annualised due to poor data capture, caused by equipment breakdown. Details of the annualisation process are in Appendix C.

In relation to diffusion tubes, duplicate and triplicate tube monitoring locations were assessed for precision using the precision accuracy bias spreadsheet available on the SAQD website. Adjustments made, due to poor precision, are detailed in Table C.4, Appendix C.

There were seven diffusion tube monitoring locations removed in 2023.

Diffusion tubes D24, DT26, DT34, DT37, DT46, DT48 were removed due to the monitoring locations consistently measuring NO_2 levels well below the objective level.

The diffusion tube location DT48 was removed due to the fixing to which it was attached, no longer being suitable. DT106 replaces the location.

No other new diffusion tube locations were introduced in 2023.

Diffusion tube DT106 commenced monitoring in October 2023 and therefore has been annualised due to poor data capture. Details of the annualisation process are in Appendix C.

There was no measured exceedance of the annual mean air quality objective of 40 µg/m^3 at any of the diffusion tube locations in 2023. This is the first time this has occurred since monitoring records commenced. Generally, levels recorded in 2023 are marginally lower than the previous year.

In August 2023 three additional bus gates were introduced within the City Centre AQMA. The bus gates are located at:

- Union Street/Market Street between the junction with Hadden Street and the Adelphi and Bridge Street junction introduced in 2022.
- Bridge Street, and Guild Street 1 eastbound lane and Guild Street 2, both lanes introduced in August 2023.

A map of the locations is show in Appendix D, Figure 4.

The bus gates are operational 24 hours a day, 7 days a week. The aim of the new road layout created by the bus gates is to help reduce travel times for buses in the city centre and encourage more people to use sustainable or active travel.

Diffusion tube DT93 and DT102 on Bridge Street recorded exceedances of the NO_2 objective level in 2022 and levels are below the objective level in 2023. Diffusion tubes DT12 (40 Union St), DT82(7 Virgina St), and DT92 (52 Guild Street) recorded NO_2 levels very close to the objective level in 2022 have also reduced levels in 2023. The introduction of the additional bus gates may have contributed to the reduction in NO_2 levels at these monitoring locations.

The city centre low emission zone was introduced in May 2022 and from 1 June 2024 drivers will be fined for entering the LEZ with non-compliant vehicles. This is also likely to improve NO_2 levels within the City Centre AQMA.

No exceedance of the NO_2 air quality objective have been recorded at the Anderson Drive continuous air quality monitoring station during the 20 years of monitoring. Annual mean concentrations of NO_2, have progressively reduced over the last 6 years and are substantially below the air quality objectives. The 1-hour NO_2 concentration of 200ugm^{-3} (not to be exceeded more than 18 times per year) has not been exceeded on any occasion.

Additionally, no exceedances of the annual mean NO_2 objective at any of the diffusion tubes sites in the Anderson Drive AQMA, have been recorded since 2018. Concentrations of NO_2 have steadily reduced and were lower than 30ugm^{-3} in both 2022 and 2023 at all monitoring sites except for DT98 (5 Anderson Drive) where the concentration was 34ugm^{-3} in 2022 and 31.3ugm^{-3} in 2023.

Similarly, no exceedance of any of the NO_2 air quality objectives have been recorded at the Wellington Road continuous air quality monitoring station since 2016. Annual mean concentrations of NO_2 have progressively reduced over the last 6 years and have been substantially below the air quality objectives since 2020. The 1-hour NO_2 objective of 200ugm^{-3} (not to be exceeded more than 18 times per year) has not been exceeded on any occasion.

Trends in annual mean NO_2 concentrations at the diffusion tube locations within the Anderson Drive and Wellington Road AQMA are shown in Appendix D Figure 5, for Anderson Drive AQMA and Figure 6 for Wellington Road AQMA.

The Anderson Drive and Wellington Road AQMAs will be reviewed in 2024, with a view to revocation of the AQMAs, due to improving air quality and continued compliance with the objective level.

3.2.2 Particulate Matter (PM_{10})

Table A.6 in Appendix A compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 18µg/m^3.

Corrected (correction factor of 0.909) and uncorrected results are reported, in accordance with the Equivalence study to investigate particulate matter monitoring in Scotland using the Fidas 200, published by Ricardo Energy & Environment for the Scottish Government in May 2023.

Table A.7There are 6 continuous monitoring sites measuring PM_{10} levels in Aberdeen City. Monitoring locations are shown in Appendix E: Figure 1.

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years at each site with the air quality objective of 50µg/m^3, not to be exceeded more than seven times per year.

No exceedances of the annual mean or 24-hour mean objective were recorded at any of the continuous monitoring sites. Concentrations at measurement locations across the city are comparable to annual monitoring data since 2016. Roadside measurements are similar to urban background levels measured at Erroll Park.

The trend over the last 5 years is shown in Appendix D. Figure 7. The graph in Appendix D. Figure 8 shows the annual average PM_{10} annual levels measured at each automatic site since 2019.

The graph in Appendix D: Figure 9, plots the overall de-seasonalised trend at all sites from 2019.

The City Centre, Anderson Drive and Wellington Road AQMAs will be reviewed in 2024, with a view to revocation of the Anderson Drive and Wellington Road AQMAs and amendment of the City Centre AQMA for PM_{10} annual mean and 24-hour mean, due to improving air quality and continued compliance with the objective levels.

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.8 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.

Corrected (correction factor of 1.06) and uncorrected results are reported, in accordance with the Equivalence study to investigate particulate matter monitoring in Scotland using the Fidas 200, published by Ricardo Energy & Environment for the Scottish Government in May 2023.

There are 6 continuous monitoring sites measuring $PM_{2.5}$ levels in Aberdeen City. No exceedances of the annual mean were recorded at any of the continuous monitoring sites. No exceedances of the objective have been recorded at any site since 2016.

3.2.4 Sulphur Dioxide (SO_2)

No monitoring of sulphur dioxide was carried out in 2022 as previous assessments did not predict a likelihood of exceedance of the objectives and there has been no significant change in local emissions.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

No monitoring of Carbon Monoxide, Lead and 1,3-Butadiene was carried out in 2022 as previous assessments did not predict a likelihood of exceedances of the objectives and there has been no significant change in local emissions.

4 New Local Developments

4.1 Road Traffic Sources

City Centre Vehicle Access Restrictions

Bus gates were introduced on the central section of Union Street, between Market Street and Bridge Street, in June 2022 allowing bus/taxi/cycle access only. Further vehicle access restrictions were introduced on Market Street (north of Guild Street), Guild Street (east of Wapping Street) and Bridge Street in August 2023 stopping general traffic from using these streets as through routes.

Pedestrianisation measures were also introduced at the same time on Schoolhill/Upperkirkgate area, further restricting general traffic. These bus priority measures have minimised the amount of general traffic in the parts of the city centre, with the aim of supporting a more reliable and efficient bus services and improved air quality in the restricted areas.

South College Street Improvements

Phase 1 of the South College Street project commenced in June 2022 and was completed in July 2023. The development provides additional road capacity to accommodate the re-routing of traffic arising from the implementation of the public realm and bus priority enhancements along Guild Street and Union Street. The corridor's improved capacity supports its position in the new roads hierarchy and enhances infrastructure for walking and cycling.

4.2 Other Transport Sources

Other transport sources include:

- Airports.
- Locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.
- Locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.
- Ports for shipping.

There were no new transport sources in Aberdeen City in 2023.

4.3 Industrial Sources

Industrial Sources include:

- **Industrial installations**: new or proposed installations for which an air quality assessment has been carried out.
- **Industrial installations**: existing installations where emissions have increased substantially, or new relevant exposure has been introduced.
- **Industrial installations**: new or significantly changed installations with no previous air quality assessment. Major fuel storage depots storing petrol.
- Petrol stations.
- Poultry farms.

The Scottish Environmental Protection Agency (SEPA) are the licensing and enforcement authority for different types of industrial installation and have identified the following new sources:

Authorisation No	Authorisation Level	Authorisation Activity	Status Date	Site
PPC/B/5003902	PPC Part B	PPC(B) - Mining and Quarrying	18/04/2023	Westside of Carnie, Westhill, Aberdeen, AB32 6UJ
PPC/B/5003739	PPC Part B	PPC(B) - Mining and Quarrying	14/06/2023	Well Construction Fluids, M-I Pocra Quay, Footdee, Aberdeen, AB11 5DQ
PPC/B/5005007	PPC Part B	PPC(B) - Dry Cleaners	14/06/2023	Penguin's Laundry, 11 Fountainhall Road, Aberdeen, AB15 4DX
WML/L/5003980	WML	Waste - Other Waste Storage and Treatment Sites	22/02/2023	Phoenix Decom Base, Unit 1C Dyce Industrial Park, Wellheads Crescent, Dyce, AB21 7EZ
WML/L/5004027	WML	Waste - Other Waste Storage and Treatment Sites	01/03/2023	South Harbour, Port of Aberdeen, Greyhope Road, Balnagask, Aberdeen, AB12 3LT

4.4 Commercial and Domestic Sources

Commercial and domestic sources include:

- Biomass combustion plant – individual installations.
- Areas where the combined impact of several biomass combustion sources may be relevant.
- Areas where domestic solid fuel burning may be relevant.
- Combined Heat and Power (CHP) plant.

There were no new commercial and domestic sources in Aberdeen City in 2023.

4.5 New Developments with Fugitive or Uncontrolled Sources

New Source in 2023	Detail
Landfill sites	No new sources in 2023
Quarries	No new sources in 2023
Waste transfer stations etc.	No new sources in 2023
Unmade haulage roads on industrial sites	No new sources in 2023
Other potential sources of fugitive particulate matter emissions.	No new sources in 2023

5 Planning Applications

Industrial and Commercial Energy Transition Development on land around Aberdeen South Harbour	231371	The detailed planning application has not approved but has undergone local consultation. The application is for an energy Transition Zone including mixed developments comprising of approx. 55,000 sqm of land for business, general industrial, storage and distribution usage, along with associated provision of road infrastructure and active travel connections. Environmental Health requested the submission of an Air Quality Impact Assessment to assess the air quality impacts during the construction and operational phase of the proposal due to potential changes in road traffic movements associated with the cumulative developments and the Proposed Development itself. Emissions during the construction phase, including the site development, HGV movements, staff arrival/departure and vans delivering goods were predicted to have a negligible impact on air quality. Similarly, detailed dispersion modelling of the operational phase predicted the increase in traffic on the local network will have a negligible impact on air quality in the area.

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

Data from all continuous automatic monitoring sites was below the NO_2 annual mean objective of 40 μg/m^3. NO_2 levels at all automatic monitoring sites have been below the objective level since 2018. Trends in NO_2 levels suggest that air quality continues to improve across the city.

There were no exceedances of the NO_2 objective level recorded at any of the diffusion tube monitoring locations either in or outside of AQMAs. This is the first time this has occurred since monitoring records commenced.

There were no exceedances of the NO_2 one hour mean objective at any of the automatic sites. Diffusion tube data also recorded no sites with an annual mean >60ugm^{-3}, suggesting exceedances of the 1-hour objective were very unlikely across the city.

The annual mean and 24-hour PM_{10} objectives were met at all monitoring locations and the concentrations at measurement locations across the city are comparable to annual monitoring data since 2016.

No exceedances of the $PM_{2.5}$ annual mean were recorded at the 6 continuous monitoring sites.

The Anderson Drive and Wellington Road AQMAs will be reviewed in 2024, with a view to revocation of the AQMAs, due to improving air quality and continued compliance with the objective levels.

The City Centre AQMA will be reviewed with a view to amending the AQMA to remove PM_{10} annual mean and 24 hour mean from the order, due to continued compliance with the objective levels.

The City Centre AQMA remains valid for the NO_2 annual mean objective. The recently established vehicle access restrictions have resulted in a significant improvement in air quality at city centre locations, and it is anticipated further improvement will be observed with the enforcement of the LEZ in 2024. Monitoring will continue to determine whether the objective continues to be met in future years and revocation of the AQMA can be considered.

6.2 Conclusions relating to New Local Developments

The city centre vehicle access restrictions implemented in 2022 and 2023 have significantly reduced traffic flow and improved air quality across the city centre. The reduction in NO_2 concentrations were most apparent at monitoring locations within and immediately adjacent to the restricted area. The South College Street Road infrastructure measures supported the vehicle access restrictions by providing additional road capacity to accommodate the re-routing of traffic. There were no other new developments likely to affect air quality.

6.3 Proposed Actions

1. Enforcement of the LEZ to commence in June 2024 following a two-year grace period.
2. Progress the equipment procurement process and other associated legal and infrastructure actions to support the implementation of the LEZ.
3. Continued implementation of the Actions within the Air Quality Action Plan 2011.
4. Publish the updated Air Quality Action Plan.
5. Review monitoring within AQMAs with a view to revoking Anderson Drive and Wellington Road AQMA and amending the City Centre AQMA.
6. Submit the next air quality Annual Progress Report.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
CM1	Union Street	Roadside	X393656	Y805967	PM_{10}, $PM_{2.5}$ NO_2 (NO, NO_x)	YES City Centre	Fidas 200 Chemiluminescence	2	2	2.5
CM2	Market Street	Roadside	X394560	Y805677	PM_{10}, $PM_{2.5}$ NO_2 (NO, NO_x)	YES City Centre	Fidas 200 Chemiluminescence	0	2	1.5
CM3	Anderson Drive	Roadside	X392506	Y804186	PM_{10}, NO_2 (NO, NO_x)	YES Anderson Drive	Fidas 200 Chemiluminescence	10	6	1.5
CM4	Wellington Road	Roadside	X394395	Y804779	PM_{10}, $PM_{2.5}$ NO_2 (NO, NO_x)	YES Wellington Road	Fidas 200 Chemiluminescence	5	4	1.5
CM5	King Street	Roadside	X394333	Y808770	PM_{10}, $PM_{2.5}$ NO_2 (NO, NO_x)	NO	Fidas 200 Chemiluminescence	10	3	1.5
CM6	Erroll Park	Urban Background	X394365	Y807396	PM_{10}, $PM_{2.5}$, O_3, NO_2 (NO, NO_x)	NO	Fidas 200 Chemiluminescence	N/A	N/A	1.5

Notes:

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

(2) N/A if not applicable.

Table A.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT4	38 Ellon Rd	Roadside	394652	809714	NO_2	NO	7	3	N	2.3
DT5	520 King St	Roadside	394236	808066	NO_2	NO	9	0.1	N	2.6
DT6	86 Victoria Rd Torry	Roadside	394764	805197	NO_2	NO	0	3	N	2.3
DT7	Wellington Rd/Kerloch Pl	Roadside	394411	804407	NO_2	YES Wellington Rd	0	3	N	2.4
DT8	107 Anderson Dr	Roadside	392337	804340	NO_2	YES Anderson Dr	14	3	N	2.3
DT9	39 Market St	Roadside	394264	806146	NO_2	YES City Centre	0	3	N	2.1
DT10	184 Market St	Roadside	394530	805708	NO_2	YES City Centre	0	3	N	2.6
DT11	105 King St	Roadside	394406	806637	NO_2	YES City Centre	0	3	N	2.2

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)
DT12	40 Union St	Roadside	394285	806285	NO_2	YES City Centre	0	3	N	2.4
DT13	Music Hall, Union St	Roadside	393777	806030	NO_2	YES City Centre	0	6	N	2.6
DT14	Dyce Primary Gordon Ter	Urban background	389046	812794	NO_2	NO	N/A	N/A	N	2
DT16	1 Trinity Quay	Roadside	394336	806097	NO_2	YES City Centre	0	5	N	2.5
DT18	14 Holburn St	Roadside	393305	805734	NO_2	YES City Centre	0	3	N	2.6
DT19	468 Union St	Roadside	393386	805826	NO_2	YES City Centre	0	3	N	2.4
DT20	212 King St	Roadside	394400	806842	NO_2	NO	0	4	N	2.3
DT21	26 King St	Roadside	394449	806453	NO_2	YES City Centre	0	4	N	2.4

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)
DT22	104 King St	Roadside	394425	806634	NO_2	YES City Centre	0	4	N	2.3
DT25	21 Holburn St	Roadside	393332	805748	NO_2	YES City Centre	0	3	N	2.4
DT29	469 Union St	Roadside	393400	805811	NO_2	YES City Centre	0	3	N	2.4
DT30	335 Union St	Roadside	393619	805919	NO_2	YES City Centre	0	5	N	2.5
DT33	16 East North St	Roadside	394505	806531	NO_2	YES City Centre	0	4	N	2.3
DT36	115 Menzies Rd/Wellington Rd	Roadside	394403	804799	NO2	YES Wellington Rd	14	4	N	2.4
DT39	819 Gt Northern Rd	Roadside	391293	809136	NO2	YES Anderson Dr	0	3	N	2.4
DT40	852 Fullerton Ct (facade)	Facade	391353	809158	NO2	YES Anderson Dr	0	7	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT41	852 Fullerton Ct (roadside)	Roadside	391352	809151	NO2	YES Anderson Dr	7	0.1	N	2.3
DT45	111 South Anderson Dr	Facade	392311	804349	NO2	YES Anderson Dr	0	13	N	1.9
DT47	Powis Terrace	Roadside	393368	807511	NO2	NO	5	0.1	N	2.5
DT49	142 Gt. Northern Road	Roadside	392969	808460	NO_2	NO	11	3	N	2.4
DT63	93 Berryden Road	Roadside	393034	807392	NO_2	NO	11	2	N	2.4
DT64	102 Picktillum Place	Urban Background	393025	807828	NO_2	NO	N/A	N/A	N	2.5
DT67	37 Inverurie Rd	Roadside	389756	809583	NO_2	NO	6	3	N	2.5
DT70	Kirkhill Place Tullos Primary	Urban Background	395476	804452	NO_2	NO	N/A	N/A	N	2.4

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)
DT71	Tullos Hill	Urban Background	395431	803410	NO_2	NO	N/A	N/A	N	2.6
DT72	North Loirston Souter Head Road Cove Allotments	Urban Background	394988	801940	NO_2	NO	N/A	N/A	N	2.5
DT73	61 Skene Square	Facade	393458	806768	NO_2	NO	0	6	N	2.4
DT74	5 Caroline Place	Roadside	393350	806922	NO_2	NO	5	3	N	2.6
DT75	Pentland Close	Urban Background	395964	805132	NO_2	NO	N/A	N/A	N	2.6
DT77	27 Skene Square	Roadside	393524	806701	NO_2	NO	0	5	N	2.4
DT80	27 Rosemount Place	Roadside	393410	806674	NO_2	NO	0	4	N	2.6
DT81	131 Rosemount Place	Roadside	393044	806537	NO_2	NO	0	2	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT82	7 Virginia Street	Roadside	394466	806248	NO_2	YES City Centre	0	8	N	2.5
DT85	Tullos Place	Urban Background	395216	804724	NO_2	NO	N/A	N/A	N	2.4
DT88	31 St Clement St	Roadside	395118	806164	NO_2	NO	0	1	N	2.4
DT90	4 Westburn Road	Facade	393290	806942	NO_2	NO	N/A	3	N	2.5
DT91	155 Hutcheon Street	Facade	393367	806941	NO_2	NO	N/A	2	N	2.5
DT92	52 Guild Street	Facade	394184	806001	NO_2	YES City Centre	N/A	3	N	2.5
DT93	6 Bridge Street	Facade	393920	806049	NO_2	YES City Centre	N/A	3	N	2.5
DT94	8 Midstocket Road	Facade	392607	806502	NO_2	NO	N/A	2	N	2.4

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)
DT95	283 Rosemount Place	Facade	392680	806500	NO_2	NO	N/A	3	N	2.5
DT96	64 Skene Street	Facade	393543	806315	NO_2	NO	N/A	3	N	2.4
DT97	73 Skene Street	Facade	393557	806309	NO_2	NO	N/A	3	N	2.4
DT98	5 Anderson Drive	Roadside	391973	804775	NO_2	YES Anderson Drive	3	2	N	2.4
DT99	36 Spring Gardens	Facade	394047	806909	NO_2	NO	N/A	3	N	2.5
DT100	537 North Anderson Drive	Roadside	391441	808897	NO_2	YES Anderson Drive	2	4	N	2.4
DT101	13 Manor Avenue	Roadside	391361	808923	NO_2	NO	10	5	N	2.7
DT102	19 Bridge Street	Facade	393971	805996	NO_2	YES City Centre	N/A	2	N	2.4

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)
DT103	Northfield Swimming Pool	Urban Background	390796	808123	NO_2	NO	N/A	N/A	N	2.3
DT104	134 South College St	Roadside	394170	805189	NO_2	NO	3	2	N	2.4
DT105	69 Affleck St	Roadside	394096	805625	NO_2	NO	1	2	N	2.5
DT106	37 Union St	Facade	394303	806270	NO_2	YES City Centre	0	4	N	2.4
CL1	Union Street	Roadside	393656	805967	NO_2	YES City Centre	2	2	Y	2.5
CL2	Market Street	Roadside	394560	805677	NO_2	YES City Centre	0	2	Y	1.5
CL3	Anderson Drive	Roadside	392506	804186	NO_2	YES Anderson Dr	10	6	Y	1.5
CL4	Wellington Road	Roadside	394395	804779	NO_2	YES Wellington Rd	5	4	Y	1.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
CL5	King Street	Roadside	394333	808770	NO_2	NO	10	3	Y	1.5
CL6	Erroll Park	Urban Background	394365	807396	NO_2	NO	N/A	N/A	Y	3

Notes:

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

(2) N/A if not applicable.

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

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CM1	Roadside	Automatic		99.8	38	24	25	26.6	24.5
CM2	Roadside	Automatic		99.9	33	22	27	23.4	24.1
CM3	Roadside	Automatic		79.2	17	12	13	11.6	11.3
CM4	Roadside	Automatic		68.9	35	25	28	24.5	23.6
CM5	Roadside	Automatic		99.9	22	16	17	15.5	14.7
CM6	Urban Background	Automatic		99.2	N/A	N/A	21	16.5	14.7

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**.

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 (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
DT4	394652	809714	Roadside		92	27	19	20	19	17.5
DT5	394236	808066	Roadside		100	27	20	20	20	16.9
DT6	394764	805197	Roadside		100	30	21	21	20	19.0
DT7	394411	804407	Roadside		100	31	22	23	21	20.4
DT8	392337	804340	Roadside		100	39	31	32	29	23.4
DT9	394264	806146	Roadside		100	**44**	**42**	**42**	38	32.8
DT10	394530	805708	Roadside		100	**47**	33	37	35	34.0
DT11	394406	806637	Roadside		100	**45**	34	32	37	33.2
DT12	394285	806285	Roadside		92	**43**	26	32	36	31.0
DT13	393777	806030	Roadside		92	35	22	25	27	24.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
DT14	389046	812794	Urban background		100	8	6	7	6	6.0
DT16	394336	806097	Roadside		100	39	27	34	31	29.2
DT18	393305	805734	Roadside		92	39	25	26	26	26.3
DT19	393386	805826	Roadside		100	**43**	27	26	28	25.9
DT20	394400	806842	Roadside		100	27	21	21	21	18.8
DT21	394449	806453	Roadside		100	33	23	24	26	23.4
DT22	394425	806634	Roadside		100	34	24	25	26	24.1
DT25	393332	805748	Roadside		100	35	26	22	25	26.6
DT29	393400	805811	Roadside		100	**42**	28	29	31	29.3
DT30	393619	805919	Roadside		100	39	24	24	29	26.8
DT33	394505	806531	Roadside		100	35	29	28	30	27.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
DT36	394403	804799	Roadside		100	39	29	30	29	28.4
DT39	391293	809136	Roadside		100	37	27	25	24	20.7
DT40	391353	809158	Facade		100	26	19	19	18	15.3
DT41	391352	809151	Roadside		92	36	27	24	24	24.0
DT45	392311	804349	Facade		100	21	16	17	15	15.5
DT47	393368	807511	Roadside		100	**40**	30	29	32	29.6
DT49	392969	808460	Roadside		83	30	22	22	20	18.9
DT63	393034	807392	Roadside		92	23	16	17	17	14.9
DT64	393025	807828	Urban Background		100	14	11	12	11	10.3
DT67	389756	809583	Roadside		92	32	21	21	21	20.3
DT70	395476	804452	Urban Background		100	13	10	12	11	11.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
DT71	395431	803410	Urban Background		100	9	7	8	7	7.0
DT72	394988	801940	Urban Background		100	7	5	6	5	5.0
DT73	393458	806768	Facade		83	38	29	30	29	23.8
DT74	393350	806922	Roadside		100	34	23	27	26	23.2
DT75	395964	805132	Urban Background		100	15	12	15	13	14.2
DT77	393524	806701	Roadside		100	38	27	23	27	24.9
DT80	393410	806674	Roadside		100	23	14	19	15	15.9
DT81	393044	806537	Roadside		100	27	16	15	20	19.6
DT82	394466	806248	Roadside		100	**42**	32	34	36	34.3
DT85	395216	804724	Urban Background		100	13	11	13	10	10.7
DT88	395118	806164	Roadside		100	35	29	26	29	27.1

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
DT90	393290	806942	Facade		100	n/a	20	19	17	16.5
DT91	393367	806941	Facade		100	n/a	36	30	31	28.9
DT92	394184	806001	Facade		100	n/a	n/a	n/a	38	31.9
DT93	393920	806049	Facade		100	n/a	n/a	n/a	**48**	35.5
DT94	392607	806502	Facade		100	n/a	n/a	n/a	19	18.4
DT95	392680	806500	Facade		100	n/a	n/a	n/a	18	16.7
DT96	393543	806315	Facade		100	n/a	n/a	n/a	17	17.5
DT97	393557	806309	Facade		83	n/a	n/a	n/a	20	20.0
DT98	391973	804775	Roadside		100	n/a	n/a	n/a	34	31.5
DT99	394047	806909	Facade		100	n/a	n/a	n/a	17	16.4
DT100	391441	808897	Roadside		100	n/a	n/a	n/a	17	15.0

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
DT101	391361	808923	Roadside		100	n/a	n/a	n/a	18	15.1
DT102	393971	805996	Facade		100	n/a	n/a	n/a	**48**	36.5
DT103	390796	808123	Urban Background		100	n/a	n/a	n/a	10	7.5
DT104	394170	805189	Roadside		83	n/a	n/a	n/a	n/a	20.8
DT105	394096	805625	Roadside		100	n/a	n/a	n/a	n/a	22.9
DT106	394303	806270	Facade		25	n/a	n/a	n/a	n/a	25.0

☒ **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.

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

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

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

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

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

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CM1	Roadside	Automatic		99.8	0	0	0	0	0
CM2	Roadside	Automatic		99.9	0	0	0	0	0
CM3	Roadside	Automatic		79.2	0 (93)	0 (78)	0	0	0 (71.9)
CM4	Roadside	Automatic		68.9	0	0	0	0	0 (97.1)
CM5	Roadside	Automatic		99.9	0	0	0	0	0
CM6	Urban Background	Automatic		99.2	-	-	0 (82)	0	0

Notes:

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

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

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

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

Table A.6 – Annual Mean PM_{10} Monitoring Results (µg/m^3)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022(3)	2023(3)
CM1	Roadside		99.8	12	10	11	13 (14.3)	12.9 (14.1)
CM2	Roadside		99.8	13	10	11	12.7 (14)	11.9 (13.1)
CM3	Roadside		98.4	13	9	9	10.1 (11.1)	9.4 (10.4)
CM4	Roadside		99.7	14	14	12	10.6 (11.6)	12 (13.1)
CM5	Roadside		99.9	14	11	12	13 (14.3)	12.1 (13.3)
CM6	Urban Background		95.7	-	-	9.5	11.3 (12.4)	10.2 (11.2)

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.

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

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

(3) Corrected results as recommended by Ricardo for the Scottish Government report in brackets.

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

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CM1	Roadside		99.8	0 (32)	0 (21)	0 (23)	2	2
CM2	Roadside		99.8	4	0	0	4	1
CM3	Roadside		98.4	3	0	0	1	0
CM4	Roadside		99.7	4	0	0	0 (27)	0
CM5	Roadside		99.9	3 (45)	0	0 (31)	3	3
CM6	Urban Background		95.7	-	-	1 (21)	2	2

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.

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

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

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

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022(3)	2023(3)
CM1	Roadside		99.8	8	5	6	7.1 (7.5)	6.6 (6.9)
CM2	Roadside		99.8	7	5	5	6.4 (6.8)	5.7 (6.0)
CM3	Roadside		98.4	-	-	5	5.6 (6.0)	5.1 (5.4)
CM4	Roadside		99.7	7	6	6	5.2 (5.5)	5.6 (6.0)
CM5	Roadside		99.9	7	6	6	6.5 (6.9)	5.8 (6.1)
CM6	Urban Background		95.7	-	-	5	6 (6.3)	5.2 (5.5)

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.

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

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

(3) Corrected results as recommended by Ricardo for the Scottish Government report in brackets.

Appendix B: Full Monthly Diffusion Tube Results for 2023

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

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT04	394652	809714	34	30	27	22	22	20	17		23	18	26	24	23.9	17.5	n/a	
DT05	394236	808066	31	27.5	30.5	24	20.5	16	16	17.5	22	17	30.5	25	23.1	16.9	n/a	
DT06	394764	805197	27	31.5	37.5	31	29	25.5	21	20.5	18	22.5	29.5	19	26.0	19.0	n/a	
DT07	394411	804407	28	31	36	32	34	35	24	23	22	20	29	22	28.0	20.4	n/a	
DT08	392337	804340	40	44	45	41	31	31	30	31	12	30	31	18	32.0	23.4	n/a	
DT09	394264	806146	45	42	44.5	48	51	52	38	39.5	34	47	47	50.5	44.9	32.8	n/a	
DT10	394530	805708	49.5	56	56	45.5	48.5	42	42	40.5	37.5	49.5	50.5	42	46.6	34.0	n/a	
DT11	394406	806637	51	54	50.5	48	46.5	41	39	41	46.5	36.5	46	46.5	45.5	33.2	n/a	
DT12	394285	806285	47		48	47	45	43	40	35	38	36	43	45	42.5	31.0	n/a	
DT13	393777	806030		39	39	33	32	32	30	28	27	40	41	34	34.1	24.9	n/a	
DT14	389046	812794	11	11	9	6	7	6	5	5	6	7	13	11	8.1	6.0	n/a	
DT16	394336	806097	30.5	38.5	38.5	38	48.5	43.5	33.5	42	33	41.5	41	51.5	40.0	29.2	n/a	
DT18	393305	805734		46.5	46.5	33	32	29.5	27	28.5	31	36.5	46.5	40	36.1	26.3	n/a	
DT19	393386	805826	42.5	40	39	33	34.5	32	28.5	28	27.5	35.5	42.5	42	35.4	25.9	n/a	
DT20	394400	806842	32	31	29.5	29	26.5	23	19	20	24	19.5	27.5	27.5	25.7	18.8	n/a	
DT21	394449	806453	31	36.5	34.5	36.5	37	34	26.5	27	31.5	23.5	30	36	32.0	23.4	n/a	
DT22	394425	806634	29	33.5	35	36.5	36	35	27.5	29.5	34	26	33.5	40	33.0	24.1	n/a	
DT25	393332	805748	33	35	40	39	37	39	32	33	31	38	39	41	36.4	26.6	n/a	
DT29	393400	805811	41	41	41	41	44	44	35	34	35	41	42	42	40.1	29.3	n/a	
DT30	393619	805919	40	42	39	37	38	38	32	29	30	37	40	38	36.7	26.8	n/a	

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
DT33	394505	806531	38.5	42.5	40	39	42	39	32	32.5	39	30	34.5	40	37.4	27.3	n/a	
DT36	394403	804799	34.5	39.5	51	47	47	41.5	35.5	34.5	31	34.5	41	30.5	39.0	28.4	n/a	
DT39	391293	809136	30	34	33	28	28	27	26	26	28	22	29	29	28.3	20.7	n/a	
DT40	391353	809158	28	26	23	18	17	18	16	16	19	19	27	24	20.9	15.3	n/a	
DT41	391352	809151	40	38	32	24	25	25	25		58	26	37	32	32.9	24.0	n/a	
DT45	392311	804349	19	24	25	22	17	16	14	16	26	28	20	28	21.3	15.5	n/a	
DT47	393368	807511	45	45	44	42	43	39	31	34	38	35	45	46	40.6	29.6	n/a	
DT49	392969	808460		29	30	27	26	25		20	23	20	29	30	25.9	18.9	n/a	
DT63	393034	807392		22	23	21	21	19	16	16	17	18	24	27	20.4	14.9	n/a	
DT64	393025	807828	17	15.5	15	13.5	13	11.5	8	9	11	13	20	20.5	13.9	10.3	n/a	
DT67	389756	809583	31	29	36	30	28	26	20		23	23	32	28	27.8	20.3	n/a	
DT70	395476	804452	17.6	21.3	23.6	18	11	10.3	9.3	12.6	11	25.6	21	12	16.1	11.9	n/a	
DT71	395431	803410	11.3	14.6	17.3	12.6	8	6.3	3.6	7.3	7	7.3	12	7	9.5	7.0	n/a	
DT72	394988	801940	7.6	8	10.6	7.3	6	5	5	5	5	3.6	9.3	6.3	6.6	5.0	n/a	
DT73	393458	806768	34	36	37		36	29	28	27	26		35	38	32.6	23.8	n/a	
DT74	393350	806922	27	31	36	32	42	30	26	27	24	30	41	36	31.8	23.2	n/a	
DT75	395964	805132	28.6	22	23.6	18	15	10	14	16.3	11.6	19.6	28	23.6	19.2	14.2	n/a	
DT77	393524	806701	36	37	36	30	34	30	28	27	29	29	50	44	34.2	24.9	n/a	
DT80	393410	806674	20	17	19	18	20	19	18	18	15	20	48	29	21.8	15.9	n/a	
DT81	393044	806537	27	27	30	24	29	28	21	23	23	27	31	32	26.8	19.6	n/a	
DT82	394466	806248	46	51.5	50.5	51	54.5	46.5	42	36	47.5	36	43	59.5	47.0	34.3	n/a	
DT85	395216	804724	14.6	20	25	20.3	12.6	10	9	9.6	11.3	11.3	18.6	11.6	14.5	10.7	n/a	
DT88	395118	806164	50	47	37	34	36	31	32	28	40	34	30	46	37.1	27.1	n/a	
DT90	393290	806942	18	22	25	24	26	22	17	20	17	21	28	31	22.6	16.5	n/a	
DT91	393367	806941	44	46	42	37	35	40	35	35	38	33	44	46	39.6	28.9	n/a	

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
DT92	394184	806001	39	46	47	46	52	47	39		36	45	42	41	43.6	31.9	n/a	
DT93	393920	806049	60		52	61	49	42	37	34	45	49	51	55	48.6	35.5	n/a	
DT94	392607	806502	30	30	33	27	27	22	13	19	17	24	35	25	25.2	18.4	n/a	
DT95	392680	806500	20	28	25	22	24	22	16	18	19	23	30	27	22.8	16.7	n/a	
DT96	393543	806315	23	25	29	21	26	21	20	24	17	26	28	28	24.0	17.5	n/a	
DT97	393557	806309	22	26	27		30	26		30	22	30	30	31	27.4	20.0	n/a	
DT98	391973	804775	46	48	46	45	42	47	40	41	40	37	44	41	43.1	31.5	n/a	
DT99	394047	806909	23	24	27	26	24	21	16	18	19	18	27	27	22.5	16.4	n/a	
DT100	391441	808897	20	20	24	22	21	22	17	18	18	18	23	23	20.5	15.0	n/a	
DT101	391361	808923	26	22	27	22	20	19	14	16	16	16	30	20	20.7	15.1	n/a	
DT102	393971	805996	36	62	60	52	67	61	55	43	34	42	45	43	50.0	36.5	n/a	
DT103	390796	808123	9	10	12	12	10	9	6	7	8	10	14	14	10.1	7.5	n/a	
DT104	394170	805189	28	31	33	28			21	20	23	28	34	39	28.5	20.8	n/a	
DT105	394096	805625	28	30	35	30	29	29	28	27	27	43	41	29	31.3	22.9	n/a	
DT106	394303	806270										35.5	42	49	42.2	25.0	n/a	

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

☒ **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.**

☒ **Aberdeen 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 Aberdeen City Council During 2023

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

Additional Air Quality Works Undertaken by Aberdeen City Council During 2023

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

QA/QC of Diffusion Tube Monitoring

Diffusion tube monitoring is carried out in accordance with the procedures contained in the guidance 'Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance for Laboratories and Users' and LAQM.TG-August- 22-v1.0.

All tubes, other than those co-located at the continuous analysers are attached to lampposts/downpipes at a height of approximately 2 meters above ground level and exposed for 4 to 5 weeks in line with the Defra calendar of exposure periods.

Co-located tubes are in triplicate close to the analyser air intake. All exposure times are recorded. Unexposed field samples are submitted to the laboratory with each batch of exposed tubes.

Diffusion tubes are provided by Gradko International and analysed by Aberdeen City Council's Scientific Services Laboratory. The preparation technique is 20% tri-ethanolamine in water.

Aberdeen Scientific Services Laboratory is UKAS accredited for the analysis of diffusion tubes.

UKAS completed their annual assessment of the laboratory in January 2024 to ensure laboratory guidance is being implemented. No problems were identified.

The laboratory participates in the Laboratory of the Government Chemist (LGC) AIR PT scheme. During 2023 the Laboratory participated in all available rounds and all results submitted were satisfactory (z-score < ±2).

The laboratory also participates in the nitrogen dioxide "inter comparison" exercise, managed by the National Physical Laboratory. During 2023, the Laboratory participated in all available rounds. The annual summary (produced by AEA Energy & Environment) has not yet been released for 2023, however the previous report indicated that all results were classified as "Good" throughout 2022.

Triplicate and duplicate tube monitoring locations were assessed for precision and accuracy. Table C.5 details action taken for duplicate/triplicate tube results with poor precision. The action taken with duplicate/triplicate tubes with poor precision did not cause the annual mean to go above or below the annual mean objective level of 40 µg/m^3.

Diffusion Tube Annualisation

Annualisation of data was carried out in accordance with LAQM (TG22), where data capture was less than 75% but greater than 25% for the following diffusion tube locations in 2023:

- Diffusion tube DT106

Two urban background continuous monitoring sites that form part of the national monitoring network have been used to carry out annualisation of the diffusion tube site:

- Aberdeen Erroll Park
- Dundee Mains Loan

Mains Loan is within a 55-mile radius of the monitoring locations in Aberdeen. There are no other background monitoring sites available. Valid data capture for Erroll Park and Mains Loan is above 85% in 2023.

The DEFRA Diffusion Tube Data Processing Tool v3.0 was used to calculate the annualisation factor. Results are summarised in Table C..

Diffusion Tube Bias Adjustment Factors

Aberdeen City Council have applied a local bias adjustment factor of 0.73 (roadside) and 0.74 (background) to the 2023 monitoring data. A summary of bias adjustment factors used by Aberdeen City Council over the past five years is presented in Table C.1.

Aberdeen City Council operates a co-location study at all automatic monitoring sites across the city. All results are submitted to the national bias adjustment factors (NBAFS). The national diffusion tube bias adjustment factor spreadsheet version 03/24 advises to use 0.73 for Aberdeen City. Although the Aberdeen Scientific Services Laboratory undertakes the analysis of diffusion tubes from neighbouring authorities, Aberdeen City Council is the only authority with continuous monitoring stations that can be used to calculate bias adjustment factors.

Accordingly, a locally derived bias factor based on the co-located tubes at all the Aberdeen continuous monitoring stations was used to adjust diffusion tube measurements at the other locations across the city. This process was considered appropriate due to the lack of other co-located studies using the laboratory for tube analysis, the remote location of Aberdeen from other conurbations and the good QA/QC performance of the laboratory.

Triplicate diffusion tubes are located adjacent to continuous monitor air analyser inlets. Tubes are exposed in 4-week periods throughout the year. Diffusion tubes are provided by Gradko International and analysed by Aberdeen City Council's Public Analyst. The preparation technique is 20% tri-ethanolamine in water. All automatic monitoring sites have been used in the study.

In accordance with LAQM (TG22) the local bias factor adjustment tool, downloaded from the DEFRA Local Air Quality Management website (Diffusion Tube Data Processing Tool v3.0), is used to calculate bias adjustment factors and the precision and accuracy of the triplicate co-located tubes. Table C.3 summarises the bias adjustment factors. Only data with good precision has been used (coefficient of variation smaller than 20%).

Erroll Park is an urban background site while the other sites are roadside.

LAQM (TG22) advises the value of a local co-location study (and the subsequent bias adjustment) will be improved if the concentrations being measured are similar to those in the wider survey. Therefore, separate bias adjustment has been derived for roadside and background.

In accordance with LAQM (TG22), Bias B values of all roadside continuous monitoring locations were averaged for the roadside locations and the inverse derived to obtain a bias adjustment factor of **0.73**. Table C.4 summarises the calculation.

A separate adjustment factor is derived for background sites using the Bias A, from Erroll Park, of **0.74**.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor Roadside	Adjustment Factor Urban Background
2023	Local	-	0.73	0.74
2022	Local	-	0.75	0.73
2021	Local	-	0.76	0.80
2020	Local	-	0.79	0.71
2019	Local	-	0.80	0.79

NO_2 Fall-off with Distance from the Road

Distance correction should be considered at any monitoring site where the annual mean concentration is greater than 36µg/m^3 and the monitoring site is not located at a point of relevant exposure (taking the limitations of the calculator into account).

No diffusion tube NO_2 monitoring locations within Aberdeen City Council required distance correction during 2023.

QA/QC of Automatic Monitoring

All equipment is subject to the QA/QC procedures recommended in LAQM (TG22). Equipment is serviced at 6 monthly intervals. The service contract includes call outs to site for repairs and the routine replacement of consumables. Local Site Operator duties are carried out by Aberdeen City Council Protective Services Officers.

The Errol Park, Union Street and Wellington Road sites are part of the UK's Automatic Urban Network. All sites are part of the Scottish Government data reporting process and subject to independent audit by Ricardo AEA (RAEA) at 6 monthly intervals. Data validation and ratification is also performed by RAEA.

The analysers perform daily automatic calibrations which are used to assess the routine performance of the analysers and any long-term response drift. Manual calibrations are performed by trained Council officers every two weeks (4 weeks in 2024 due to national shortage of calibration gas) using a calibration mixture traceable to national standards. These calibrations act as a check on the operation of the analysers and enable determination of the instrument response factors used to calculate the concentration of NO_2.

Data is checked daily (Monday-Friday). Should a problem be identified either by Council officers or by RAEA the site is visited immediately and, if necessary, a further manual calibration is performed. Data considered suspect is deleted. Records are kept of instrument breakdowns, services and audits and any local activities or meteorological conditions that may influence readings.

Live and historical data is available at scottishairquality.scot

Historical data is also available at aberdeencity.gov.uk

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

FIDAS PM_{10} is corrected by dividing by 0.909.

FIDAS $PM_{2.5}$ is corrected by multiplying by 1.06.

For completeness, as recommended from the report compiled by Ricardo Energy & Environment for the Scottish Government, both the corrected and uncorrected results, as reported on the SAQD website, are reported.

Automatic Monitoring Annualisation

Annualisation is required for any automatic monitoring site with data capture less than 75% but greater than 25%.

Annualisation of data was carried out in accordance with LAQM TG22 where there was insufficient data capture for Wellington Road NO_2.

Erroll Park and Dundee Mains Loan were the urban background continuous monitoring sites – that also form part of the national monitoring network – used to carry out annualisation.

Mains Loan is within a 55-mile radius of the monitoring locations in Aberdeen. There are no other background monitoring sites available. Valid data capture for and Mains Loan is above 85% in 2023.

The annualisation factor derived from Erroll Park and Mains Loan for NO_2 data in 2023 were used to annualise the Aberdeen automatic sites data capture less than 75% but greater than 25%.

An annualisation summary is provided in Table C.2.

NO_2 Fall-off with Distance from the Road

Distance correction should be considered at any automatic monitoring site where the annual mean concentration is greater than 36µg/m^3 and the monitoring site is not located at a point of relevant exposure.

No automatic NO_2 monitoring locations within Aberdeen City required distance correction during 2023. All roadside automatic monitoring sites not at point of exposure identified in Table A.3 recorded annual mean concentrations below 36µg/m^3 and therefore do require distance correction.

Erroll Park is an urban background site.

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

Site ID	Annualisation Factor Erroll Park	Annualisation Factor Mains Loan	Annualisation Factor Site 3 Name	Annualisation Factor Site 4 Name	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
CM4	0.906	0.844	-	-	0.875	27	23.6	
DT106	0.8916	0.7370	-	-	0.8143	42.2	34.3	

Table C.3 – Local Bias Adjustment Calculations

	Local Bias Adjustment Union St (CM1) Roadside	Local Bias Adjustment Market St (CM2) Roadside	Local Bias Adjustment Anderson Dr (CM3) Roadside	Local Bias Adjustment Wellington Rd (CM4) Roadside	Local Bias Adjustment King St (CM5) Roadside	Local Bias Adjustment Erroll Park (CM6) Urban Background
Periods used to calculate bias	13	13	9	9	13	12
Bias Factor A	0.74 (0.69–0.8)	0.68 (0.65-0.71)	0.74 (0.69-0.79)	0.75 (0.71-0.79)	0.73 (0.65-0.84)	0.74 (0.72-0.77)
Bias Factor B	35% (24%-46%)	48% (41%-54%)	36% (27%-44%)	33% (26%-40%)	36% (19%-54%)	35% (30%-39%)
Diffusion Tube Mean (µg/m^3)	34	36	16	36	20	21
Mean CV (Precision)	2%	2%	1%	3%	3%	2%
Automatic Mean (µg/m^3)	25.0	24.0	12.0	27.0	15.0	15.0
Data Capture	100%	100%	97%	97%	98%	99%
Adjusted Tube Mean (µg/m^3)	25 (23–27)	24 (23-25)	12 (11-12)	27 (25-28)	15 (13-17)	15 (15-16)

Notes: A combined local bias adjustment factor of 0.73 has been used to bias adjust the 2023 roadside diffusion tube results. Calculation in Table C.4.

A single local bias adjustment factor of 0.74 has been used to bias adjust the 2023 urban background diffusion tube results.

Table C.4 - Combined Local Bias Adjustment Factor Calculation (Roadside)

Automatic roadside monitoring site	Bias B (%)
Anderson Drive	36
King Street	36
Market Street	48
Union Street	35
Wellington Road	33
Mean Bias B	37.6
Factor + 1	1.376
Inverse	**0.73**

Table C.5 - Adjustment of Duplicate/Triplicate Tubes

Diffusion Tube Measurements									Data Quality Check	Action
Tube ID	**Monitoring Period 2023**	**Tube 1 µgm-3**	**Tube 2 µgm-3**	**Tube 3 µgm-3**	**Triplicate Average**	**Standard Deviation**	**CV**	**95% CI mean**	**Diffusion Tubes Precision Check**	**Tube Adjustment**
DT05	September	22.0	9.0	**-**	15.5	9.19	59.3	82.59	Poor Precision	Tube 2 excluded as outlier
DT33	April	39.0	5.0	**-**	22.0	24.04	109.3	216.01	Poor Precision	Tube 2 excluded as outlier
DT33	May	87.0	42.0	**-**	64.5	31.82	49.3	285.89	Poor Precision	Tube 1 excluded as outlier
DT92	February	5.0	**-**	**-**	-	-	-	-	Extreme low	Excluded from study
DT93	August	5.0	-	**-**	-	-	-	-	Extreme Low	Excluded from study

Appendix D: Supporting Information Charts

Figure D.1: Trend in NO_2 Annual Mean Concentration (µg/m^3) Continuous Monitoring Sites 2019-2023

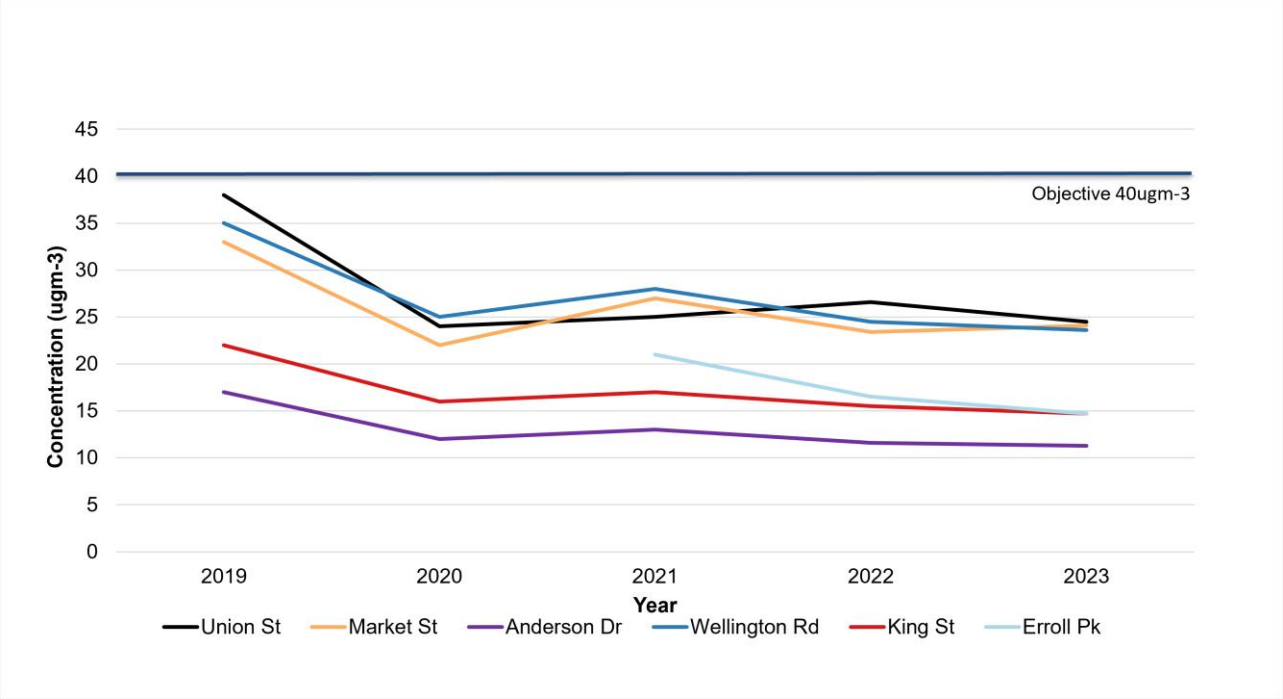


Figure D.2: Trend in NO_2 Annual Mean Concentration (µg/m^3) Continuous Monitoring Sites 2019-2023

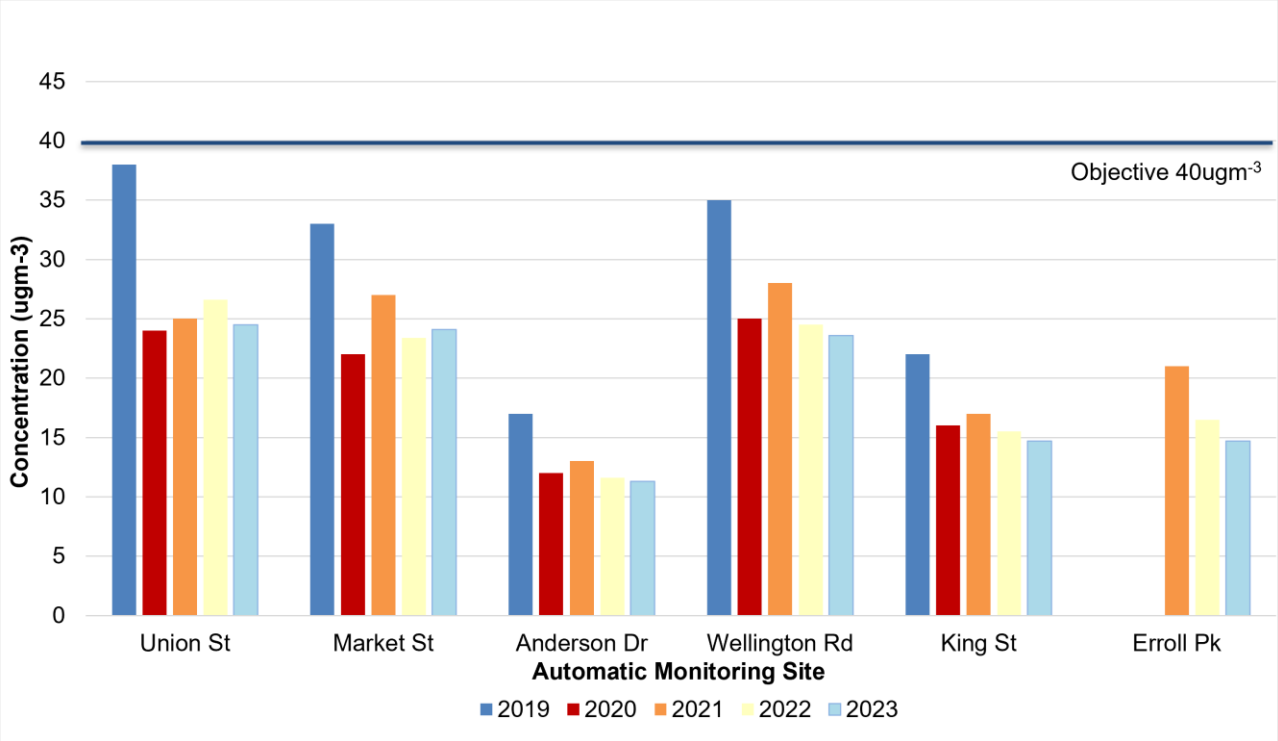
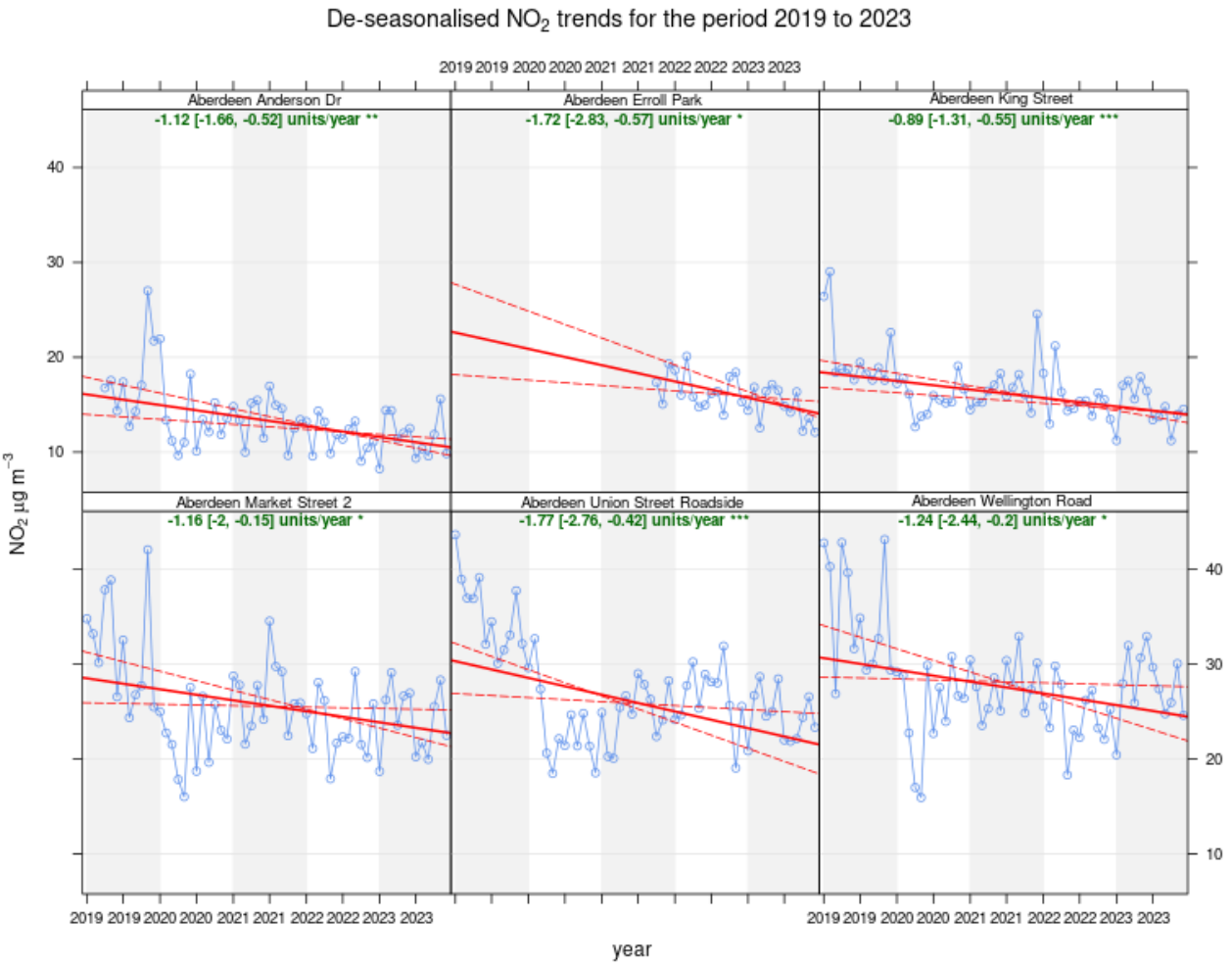


Figure D.3: De-seasonalised NO_2 trends at each Continuous Monitoring Site 2019-2023



Source: (Ricardo Energy & Environment)

Figure D.4: Bus Gate Locations City Centre AQMA

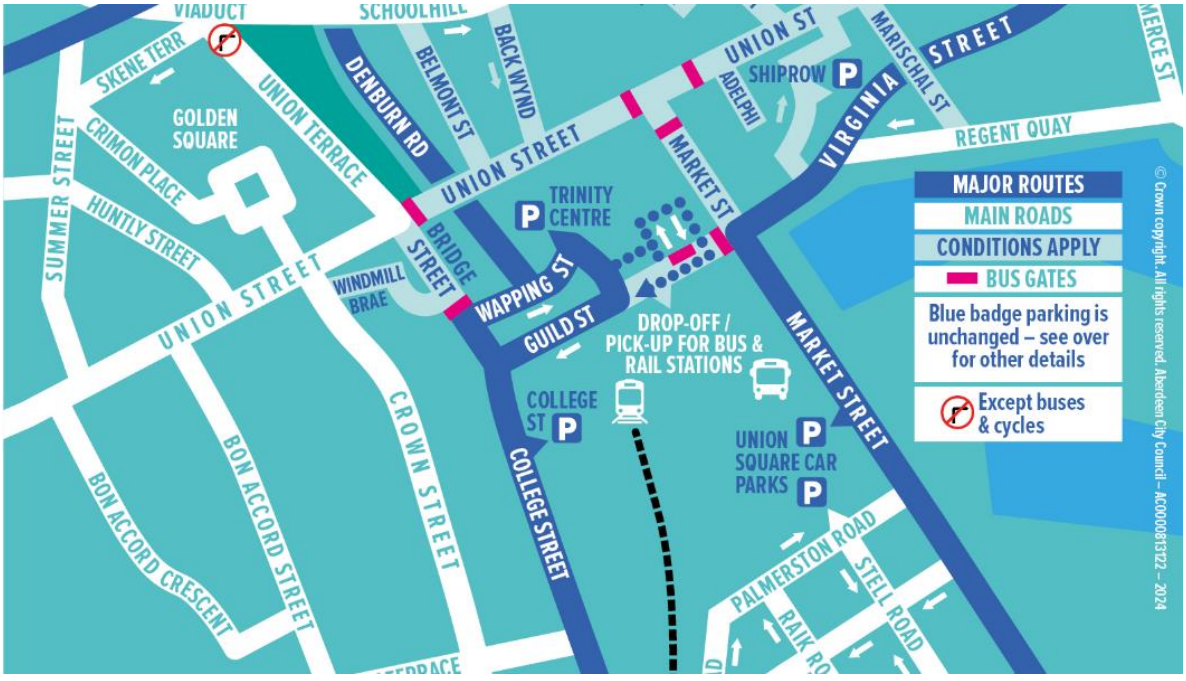


Figure D.5: Annual mean NO_2 concentration Anderson Drive diffusion tubes (ugm^{-3})

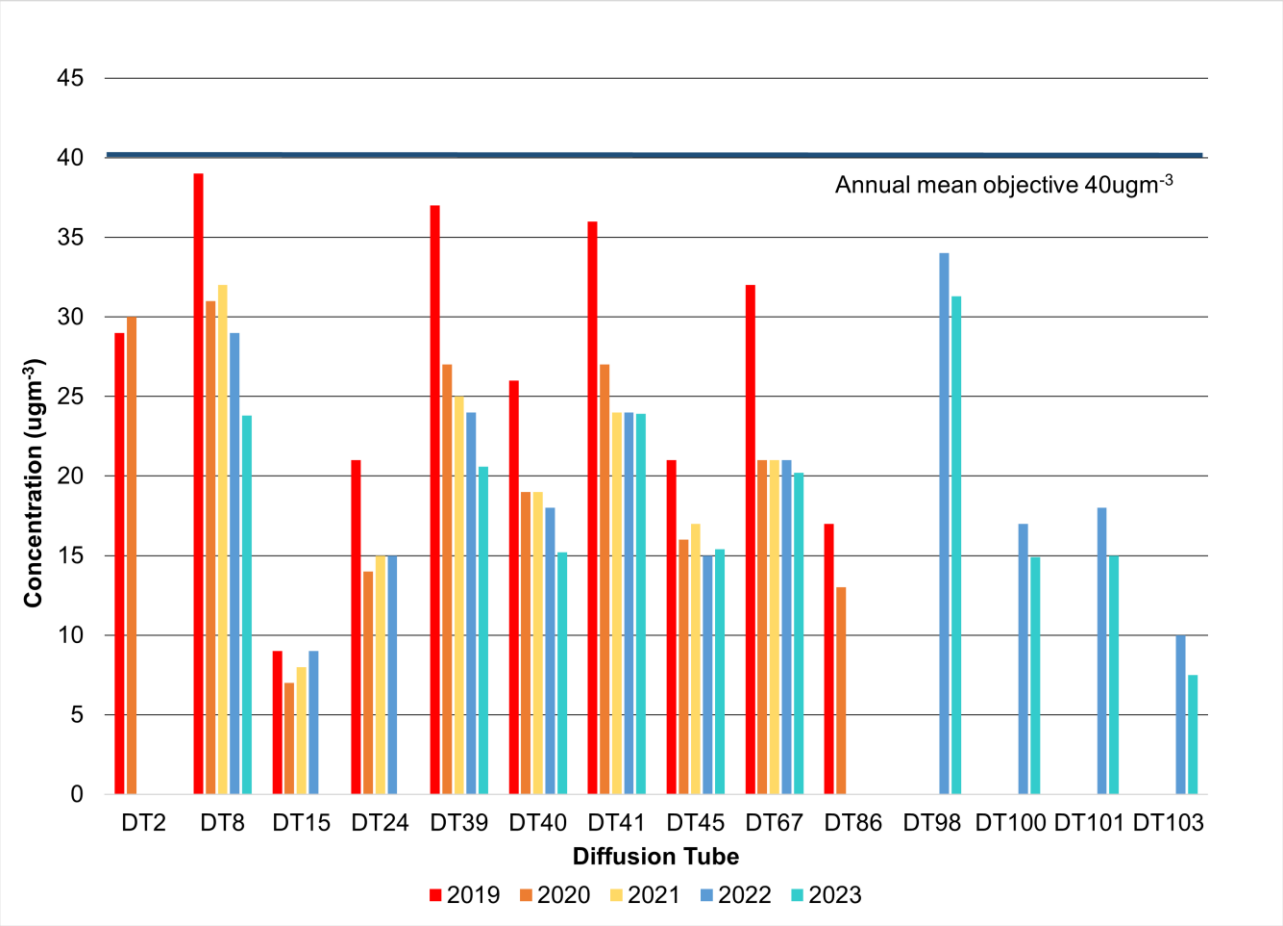


Figure D.6: Annual mean NO_2 concentration Wellington Road AQMA diffusion tubes

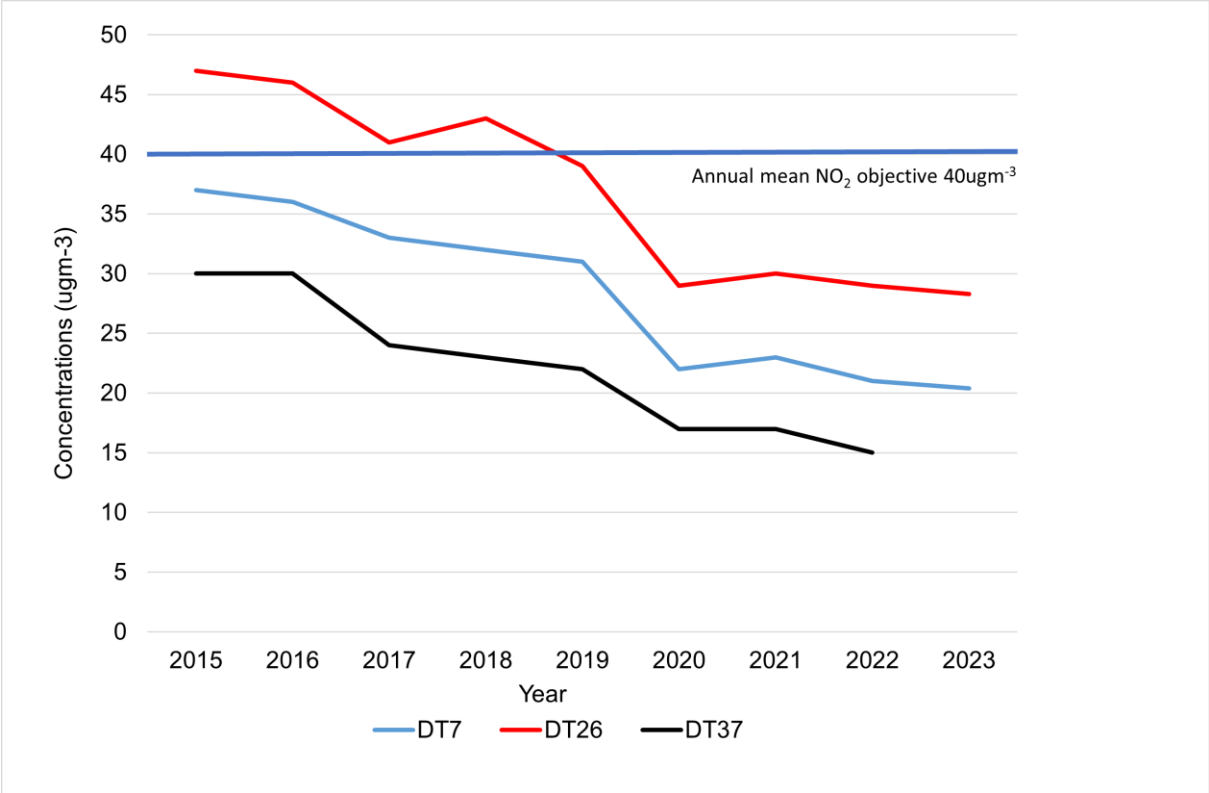


Figure D.7: Trend in PM_{10} Annual Mean Concentration (µg/m^3) at each Continuous Monitoring Sites 2019-2023

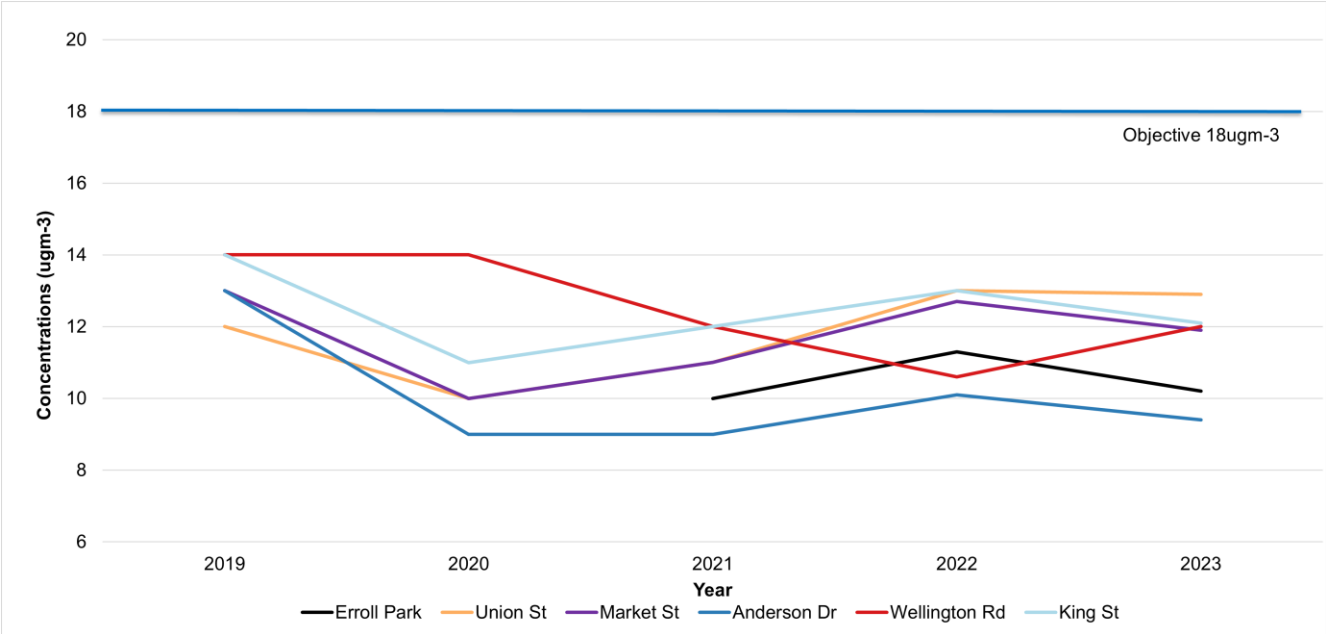


Figure D.8: Trend in PM_{10} Annual Mean Concentration (µg/m^3) at each Continuous Monitoring Site 2019-2023

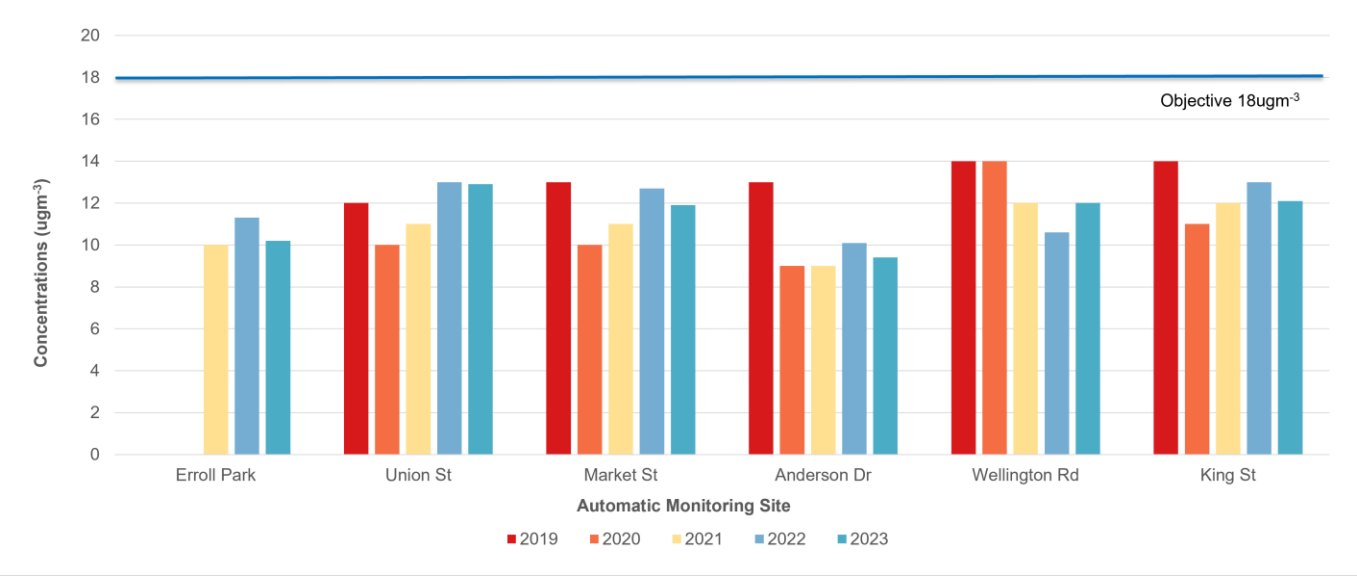
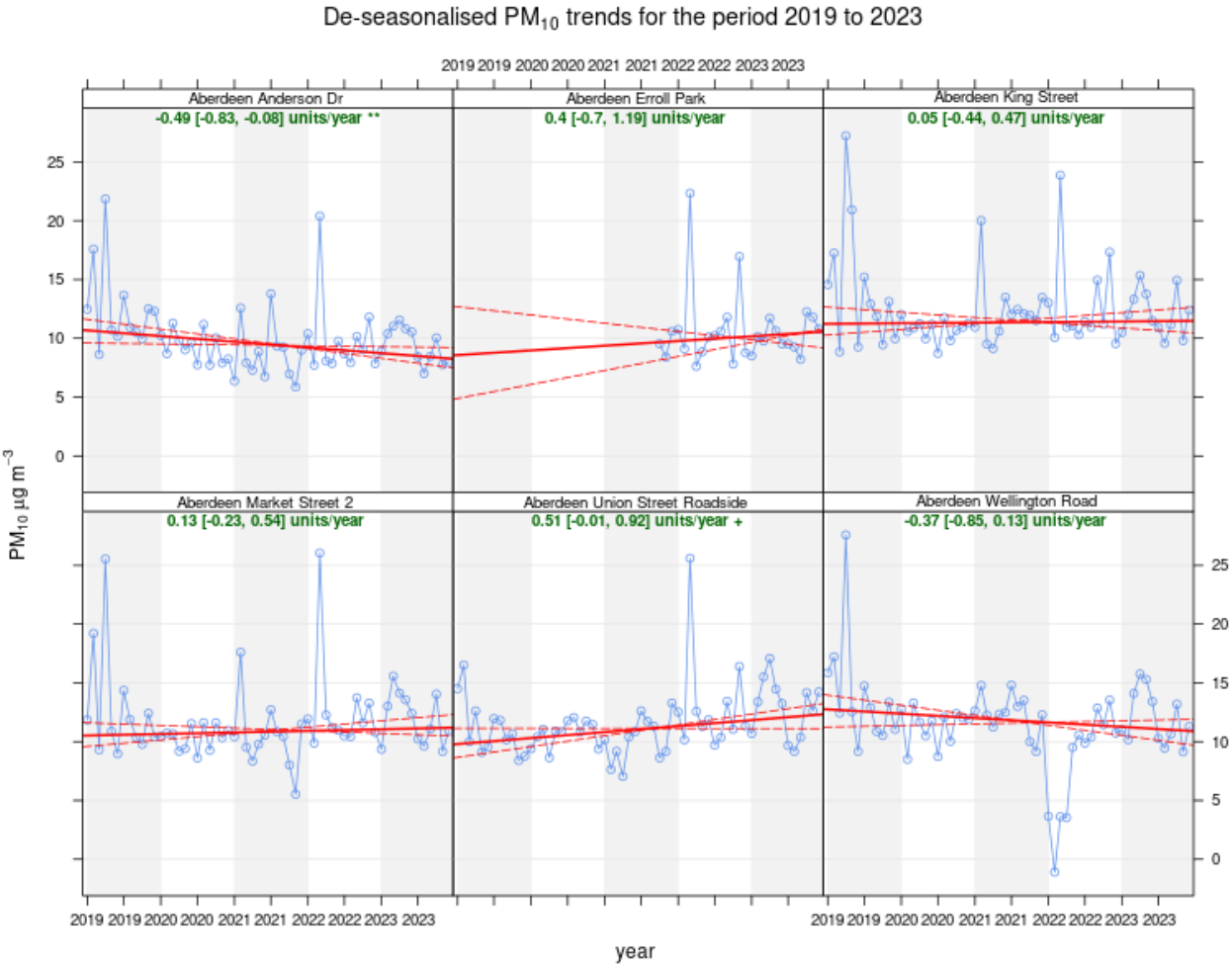


Figure D.9: De-seasonalised PM_{10} trends at each Continuous Monitoring Site 2019-2023



Source: (Ricardo Energy & Environment)

Appendix E: Monitoring Locations

Figure E.1: Aberdeen City AQMAs and Automatic Monitoring Locations

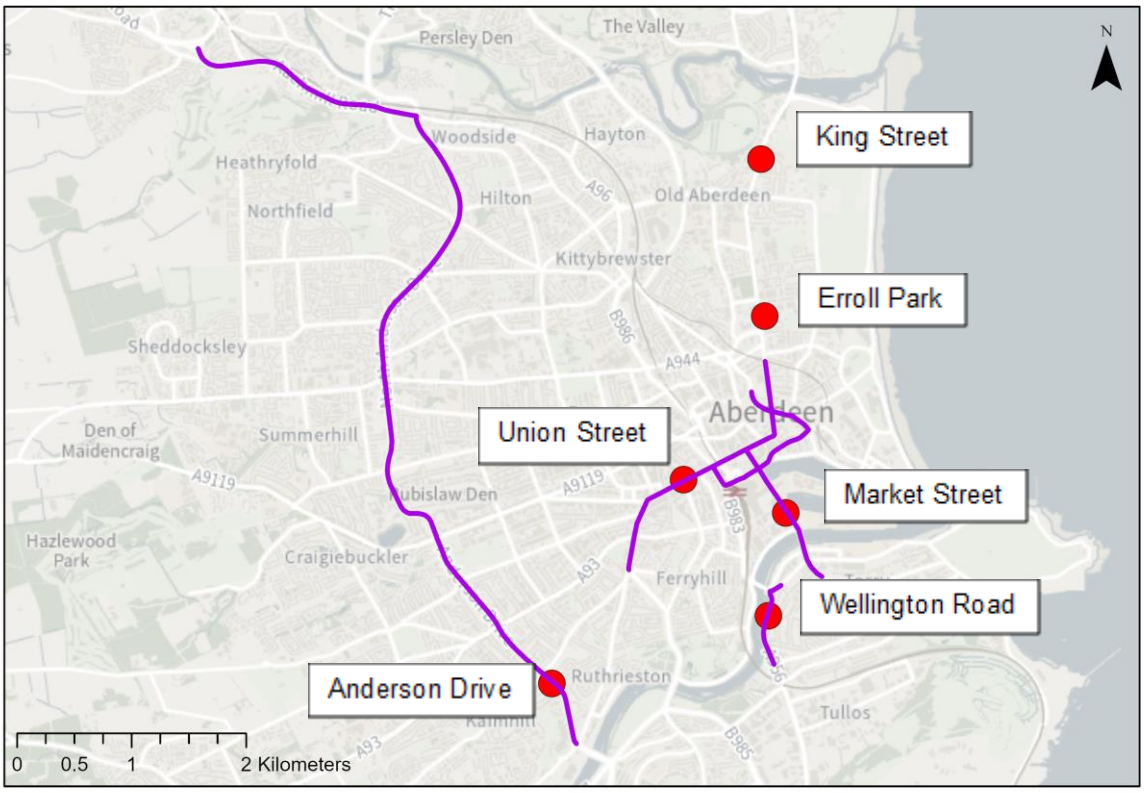


Figure E.2: Aberdeen City-wide diffusion tube locations, separated into Plates 1-7

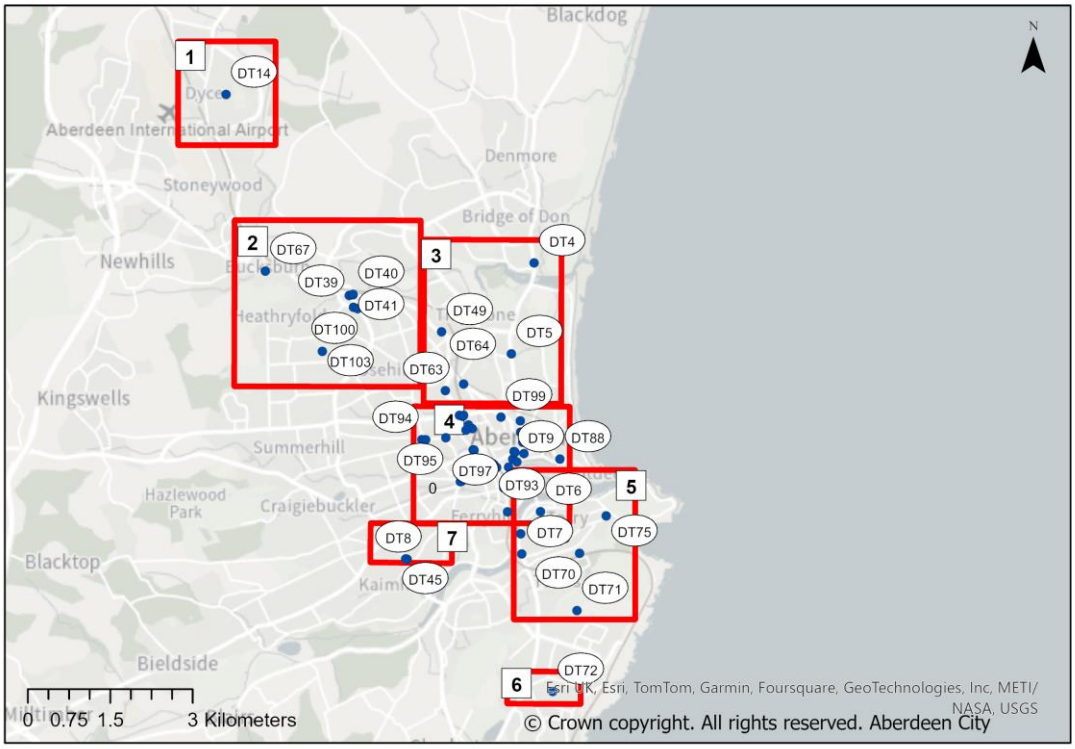


Figure E.3: Plate 1 – Diffusion tube locations, Dyce

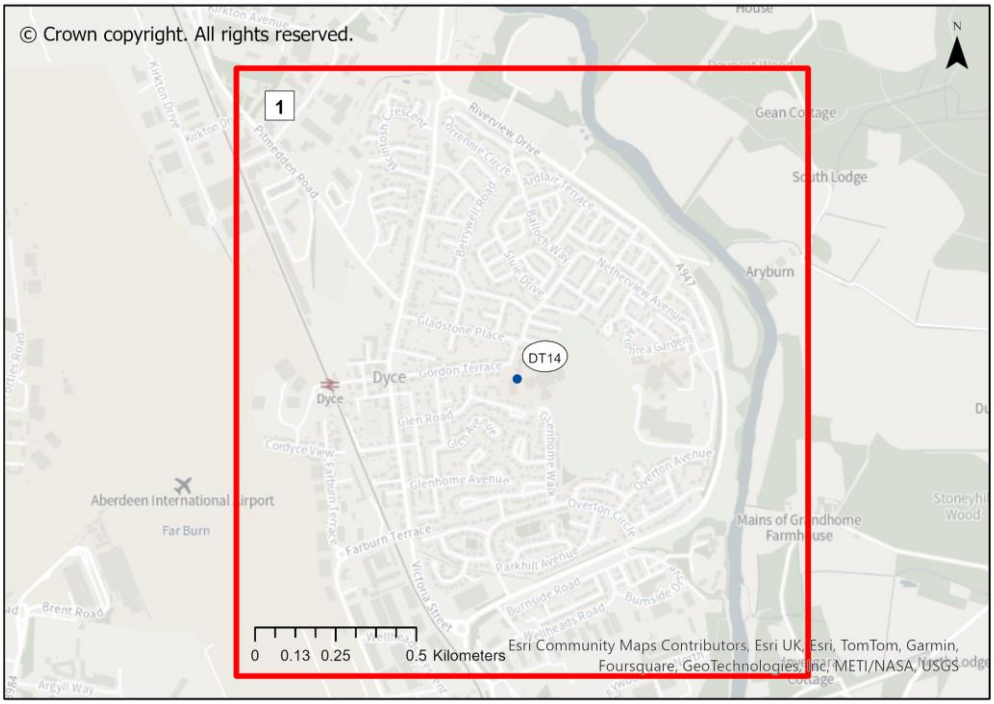


Figure E.4: Plate 2 – Diffusion tube locations, Bucksburn

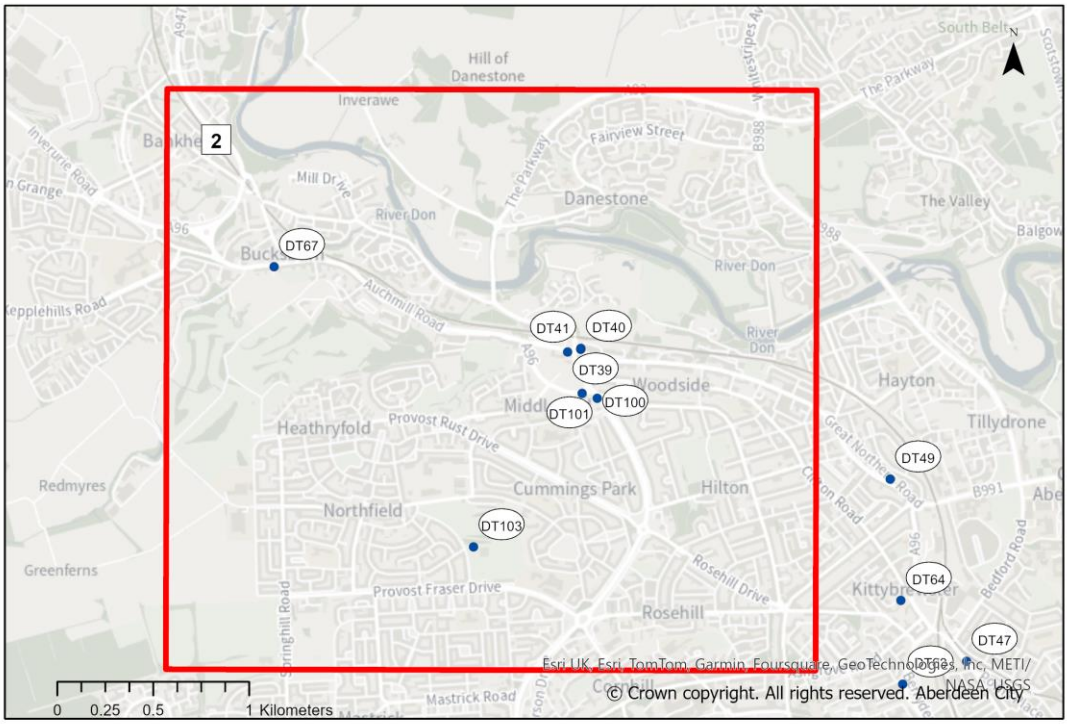


Figure E.5: Plate 3 – Diffusion tube locations, Seaton/Kittybrewster

Figure E.6: Plate 4 – Diffusion tube locations, City Centre

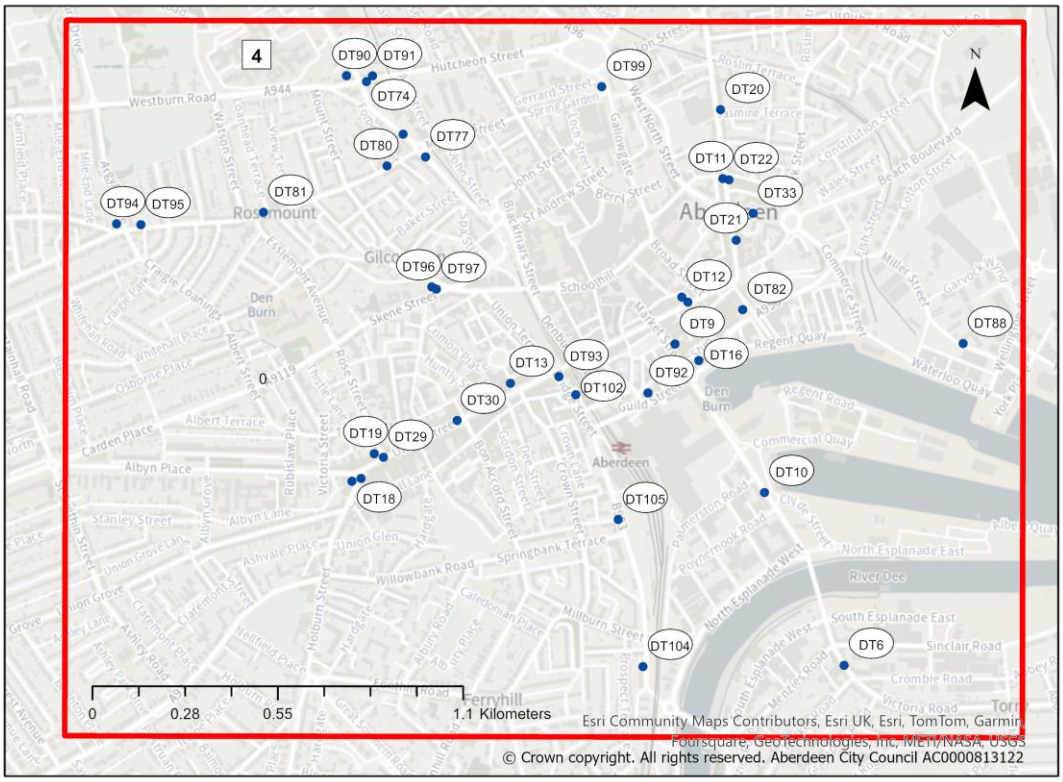


Figure E.7: Plate 5 – Diffusion tube locations, Torry

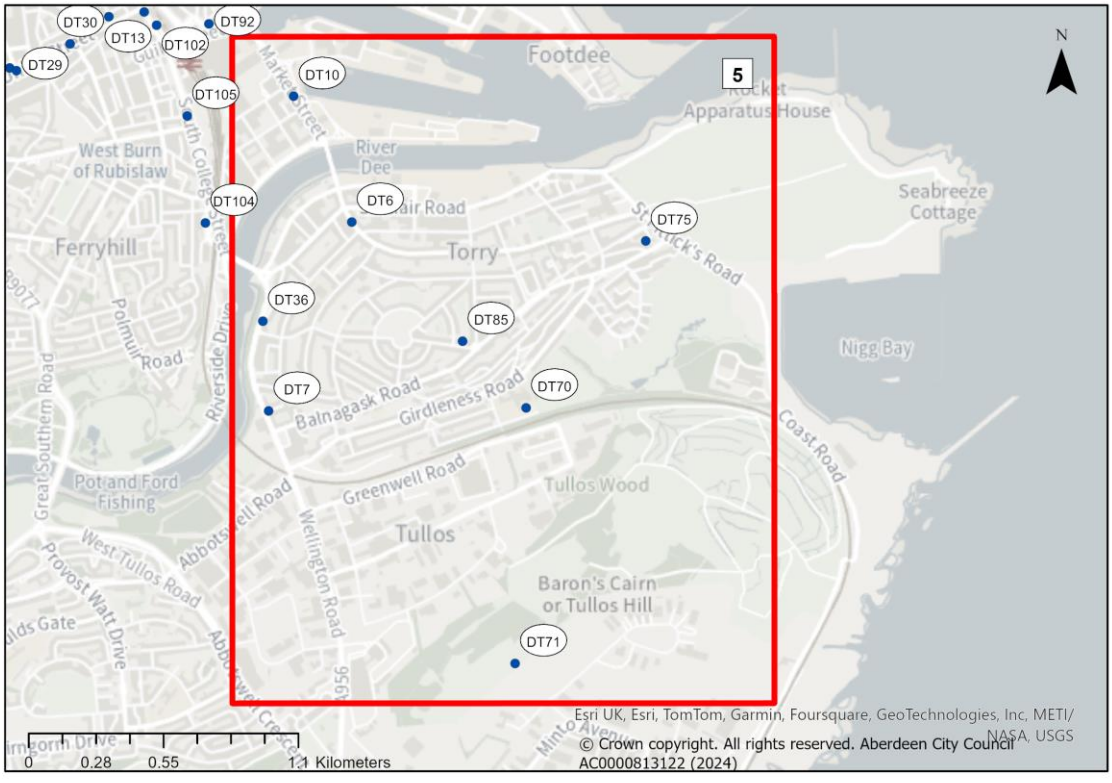


Figure E.8: Plate 6 – Diffusion tube locations, Cove

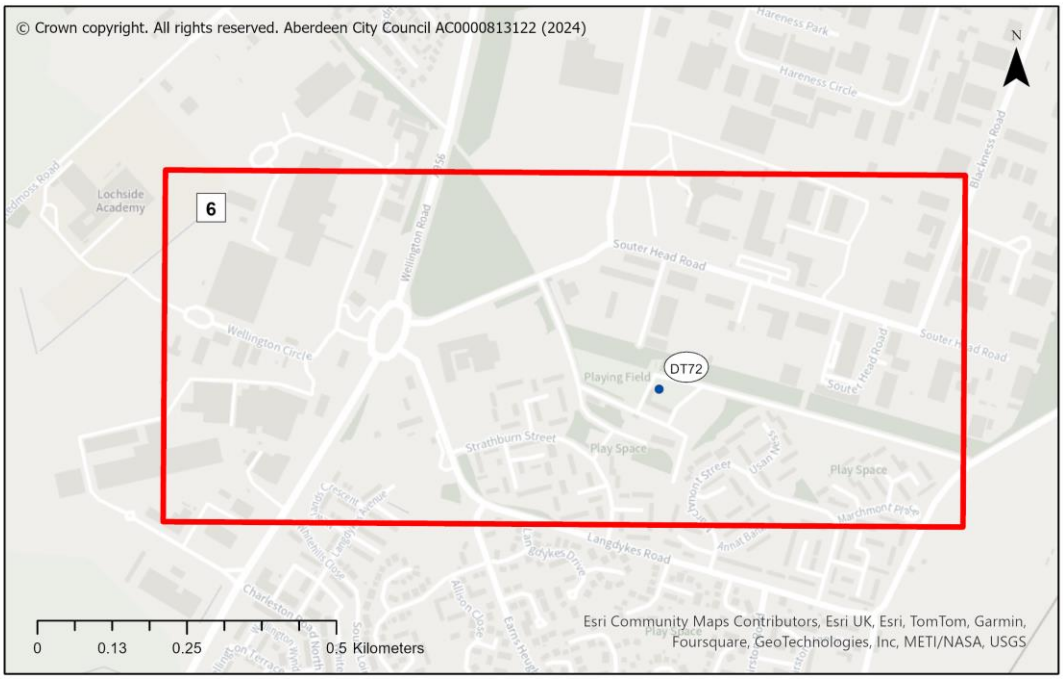
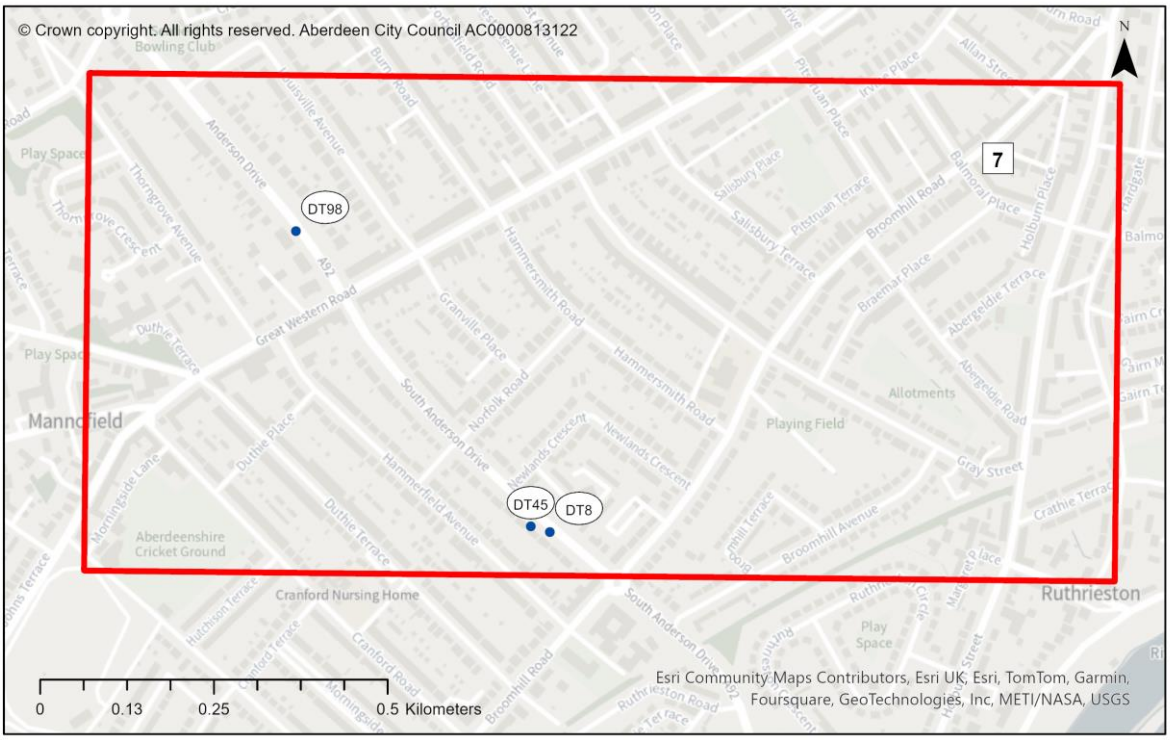


Figure E.9: Plate 7 – Diffusion tube locations, Anderson Drive



Glossary of Terms

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

References

1. Environment Act 1995
2. The Air Quality (Scotland) Regulations 2000
3. The Air Quality (Scotland) (Amendment) Regulations 2001
4. Local Air Quality Management Technical Guidance LAQM (TG22), DEFRA, August 2022
5. Local Air Quality Management Policy Guidance, (PG) (S) (23), The Scottish Government, March 2023
6. Aberdeen City Council Action Plan, March 2011
7. 2023 Air Quality Annual Progress Report (APR) for Aberdeen City Council, June 2023
8. Equivalence study to investigate Particulate Matter monitoring in Scotland using the Fidas 200 report for Scottish Government, Ricardo, May 2023