Annual Progress Report (APR)

2024 Air Quality Annual Progress Report (APR) for Renfrewshire 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 Renfrewshire Council

There are currently three Air Quality Management Areas (AQMAs) within Renfrewshire Council. The AQMAs are located within Paisley Town Centre (PTC), Johnstone High Street (JHS) and Renfrew Town Centre (RTC). The AQMAs were declared in 2009 and 2016 respectively, due to exceedances of the air quality objective (AQO) levels for nitrogen dioxide (NO_2) and particulate matter (PM_{10}, PTC only). However, there has since been a steady improvement of air quality across Renfrewshire Council and as such there have been no exceedances of any air quality objectives within Renfrewshire since 2019. As reported in this Annual Progress Report (APR), there continues to be no exceedances of either the NO_2 or PM_{10} AQOs at any of the automatic and passive monitoring locations within Renfrewshire following a review of the 2023 monitoring data. Due to the length of time since the previous exceedance of a relevant AQO, the recently published 2024 AQAP Update report makes it clear that the aim is to revoke the three AQMA's within Renfrewshire Council's jurisdiction by the end of 2024.

Renfrewshire Council monitor NO_2, PM_{10} and $PM_{2.5}$ at a number of locations. Automatic (continuous) monitoring was undertaken at three sites during 2023 – REN1 (Renfrew Cockels Loan), REN02 (Renfrewshire Johnstone) and REN03 (Renfrew Inchinnan Road). REN1 and REN03 monitor NO_2 while REN02 monitors PM_{10} and $PM_{2.5}$.

The monitored concentrations of NO_2 overall show a slight increase compared to previous years downwards trends following bias adjustment and application of distance correction, however there were no exceedances of the relevant AQOs reported during 2023. The bias adjustment factor used this year was significantly higher than for previous years (1.31) and is a likely cause for most of the observed increases in NO_2 concentrations since the 2023 APR. Concentrations of the annual mean and relevant short-term objectives for PM_{10} and $PM_{2.5}$ recorded at all automatic monitoring sites during 2023 were also below AQO levels.

There was a total of 60 diffusion tube monitoring sites across Renfrewshire in 2023, this is the same as last year.

Actions to Improve Air Quality

Throughout 2023, several sustainable travel-based measures detailed within the 2024 Air Quality Action Plan (AQAP) have been progressed to improve air quality throughout Renfrewshire, all measures and their progress are discussed in Section **Error! Reference source not found.**.

In 2023, Renfrewshire Council were awarded funding for a number of their proposed measures, including, but not limited to, a £250,000 investment to support the expansion of electric vehicle charging infrastructure, a £2 million investment to support the Council's Cycle Strategy & Action Plan that encourages members of the public to make the switch to more sustainable transport methods, and funding for a traffic management improvement scheme in Spring 2023 that saw 30 junctions across the council area upgraded to an externally hosted Urban Traffic Control (UTC) system to improve traffic flows.

Nine measures are within the 2024 AQAP, and they cover the following topic categories:

- Transport Planning and Infrastructure;
- Traffic Management;
- Promoting Travel Alternatives;
- Promoting Low Emission Transport;
- Freight and Delivery Management;
- Vehicle Fleet Efficiency; and
- Policy Guidance and Development Control;

Local Priorities and Challenges

Renfrewshire Council's priorities following the publication of the 2024 APR are as follows:

- Progress with the significant new road and cycle infrastructure projects which are part of the City Deals and AMIDS South projects;
- Publication of a new Renfrewshire Local Transport Strategy and development of a Paisley Town Centre Transport Strategy;
- Continuation of the upgrade and development of the cycling network as per the Renfrewshire Council Cycle Strategy priorities;

- Improvement of the council's fleet, funded via the Council's Vehicle Replacement Capital (VRC) Programme. £2.2 million has been set aside for the VRC Programme in 2023-24 for the purchase of new fleet vehicles. This includes the replacement of older fossil vehicles with newer fleet vehicles with better emission standards and the introduction of HVO as an alternative fuel for some of the fleet;
- Continue with promotion of active travel measures, encouraging people to travel actively and sustainably with a view to supporting longer term behaviour shift;
- Continue to monitor NO_2, PM_{10} and $PM_{2.5}$ at relevant locations throughout Renfrewshire;
- Prepare and submit to consultees a revocation for the three AQMAs; and
- Submit the 2025 Annual Progress Report.

Renfrewshire Council has no comment on challenges faced as air quality in the area has been steadily improving over the years.

How to Get Involved

The general public can find further information about air quality within Renfrewshire on the Renfrewshire Council website https://www.renfrewshire.gov.uk/airquality.

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1 Local Air Quality Management

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

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

Table 1.A – 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 Renfrewshire Council can be found in Table 2.A . Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://www.scottishairquality.scot/laqm/aqma?id=382#!/la/462.

Following declaration of the Johnstone High Street and Renfrew Town Centre AQMAs in 2016, Renfrewshire Council published a Renfrewshire wide AQAP in 2019 (inclusive of the 2009 Paisley Town Centre AQMA). This was recently updated by the 2024 AQAP Update which was officially approved by the Council's Infrastructure, Land & Environment (I,L&E) Policy Board and published in May 2024.

Given the improvements in air quality over recent years, the update makes it clear that the aim is to revoke the three AQMA's within Renfrewshire Council's jurisdiction by the end of 2024. Below is a passage from the report:

'Given the length of time since exceedances of the objectives, revocation of the three AQMAs is now under consideration by the Council and, in accordance with the requirements of the Scottish Government's Local Air Quality Management Policy Guidance 2023 (PG(S)(23)), Renfrewshire Council expects the Paisley Town Centre, Renfrew Town Centre and Johnstone High Street AQMAs to be revoked no later than December 2024.'

Table 2.A – Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town	Description	Action Plan
Paisley Town Centre (PTC)	NO_2 annual mean NO_2 1-hour mean PM_{10} 24-hour mean	Paisley	An area encompassing a large part of central Paisley and extending a short distance along some radial roads	Renfrewshire Council Air Quality Action Plan 2019: http://www.renfrewshire.gov.uk/airquality
Johnstone High Street (JHS)	NO_2 annual mean	Johnstone	From the junction of High Street and Peockland Place; thence along High Street to the junction of Barrochan Road and Napier Street	Renfrewshire Council Air Quality Action Plan 2019: http://www.renfrewshire.gov.uk/airquality
Renfrew Town Centre (RTC)	NO_2 annual mean NO_2 1-hour mean	Renfrew	From the junction of Paisley Road, Inchinnan Road, Hairst Street and Glebe Street; thence along Glebe Street to property number 4 Glebe St; thence along Paisley Road to the junction of Donaldson Drive; thence along Inchinnan Road to the junction of Longcroft Drive; thence along Hairst Street to the junction with Canal Street and High Street; thence along Canal St to the junction with Ferry Road	Renfrewshire Council Air Quality Action Plan 2019: http://www.renfrewshire.gov.uk/airquality

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 Renfrewshire 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.

Renfrewshire Council has relevant initiatives in Transport and Climate Change, as detailed below:

Transport – Avoiding Travel – T1

The council has filled a permanent Active Travel Officer post within the council's Transportation and Development team within the last couple of years. The post was created to assist delivery on a wide range of priority active travel and public transport infrastructure related projects within Renfrewshire as well as develop and deliver a Renfrewshire Active Travel Strategy. This will be aimed at all residents, business etc. across Renfrewshire and not solely for staff as per the Corporate Travel Plan.

In September 2023, a consultant was appointed to undertake a strategic environment assessment (SEA) scoping report for a new Local Transport Strategy (LTS), which is expected to be completed in Summer 2024. The new LTS for Renfrewshire will be called Renfrewshire 2035 and will set out the Council's local transport and travel priorities over the next 10 years. Steering group meetings are due to commence in June 2024 and will include officers from Environmental Health who have already provided comments on the SEA Scoping report with regards to air quality.

Climate Change – Effective co-ordination of climate change and air quality policies to deliver co-benefits – CC2

The Scottish Government expects any Scottish local authority which has or is currently developing a Sustainable Energy Action Plan to ensure that air quality considerations are covered. In addition to the Council's 2014 Carbon Management Plan, and as discussed in the Council's AQAP, Renfrewshire Council commissioned a study during 2019 to review the AQAP measures in line with CAFS objectives. As such, it was found that within the 16 AQAP measures listed, the decarbonising transport and low emission vehicle use aspects were strongly aligned with the CAFS strategy.

Renfrewshire's Net Zero Strategy was produced and approved in August 2022 with key themes including sustainable transport and clean energy. This measure also sets out plans for annual updates on the Council's emission modelling processes to inform future targets and present data in interactive ways. The measure also includes the development of a carbon budget for Renfrewshire Council with a projected completion date of April 2024.

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.

Renfrewshire Council has no LEZs established within the Local Authority area. Renfrewshire Council undertook a National Low Emission Framework Stage 1 Screening Appraisal as part of the 2020 APR and determined that the proposed air quality measures were sufficient as declared AQMAs either reported no exceedances in 2019, or LEZs were not considered appropriate due to AQMAs being restricted along a stretch of road. This position is not considered to have changed since the appraisal and LEZs remain to not be considered appropriate in Renfrewshire.

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. Renfrewshire Council has taken forward a number of measures within the action plan during the current reporting year of

2023 in pursuit of improving local air quality and meeting the air quality objectives within the shortest possible time. Details of all measures completed, in progress or planned are set out in

Table 2.B. More detail on these measures can be found in the Air Quality Action Plan relating to each AQMA.

Key projects that were successfully delivered through the 2019 AQAP include:

- City Deals Projects - GAIA (Glasgow Airport Investment Area) works completed and infrastructure in use;
- City Deals Projects - two AMIDS (Advanced Manufacturing Innovation District Scotland) buildings are now complete and occupied;
- Upgrades & Improvements to the Council's Urban Traffic Control (UTC) system – faults identified, repairs undertaken, validation of traffic signals and updates to traffic controllers to ensure full optimisation of traffic signals in order to reduce congestion;
- Continual improvements to the Council fleet via the annual vehicle replacement capital programme and the increase of electric vehicles and associated charging infrastructure;
- Introduction of Renfrewshire Council's Corporate Sustainable Travel Planning Scheme including the provision of staff pool cars with the majority of these (approximately 50) being electric vehicles;
- Vehicle Idling Awareness Raising - regular targeted campaigns including a School Parking Campaign which by August 2019, all 49 Primary schools in Renfrewshire were engaged in;
- Cycle Strategy – construction of various infrastructure projects as per the Cycle Strategy priorities including the Paisley to Renfrew and Inchinnan Active Travel Routes. Provision of the Cycle to Work Scheme for Council employees; and
- Upgrading of the fleet tracking telemetric system was completed 2023/24. UK Telematics Ltd awarded contract in April 2023 with system now fully utilised and UK Telematics is now installed in all council vehicles (including hires).

Table 2.B – 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	**Glasgow City Region City Deal Projects** - Clyde Waterfront & Renfrew Riverside Project (CWRR) - Glasgow Airport Investment Area Project (GAIA) **UK Government Levelling Up Fund Project** - Advanced Manufacturing Innovation District Scotland (AMIDS) South	**Transport Planning and Infrastructure** - Active travel Public transport improvements **Traffic Management** - Strategic highway improvements **Promoting Travel Alternatives** - Promotion of cycling Promotion of walking	CWRR – expected completion early 2025 GAIA – completed 2022 AMIDS South – anticipated construction commencing 2025 with completion 2027	CWRR – in progress GAIA – completed AMIDS South – in progress	Partially funded UK Government funding 85% of the capital costs of the projects. Renfrewshire council contribution is 15% of costs. Government funding will be unlocked in 5 yearly Gateway Reviews. If the City Deal meets agreed outputs and outcomes at each review, the full £1 billion of funding from the UK and Scottish Governments will be unlocked. **AMIDS South** Funding via the UK Government Levelling Up Fund. Funding provided for 90% of the capital cost with	**CWRR** Nov 2018 – planning consent granted Autumn 2019 – tenders published Nov 2021 – Contract Start Date Early 2025 – Anticipated construction completion **GAIA** Nov 2017 – planning consent granted Spring 2019 – tender contracts awarded June 2019 – start of construction March 2022 – Works opened to the public **AMIDS South**	**CWRR** The bridge associated with the Clyde Waterfront and Renfrew Riverside (CWRR) project was delivered to the site in April/May 2024 for installation. The CWRR project is now due to be completed ahead of schedule and be fully operational for pedestrians, cyclists and motorists in Autumn 2024. **GAIA** The Glasgow Airport Investment Area project was completed in October 2022 **AMIDS South** Renfrewshire Council is currently going through the process of a Compulsory Purchase Order under the Roads (Scotland) Act 1984 and the Acquisition of Land (Authorisation Procedure) (Scotland) Act 1947 in order to progress this development	**AMIDS South** The Council are still awaiting the outcome of the Compulsory Purchase Order under the Roads (Scotland) Act 1984 and the Acquisition of Land (Authorisation Procedure) (Scotland) Act 1947 processes.

					Renfrewshire council contribution of 10%.	March 2023 – planning consented Nov 2022 to 2024 – Contractor procurement and land acquisition 2025 - 2027 – Construction period		
2	**Council Fleet Improvements** - Continue to improve the standard of fleet - Increase numbers of electric vehicles (EVs) & associated charging infrastructure - Continue to work in line with the Scottish Government's Net Zero policy with regards to fleet vehicles - EV Fleet Strategy Feasibility Study	**Promoting Low Emission Transport** Company Vehicle Procurement - Prioritising uptake of low emission vehicles Procuring alternative refuelling infrastructure to promote low emission vehicles	Ongoing. There is an annual vehicle replacement programme (VRP) whereby vehicles at the end of their service life are replaced with an improved EURO standard or an electric alternative. The Council will continue to introduce EVs & charging points where opportunities and funding permits. As technology evolves the Council will extend the EV Fleet Strategy to include all vehicles including HGVs and buses.	In progress Phasing out need for new petrol or diesel light commercial vehicles by 2030	Local Authority - Fleet improvements funded via the Council's capital VRP. Partial funding towards charging infrastructure from Transport Scotland's Switched On Fleets funding	The Council fleet consists of approx. 400 vehicles of which >78% are of EURO V or VI standard. There are approx. 80 HGV vehicles, 32 of which are EURO VI standard with the remaining 48 being of EURO V. The EURO V HGVs are prioritised for replacement with EURO VI vehicles. First Council EVs and charging points purchased and installed in 2012. The Council now have 115 EVs (cars/vans) in the fleet or 27% of overall fleet. As of the start of 2024, there are now 73 EV chargers for public usage (146 charging bays) and 48 EV chargers for council fleet vehicles (89 charging bays) across 14 council depots /buildings. Contract awarded for £250,000 investment in the council's Underwood Road Waste & Fleet Depot	In October 2021, Scottish Futures Trust (SFT) sought expressions of interest from local authorities to undertake a business case to explore alternative delivery models for public EV charging through private sector investment. Renfrewshire Council was successful in their application and received £60k funding towards the development of the business case which was undertaken by a consultant and completed in March 2023. The business case sets out how the Glasgow City Region partners could work together to expand the EV charging infrastructure network to meet projected EV demand over the next three to four years	

						during 2023 with a new 2.3MVA power supply and transformer to support the further expansion of EV charging infrastructure for light vans, HGVs and refuse collection vehicles. In addition to EV pool cars, the council have 10 electric pool bikes for staff to use for business travel as part of the Business Travel Hierarchy		
3	**UTC Improvements** - Replacement of previous Urban traffic Control (UTC) system with externally hosted UTC-X system from Yunex with guaranteed updates for the next 10 years.	**Traffic Management** (UTC, congestion management, traffic reduction)	Expected completion year – 2023/24	In progress The work to replace life-expired traffic signals continues.	Not funded (from external sources)	Spring 2023 - 66 sites across 30 junctions throughout the council area have been upgraded to an externally hosted UTC system between 2020 and 2023. This is then followed with a 10-year maintenance contract at these sites to ensure signals remain as efficient as possible	There is a 10-year maintenance contract at these sites to ensure signals remain as efficient as possible.	
4	**Vehicle Fleet Tracking System** - UK Telematics for all fleet vehicles	**Freight and Delivery Management** Route management plans/ Strategic routing strategy for HGV's **Vehicle Fleet Efficiency** (other)	UK Telematics Ltd awarded contract in April 2023 with system now fully utilised.	Completed	Not funded (from external sources)	UK Telematics now installed in all council vehicles (including hires). Training has been provided for user departments in report writing and system functionality.		

5	**Renfrewshire's Local Transport Strategy** - Publication of a new Local Transport Strategy (LTS) for the period 2025-2035 to replace the Council's existing 2007 LTS.	**Policy Guidance and Development Control** (Other policy) **Transport Planning and Infrastructure** Public transport improvements **Traffic Management** (various) **Promoting Travel Alternatives** (various)	Summer 2024	In progress	Not funded (from external sources)	Contract awarded in Sept 2023.	Completion date expected to be summer 2024 (approx. 9 months after award).	
6	**Renfrewshire Council Cycle Strategy & Action Plan 2016-2025** - The strategy contains a Cycling Action Plan which sets out a programme of activities and network interventions for the ten-year period, including upgrades and expansion of cycle networks, upgrading the Council's facilities for cyclists and updating the Council's Travel Plan.	**Promoting Travel Alternatives** Promotion of cycling Intensive active travel campaign & infrastructure School Travel Plans **Traffic Management** Strategic highway improvements, re-prioritising road space away from cars	The current Cycle Strategy and Action Plan runs for the period 2016-2025. Upgrades and development of the cycling network is ongoing as per the strategy priorities. Expected completion year is dependent on each measure, some are ongoing, and some have funding until end of 2023/24.	In progress	Measures contained within the action plan will be implemented dependant on funding. Funding status depends on each project but can be fully funded / partially funded / not funded/ annual or ongoing funding required.	Renfrewshire used 49.4% of CWSR budget in 2022/23 on new infrastructure to encourage cycling. Projects included construction of Paisley to Renfrew and Inchinnan Active Travel Routes. The £2 Million Transport Scotland Active Travel Transformation Funding awarded in 2023 for four Renfrewshire projects is a significant investment which aims to create high-quality active travel infrastructure that will support people to make the switch to more sustainable transport methods and reduce emissions. Expected	There are several other cycling infrastructure projects which are currently at concept design /public consultation design stage. The routes for these are: 1. Southolm Roundabout Erskine 2. Linside Avenue 3. Hawkhead Rd/ Glasgow Rd junction 4. Linclive Roundabout 5. Inchinnan Business Park 6. Barnsford Road, Glasgow Airport	

						completion of these projects is summer 2024.		
7	**Active Travel Projects** - Not Far? Leave the Car - Beat the Street - Living Streets WOW Project - School Bikeability & Scootability Training -School travel Plans - Carshare	**Promoting Travel Alternatives** Promotion of cycling Promotion of walking Intensive active travel campaign & infrastructure School Travel Plans **Alternatives to private vehicle use** Car & lift sharing schemes	Dependant on measure. Some are ongoing and some have funding until end of 2023/24	Ongoing	Funding status depends on each project but can be fully funded / partially funded / not funded/ annual or ongoing funding required.	**Not Far? Leave the Car** Headline results for the project from March 2023 to December 2023 include: 654 users out of 917 replaced their last car journey with an active travel option; 75.9% of respondents agreed they used the car less than usual to get from place to place; 73% of respondents agreed they would likely use the car less to get from place to place in the future; 75.2% of respondents said they are more likely to walk or cycle to get from place to place in the future; 66.4% of respondents said they are likely to use public transport to get from place to place in future; and 76.7% of respondents said that the scheme has made them leave the car at home	All Primary 5 - 7 classes across Renfrewshire will be invited to undertake their Bikeability training (funding dependent). Bikeability Is funded by Cycling Scotland and is led by OneRen within the Renfrewshire Council area. Primary Schools have been invited to work with the Council's Road Safety team and establish Junior Road Safety Officers where they will assist in keeping the school areas less congested thus resulting in improved air quality. School travel Plans: all schools will be invited to complete a school travel plan and work with the Council's Road Safety team and Junior Road Safety Officers to complete this.	

						Living Streets WOW Project Headline results for the project during the period September 2023 – December 2023 include: The Number of children engaged in the Project: 5470 The number of sustainable and active travel journeys: 121,832 (86%) The number of badges earned: 5,987. Number of Schools actively engaged: 19 schools. 86% of pupils engaged are choosing to be active in going to school **Beat the Street** During 2023/24 the game took place in Renfrewshire North, covering the areas of Paisley North, Inchinnan, Renfrew, Erskine and Langbank. Headline results include: 7604 players took part, 118,459 miles covered in Renfrewshire. The Council are part of Carshare and promote car share journeys for all		

						Renfrewshire employees.		
8	**Renfrewshire's Plan for Net Zero Strategy** Renfrewshire Council declared a climate emergency in June 2019 with a commitment to work towards net zero by 2030. Renfrewshire's Net Zero Strategy was produced and approved in August 2022 with key themes including: **-** Sustainable Transport - Clean Energy - Resilient Place Action Measures for these themes will also align with improving air quality levels within Renfrewshire.	**Policy Guidance and Development Control**	The Net Zero Strategy is ongoing until 2030 with action measures implemented as per the strategy priorities which the Council will continue to monitor to 2045 in line with national targets and beyond.	Ongoing	Not funded (from external sources).	Verifying, adopting and updating the emissions modelling tool: quantification of the impact of the phased actions, to inform future targets and present data in an interactive way - Annual updates on this will be provided from April 2024. Developing a carbon budget for Renfrewshire Council - projected completion date April 2024.	Detailed Phased Road Map to 2030 and Quantified Delivery Plans being developed.	
9	**Renfrewshire's Local Heat and Energy Efficiency Strategy**	**Policy Guidance and Development Control**	Strategy approved at Board in January 2024.	Ongoing	Partially funded. However, it is hoped that the LHEES will also act as a prospectus for	Renfrewshire's LHEES approved in January 2024. .	Delivery Plans being developed throughout 2024	

	The Strategy designates the most appropriate energy efficiency and heat decarbonisation options within Renfrewshire				government funding and external investment using a robust evidence and place-based approach.			

Progress of measures for this reporting year that will be detailed in the 2024 AQAP update include the following:

- Measure 1 – Planning was consented for the AMIDS South project in March 2023;
- Measure 1 – The bridge associated with the Clyde Waterfront and Renfrew Riverside (CWRR) project was delivered to the site in April/May 2024 for installation;
- Measure 2 - £250,000 contract for the Council's Underwood Road Waste & Fleet Depot;
- Measure 2 - The Council have recently introduced Hydrotreated Vegetable Oil (HVO) as an alternative fuel for some of the fleet;
- Measure 2 - Renfrewshire Council was successful in their application and received £60k funding towards the development of the business case which was undertaken by a consultant and completed in March 2023;
- Measure 3 – 10-year maintenance programme been awarded at installed sites to ensure signals remain as efficient as possible;
- Measure 4 - UK Telematics Ltd awarded contract in April 2023 with system now fully utilised;
- Measure 5 – Contract awarded to consultant in September 2023 for an SEA scoping report;
- Measure 6 - 23/24 - £2.55 million funding spread across two separate projects;
- Measure 7 – The 'Not Far? Leave the Car' headline results from March 2023 to December 2023 include:

    - 654 users out of 917 replaced their last car journey with an active travel option;
    - 75.9% of respondents agreed they used the car less than usual to get from place to place;
    - 73% of respondents agreed they would likely use the car less to get from place to place in the future;
    - 75.2% of respondents said they are more likely to walk or cycle to get from place to place in the future;
    - 66.4% of respondents said they are likely to use public transport to get from place to place in future; and
    - 76.7% of respondents said that the scheme has made them leave the car at home.

- The Living Streets WOW headline results from September 2023 – December 2023 include:

  - The number of children engaged in the project: 5470
  - The number of sustainable and active travel journeys: 121,832 (86%)
  - The number of badges earned: 5,987.
  - Number of schools actively engaged: 19 schools.
  - 86% of pupils engaged are choosing to be active in going to school.
  - During 2023/24, the Beat the Street game took place in Renfrewshire North, covering the areas of Paisley North, Inchinnan, Renfrew, Erskine and Langbank. Headline results include:
  - 7604 players took part,
  - 118,459 miles covered in Renfrewshire.

- Other headlines for this measure include:

  - The Council are part of Carshare and promote car share journeys for all Renfrewshire employees.
  - All Primary 5 - 7 classes across Renfrewshire will be invited to undertake their Bikeability training (funding dependent). Bikeability is funded by Cycling Scotland and is led by OneRen within the Renfrewshire Council area.
  - Primary schools have been invited to work with the Council's Road Safety team and establish Junior Road Safety Officers where they will assist in keeping the school areas less congested thus resulting in improved air quality.
  - School travel plans: all schools will be invited to complete a school travel plan and work with the Council's Road Safety team and Junior Road Safety Officers to complete this.

- Measure 8 - Verifying, adopting and updating the emissions modelling tool: quantification of the impact of the phased actions, to inform future targets and present data in an interactive way. Annual updates on this will be provided from April 2024; and
- Measure 9 – Strategy approved by Board in January 2024.

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

- Measure 1 – Renfrewshire Council is still awaiting the outcome of a Compulsory Purchase Order in order to progress this development.

Measures included in the 2019 AQAP that have stalled include:

- Measure 6 – Phase 3 is ongoing but has been delayed due to the impact the pandemic has had on the number of staff working from home; and
- Measure 11 – Further meeting will be undertaken with local bus operators as part of the 2024 AQAP.

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

- Measure 1 – The CWRR project is expected to be completed ahead of schedule with it being fully operational in autumn 2024;
- Measure 5 – Completion date expected to be summer 2024;
- Measure 6 – Expected completion of the projects is summer 2024;
- Measure 6 – Working with Transport Scotland to introduce 20mph zones by 2025 to make some communities safer; and
- Measure 8 - Developing a carbon budget for Renfrewshire Council - projected completion date April 2024.

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.

Renfrewshire Council undertook automatic (continuous) monitoring at three sites during 2023. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at https://www.scottishairquality.scot/data. Two sites monitor NO_2 – REN1 Renfrew Cockels Loan and REN03 Renfrew Inchinnan Road, with the final site REN02 Renfrewshire Johnstone monitoring $PM_{2.5}$ and PM_{10}. No exceedances of the relevant air quality objectives were recorded for any pollutant at any automatic monitoring station in 2023. No changes occurred to Renfrewshire Council's automatic monitoring network in 2023.

Gordon Street automatic continuous monitor was decommissioned in November 2021. The continuous monitor was old and required continual repairs and experienced issues with its main electrical feed prior to closure. No exceedances had been recorded in Paisley Town Centre for over five years, from either this continuous monitoring site or diffusion tube monitoring sites. Therefore, it was decided that this site was to be decommissioned rather than paying for continual repairs.

Maps showing the location of the monitoring sites are provided in Figure 1**Error! Reference source not found.**. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Renfrewshire Council undertook non- automatic (passive) monitoring of NO_2 at 60 sites during 2023, including three triplicate sites. Table A.2 in Appendix A shows the details of the sites.

Of the 60 diffusion tube monitoring sites across Renfrewshire in 2023, following bias adjustment and application of distance correction, there were no exceedances of the NO_2 annual mean air quality objective recorded in 2023.

Maps showing the location of the monitoring sites are provided in Figure 2 to Figure 5. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

3.1.3 Other Monitoring Activities

No other monitoring activities have been undertaken.

Figure 1. Map of Automatic Monitoring Sites

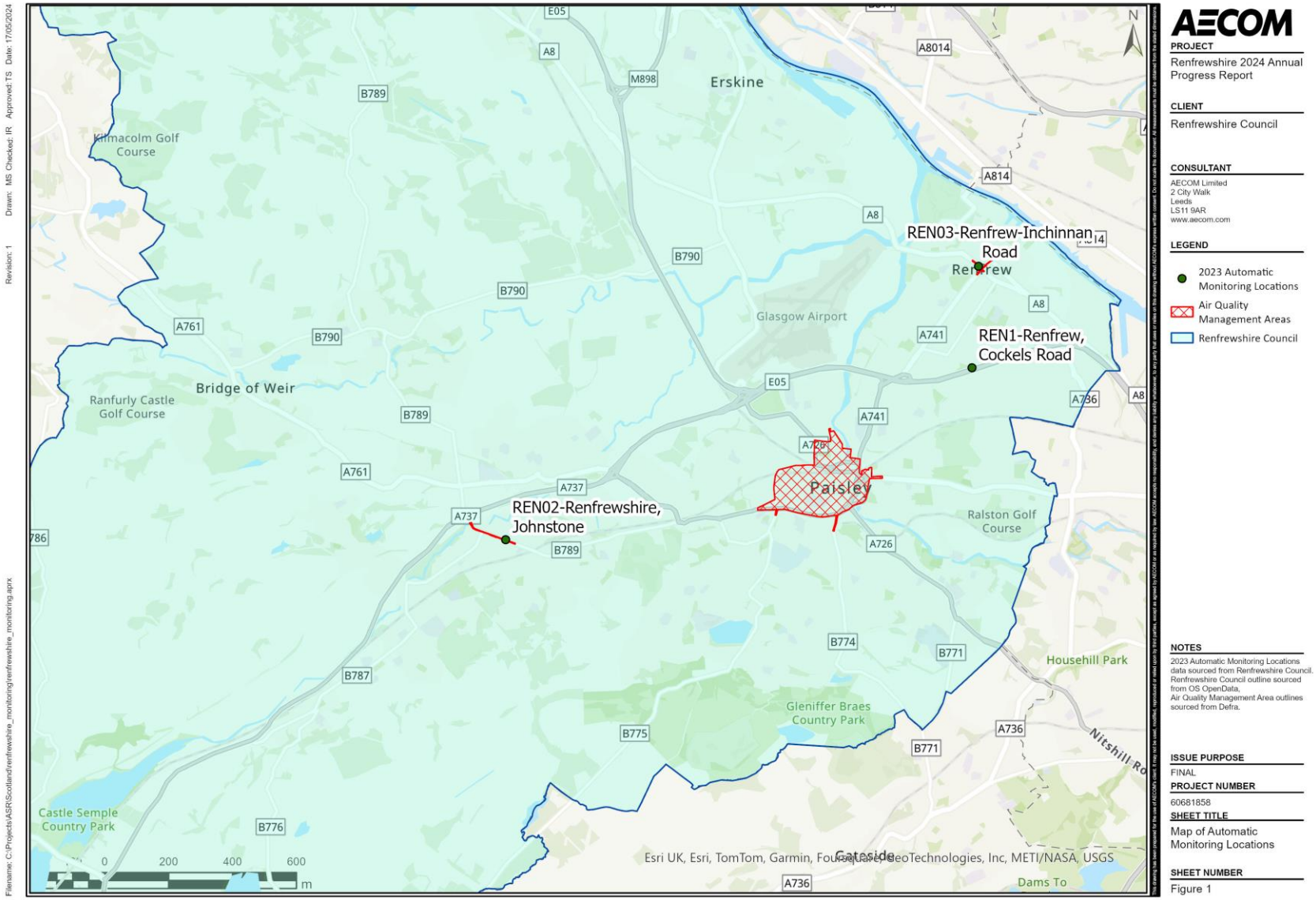


Figure 2. Map of Non-Automatic Sites in Renfrew

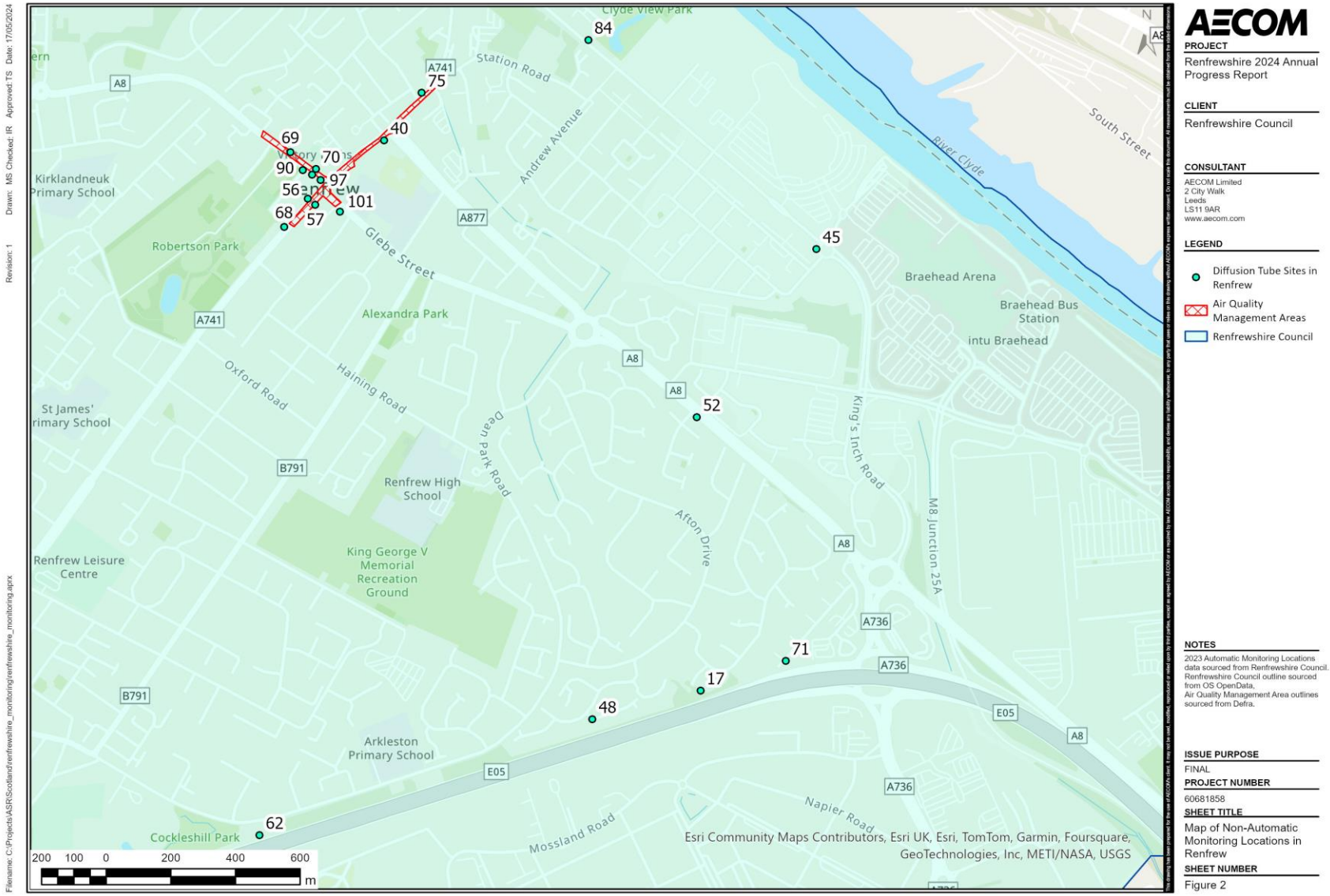


Figure 3. Map of Non-Automatic Monitoring Sites in Paisley

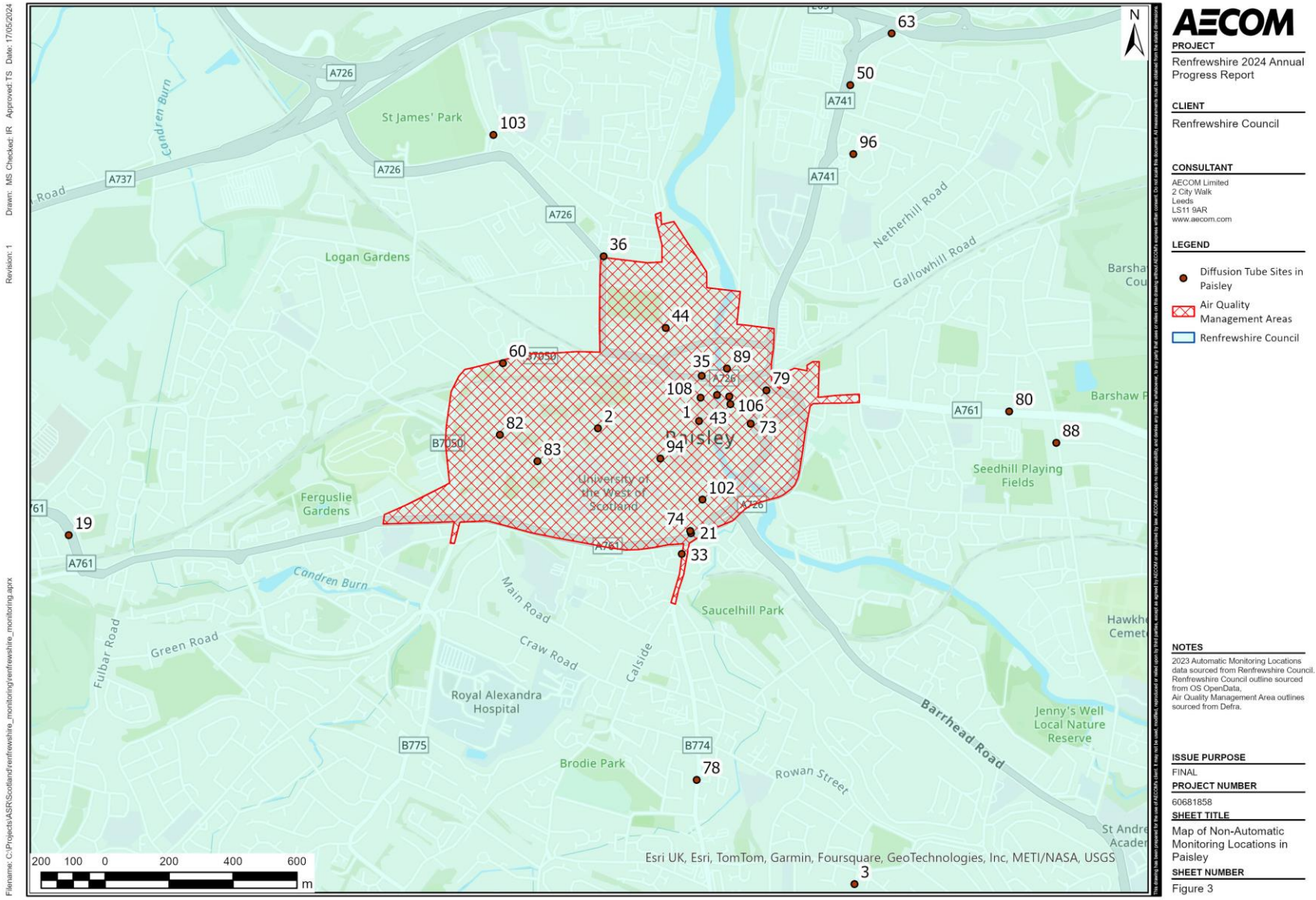


Figure 4. Map of Non-Automatic Monitoring Sites in Kilbarchan and Johnstone

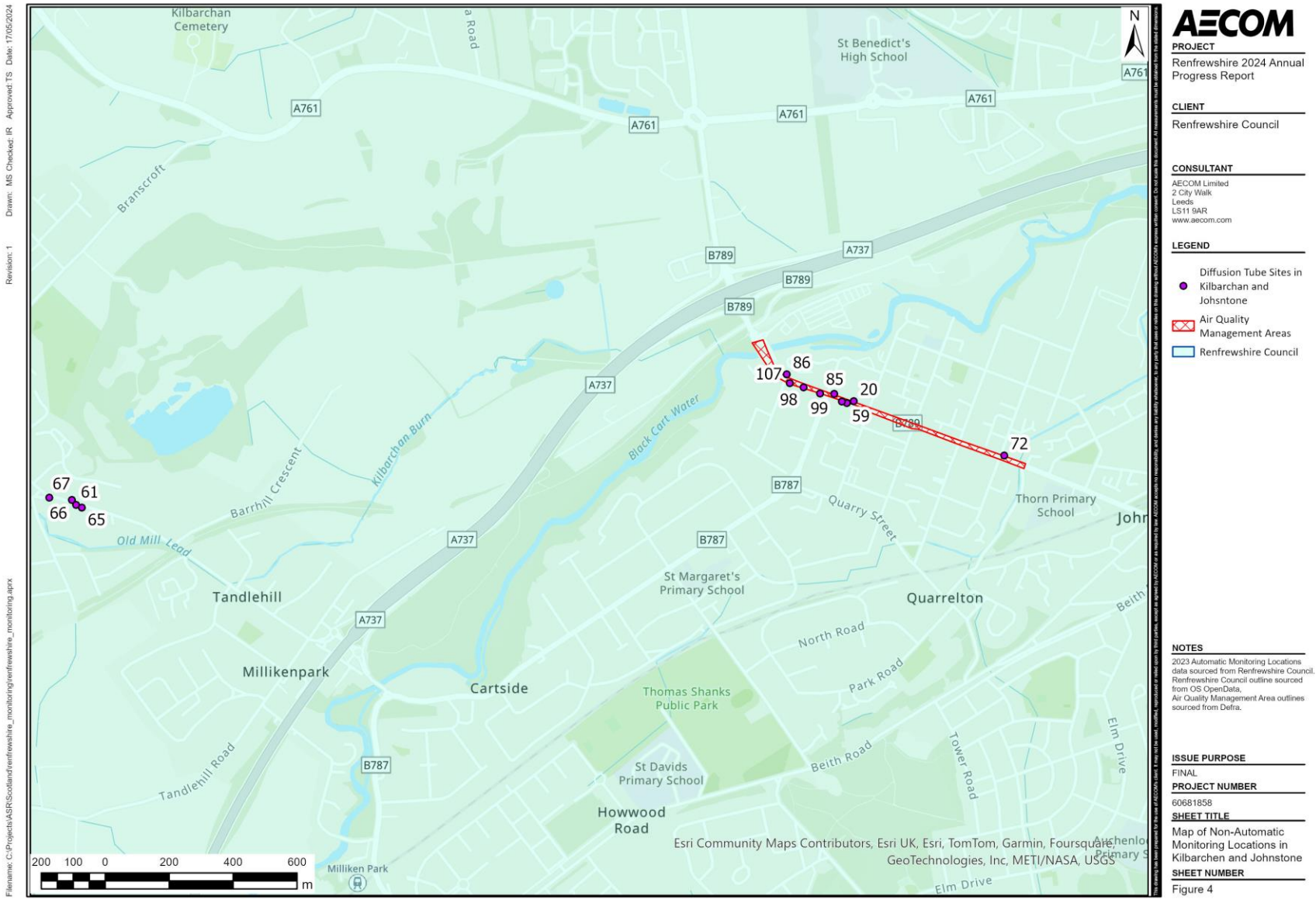


Figure 5. Map of Non-Automatic Monitoring Sites in Lochwinnoch

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)

The Scottish Environment Protection Agency (SEPA) were consulted before a bias factor was applied to the raw diffusion tube monitoring data as explained in more detail in Appendix C. In summary, the two automatic monitoring locations within Renfrewshire with co-located diffusion tubes recorded an overall data capture of <90% in 2023. In this case, the national bias factor would be chosen instead of the local factor, however there was a large disparity between the two bias factors (national bias factor of 0.74 and local bias factor of 1.31, equating to a 0.57 difference). Due to this large disparity, and because the automatic monitoring site used for calculating the local bias had an 89.7% valid data capture, SEPA recommended using the local bias factor for a more conservative, worst-case approach. This is a likely contribution towards the slight increases in NO_2 concentrations during 2023 compared to the previous year's downwards trends.

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.

Both automatic monitoring sites recorded NO_2 concentrations under the air quality objective of 40 µg/m^3. Recorded concentrations were similar to those in 2022, Ren1 decreasing by 2.1 µg/m^3 (after annualisation) and Ren03 increasing by 3.9 µg/m^3.

Error! Reference source not found. 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. One diffusion tube (Paisley103) recorded a data capture below 25% and therefore could not be annualised, however this data is still shown in Table B.1. One diffusion tube required annualisation as their data capture was between 25% and 75% – Renfrew70. Distance correction was undertaken for three monitoring sites so that the concentrations recorded were representative for a receptor close to the monitoring location, with

calculations provided in Table C.4 – Renfrew 8, Paisley21 (triplicate site) and Renfrew48. All diffusion tube monitoring locations in Renfrewshire Council achieved NO_2 AQO compliance in 2023. The highest concentration was 37.7 µg/m^3 reported at Renfrew8.

There was an overall increase in concentrations for the majority of monitoring sites in 2023 following bias adjustment and application of distance correction. The bias adjustment factor used this year was significantly higher than for previous years (1.31) and is a likely cause for most of the observed increases in NO_2 concentrations since the 2023 APR. Only 8 sites experienced a decrease in annual mean NO_2 concentration from 2022 to 2023, compared to 51 sites experiencing an increase. The sites that experienced a decrease were Paisley 2, Renfrew 17, Paisley 19, Paisley 43, Johnstone 59, Kilbarchan 66, Paisley 83 and Paisley 96. These decreases ranged from -0.05 µg/m^3 at Paisley 43 to -1.9 µg/m^3 from 2022 and 2023. The sites that experienced an increase in NO_2 ranged from +10.3 µg/m^3 at Renfrew 69 to +0.04 µg/m^3 at Paisley 79. Despite these increases, there were no exceedances of the air quality objective of 40 µg/m^3 at any automatic or non-automatic sites in 2023. Broadly, since 2019, the majority of the diffusion tube monitoring sites have shown a decrease in NO_2 concentrations.

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 200 µg/m^3, not to be exceeded more than 18 times per year. No exceedances of the hourly mean air quality objective for NO_2 were recorded at any of the automatic monitoring sites. None of the diffusion tube monitoring sites reported concentrations exceeding 60 µg/m^3 which indicates that there are no exceedances of the short-term air quality objective.

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 18 µg/m^3 showing the ratified data and the ratified corrected data for REN02 (Renfrewshire, Johnstone), following the Scottish Government Guidance Note in relation to the measurement of ambient Particulate Matter (PM) and the LAQM reporting of measured concentrations issued in May 2023. REN02 (Renfrewshire, Johnstone) has shown variations in concentrations ranging from 10.2 µg/m^3 to 16.3 µg/m^3 for the ratified data and 11.3 µg/m^3 to 17.9 µg/m^3 in the ratified corrected data in the past five years. It should be noted that the PM_{10} annual mean in 2020 and 2021 may have been impacted by COVID-19 related

lockdowns. The concentration in 2023 is an increase of 0.5 µg/m^3 compared to the concentration recorded in 2022. This site has not recorded an exceedance of the annual mean AQO since at least 2018.

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50 µg/m^3, not to be exceeded more than seven times per year. In 2023, REN02 (Renfrewshire Johnstone) monitor reported three instances of 24-hour mean AQO exceedances.

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 10 µg/m^3. In 2023, REN02 (Renfrewshire Johnstone) recorded a concentration of 6.9 µg/m^3 or a corrected value of 7.3 µg/m^3, these both show a slight increase (+0.8 µg/m^3 and +0.8 µg/m^3 respectively) compared to the concentration reported in 2022 (6.1 µg/m^3 and 6.5 µg/m^3 respectivey) but a reduction compared to the concentrations in 2019 (7.9 µg/m^3 for the ratified annual mean and 8.4 µg/m^3 for the corrected annual mean). However, it should be noted that the $PM_{2.5}$ annual mean in 2020 and 2021 may have been impacted by COVID-19 related lockdowns. The site has not recorded an exceedance of the annual mean AQO since at least 2018.

3.2.4 Sulphur Dioxide (SO_2)

No monitoring of SO_2 was undertaken in 2023.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

No monitoring of Carbon Monoxide, Lead or 1,3-Butadiene was undertaken in 2023.

4 New Local Developments

4.1 Road Traffic Sources

- 22/0363/PP - Advanced Manufacturing Innovation District Scotland (AMIDS) South project. Formation of 2 lane road, including a bridge crossing over the White Cart Water, road and footpath upgrades and other associated works. Site Linking Inchinnan Road and Harbour Road with Abercorn Street, Paisley.

Two detailed air quality assessments were submitted for the application – the first being a Preliminary Air Quality Assessment relating to the construction phase of the development and then an Air Quality Addendum report for the operational phase road traffic impacts of the scheme. Both reports were found to be satisfactory with mitigation measures recommended in order to address potential dust issues from the construction phase. Development approved January 2023.

- 22/0345/PP - Erection of residential development comprising eighty flats and thirty-nine dwellinghouses and formation of roads, infrastructure, and open space amenity. Site On Southern Edge of Roundabout Junction with Laymoor Avenue, King's Inch Road, Renfrew.

A detailed air quality assessment was submitted with the application and found to be satisfactory. The assessment concluded there were no significant effects on air quality as a result of the development and therefore no requirement for mitigation measures. Development approved April 2023.

4.2 Other Transport Sources

No planning applications were received by Renfrewshire Council during 2023 that identified any new or significantly changed other transport sources.

4.3 Industrial Sources

A statutory consultation notification was received from SEPA in November 2023 for the following:

- Pollution Prevention and Control (Scotland) Regulations 2012 – Combustion of Fuels. Application for a New Pollution Prevention and Control, Part B Permit Application by:

Entserv UK Limited. Site address: MCP, Erskine, Ferry Road, Erskine, Bishopton, Renfrewshire, PA7 5PP.

4.4 Commercial and Domestic Sources

No planning applications were received by Renfrewshire Council during 2022 that identified any new or significantly changed commercial and domestic sources.

4.5 New Developments with Fugitive or Uncontrolled Sources

There are two developments that have been submitted to SEPA with a ‘Substantial Variation’ application type within the local authority that may affect air quality. The following developments that will affect emissions from ‘Waste’ sources are outlined below:

- 03/07/2023 – Clyde Metal Recycling Limited. Authorisation activity ‘Waste- End of Life Vehicles (ELV). Authorisation number: WML/L/1026111
- 15/12/2023 – Enva Scotland Limited. Authorisation activity ‘Waste – Other Waste Storage and Treatment Sites. Authorisation number: WML/W/0020110

5 Planning Applications

Advanced Manufacturing Innovation District Scotland (AMIDS) South

The transport project within Paisley town centre known as AMIDS South was granted planning approval in January 2023. The project will create new routes between Paisley town centre and the Advanced Manufacturing Innovation District Scotland (AMIDS) and Glasgow Airport. The project involves a road bridge crossing the White Cart and an east-west link road, all with accompanying walking and cycling options. This is 90% funded by the UK Government Levelling Up Fund, with the rest paid by Renfrewshire Council.

Two detailed air quality assessments were submitted with the application, a Preliminary Air Quality Assessment relating to the construction phase of the development and an Air Quality Addendum report for the operational phase road traffic impacts of the scheme. Both reports were found to be satisfactory. With regards to the operational phase, the assessment determines that there will be no exceedances of air quality objectives as a result of the development. There will also be a beneficial effect on annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations at the majority of locations assessed.

In terms of public support for the development, more than 260 people completed a public survey with their thoughts on the project proposals. The survey found:

- 90% would use the riverside route;
- 86% confirmed that they would be more likely to walk or cycle here following the infrastructure improvements;
- More than two-thirds of people would use the walking and cycling route between Gallowhill Road and Inchinnan Road; and
- 70% indicated that they would consider leaving the car at home and walk or cycle instead.

Renfrewshire Council is currently going through the process of a Compulsory Purchase Order under the Roads (Scotland) Act 1984 and the Acquisition of Land (Authorisation Procedure) (Scotland) Act 1947 in order to progress this development. The Council are still awaiting the outcome of this process.

Further information on AMIDS South can be found at https://www.renfrewshire.gov.uk/transport-links-amids-south-paisley

23/0283/PP

The council has received plans for the erection of a secondary school and community campus with associated external amenities including: landscaping, access, parking, and sports pitches. This application was granted in January 2024.

An initial desk top AQA was submitted which was satisfactory and showed no risk of AQOs being exceeded, however, a detailed AQA has been requested prior to commencement of any construction works. Should the detailed AQA identify any exceedances, then mitigation shall be implemented.

22/0569/PP

Approval of Matters Specified in Conditions 2, 4 and 6 of planning permission in principle approval 18/0638/PP, for the erection of a residential development comprising of 180 dwellinghouses. An AQA was submitted and was deemed satisfactory, however the planning application was refused and is now being appealed by the developers.

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

There were no AQO exceedances identified in Renfrewshire Council during 2023. 85% of existing diffusion tube sites recorded an increase in annual mean NO_2 concentrations from 2022 to 2023. The remaining sites experienced a decrease in NO_2 concentrations. As explained in Section 0 and Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC, the local bias factor of 1.31 was applied to the raw NO_2 diffusion tube data as a conservative, worst-case approach, and is a likely contribution to the increases seen between 2022 and 2023.

With regards to the automatic monitoring stations, PM_{10} annual mean concentrations at REN02 – Renfrewshire Johnstone increased from 2022 to 2023 by 0.5 µg/m^3 for the raw and corrected annual mean concentrations. REN02 – Renfrewshire Johnstone also records $PM_{2.5}$ and experienced an increase (+0.8 µg/m^3 for the ratified annual mean concentrations and for the corrected annual mean concentrations) from 2022 to 2023, both pollutants monitored at REN02 recorded concentrations below their respective annual mean AQOs.

The 2024 AQAP update makes it clear that the aim is to revoke the three AQMA's within Renfrewshire Council's jurisdiction by the end of 2024.

6.2 Conclusions relating to New Local Developments

Any new developments that are likely to impact local air quality, or potentially introduce new receptors into areas of poor air quality, have been adequately assessed during the planning process.

No planning applications were received by Renfrewshire Council in 2023 that identified any new or significantly changed Non-Road, Industrial, Commercial or Domestic Sources or developments with fugitive or uncontrolled sources that had any human health concerns or impacts on vegetation or ecosystems.

The planning application reports relating to AMIDS South project were found to be satisfactory and the Council are currently going through the process of a Compulsory Purchase Order under the Roads (Scotland) Act 1984 and the Acquisition of Land (Authorisation Procedure) (Scotland) Act 1947 in order to progress this development.

The application for the erection of a school and community campus was granted in January 2024. An initial desk top AQA was submitted which was satisfactory and showed no risk of AQOs being exceeded, however, a detailed AQA has been requested prior to commencement of any construction works.

An AQA for a housing development site was submitted and was deemed satisfactory, however the planning application was refused and is now being appealed by the developers.

There are no AQA's for any developments listed in Section 4.3 Industrial Sources or Section 4.5 New Developments with Fugitive or Uncontrolled Sources.

6.3 Proposed Actions

Renfrewshire Council's proposed actions following the publication of the 2023 APR are as follows:

- Progress with the significant new road and cycle infrastructure projects which are part of the City Deals and AMIDS South projects;
- Publication of a new Renfrewshire Local Transport Strategy and development of a Paisley Town Centre Transport Strategy;
- Continuation with the upgrade and development of the cycling network as per the Renfrewshire Council Cycle Strategy priorities;
- Improvement of the council's fleet, funded via the Council's Vehicle Replacement Capital Programme. £2.2 million has been set aside for the VRC Programme in 2023-24 for the purchase of new fleet vehicles. This includes the replacement of older fossil vehicles with newer fleet vehicles with better emission standards and the introduction of HVO as an alternative fuel for some of the fleet;
- Continue with promotion of active travel measures, encouraging people to travel actively and sustainably with a view to supporting longer term behaviour shift;

- Continue to monitor NO_2, PM_{10} and $PM_{2.5}$ at relevant locations throughout Renfrewshire;
- Prepare and submit to consultees a revocation for the three AQMAs; and
- Submit the 2025 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)
REN1	Renfrew, Cockels Loan	Roadside	250464	665933	NO, NO_2	N	Chemiluminescent	5	18	2.2
REN02	Renfrewshire, Johnstone	Roadside	242984	663178	$PM_{2.5}$, PM_{10}	Y – JHS	FIDAS 200	0.5(3)	2.9	1.9
REN03	Renfrew, Inchinnan Road	Roadside	250567	667558	NO, NO_2	Y – RTC	Chemiluminescent	7.1	3.9	1.6

Notes:

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

(2) N/A if not applicable.

(3) The distance of 0.5 m is to the façade of the closest building, these are commercial units at ground level and residential units on the first floor.

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)
Paisley1	Gilmour Street	Urban Centre	248350	664082	NO_2	Y - PTC	70.0	68.0	No	2.7
Paisley2	Oakshaw Street	Urban Background	247925	664052	NO_2	Y - PTC	11.0	35.0	No	2.4
Paisley3	Lochfield Drive	Urban Background	249002	662138	NO_2	N	8.0	1.5	No	2.4
Renfrew8	Inchinnan Road	Kerbside	250589	667547	NO_2	Y - RTC	0.1	2.6	No	2.4
Renfrew17	Tanar Way	Roadside	251524	666287	NO_2	N	0.0	28.0	No	2.3
Paisley19	Linwood Road	Roadside	245701	663603	NO_2	N	5.0	2.5	No	2.5
Johnstone20	High Street	Kerbside	242675	663286	NO_2	Y - JHS	0.5	1.4	No	2.3
Paisley21	Causeyside Street (triplicate)	Roadside	248316	663612	NO_2	Y - PTC	-6.3	9.9	No	2.3

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)
Paisley33	76 Causeyside Street	Roadside	248277	663524	NO_2	Y - PTC	1.1	2.8	No	2.8
Paisley35	Old Sneddon Street	Roadside	248360	664272	NO_2	Y - PTC	0.4	3.4	No	2.7
Paisley36	Caledonia Street	Roadside	247948	664774	NO_2	Y - PTC	4.5	3.3	No	2.5
Renfrew40	Hairst Street	Roadside	250763	667631	NO_2	Y - RTC	0.3	6.2	No	2.5
Paisley43	Smithhills Street (East)	Roadside	248481	664154	NO_2	Y - PTC	0.0	2.5	No	2.5
Paisley44	Love Street	Roadside	248209	664474	NO_2	Y - PTC	0.2	2.2	No	2.5
Renfrew45	Xscape	Kerbside	251803	667365	NO_2	N	18.0	2.0	No	2.5
Renfrew48	Glen Sax Drive	Roadside	251264	666217	NO_2	N	-22.0	45.0	No	2.6

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)
Paisley50	Renfrew Road	Roadside	248985	665494	NO_2	N	7.0	12.0	No	2.5
Renfrew52	Glasgow Road 2	Roadside	251515	666955	NO_2	N	4.0	3.0	No	2.3
Renfrew56	Paisley Road	Roadside	250579	667488	NO_2	Y - RTC	3.5	4.5	No	2.4
Renfrew57	Paisley Road	Roadside	250597	667473	NO_2	N	1.2	6.0	No	2.4
Johnstone59	High Street	Kerbside	242656	663281	NO_2	Y - JHS	0.1	1.7	No	2.5
Paisley60	Underwood Rd	Roadside	247525	664326	NO_2	N	7.8	0.5	No	2.4
Kilbarchan61	High Barholm	Roadside	240584	663007	NO_2	N	0.1	1.1	No	2.4
Renfrew62	Cockels Loan (triplicate)	Roadside	250463	665934	NO_2	N	5.0	18.0	Yes	3.0

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
Paisley63	Renfrew Road	Roadside	249159	665710	NO_2	N	6.8	3.7	No	2.4
Kilbarchan65	High Barholm	Roadside	240599	663000	NO_2	N	0.4	2.0	No	2.2
Kilbarchan66	High Barholm	Roadside	240573	663021	NO_2	N	0.4	1.6	No	2.2
Kilbarchan67	High Barholm	Roadside	240512	663027	NO_2	Y - RTC	1.8	3.0	No	2.3
Renfrew68	Paisley Road	Roadside	250522	667419	NO_2	Y - RTC	0.2	3.0	No	2.3
Renfrew69	Inchinnan Road	Roadside	250537	667602	NO_2	Y - RTC	0.1	2.9	No	2.0
Renfrew70	Inchinnan Road	Roadside	250599	667561	NO_2	N	4.5	3.7	No	2.0
Renfrew71	Braille Drive	Roadside	251729	666360	NO_2	Y - RTC	0.0	26.5	No	2.0

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
Johnstone72	High St	Roadside	243080	663140	NO_2	Y - JHS	0.5	3.0	No	2.3
Paisley73	Lawn Street	Roadside	248566	664072	NO_2	Y - PTC	0.2	2.0	No	2.5
Paisley74	Causeyside Street	Roadside	248313	663621	NO_2	Y - PTC	0.2	3.3	No	2.2
Renfrew75	Canal Street	Roadside	250853	667747	NO_2	N	0.2	5.0	No	2.5
Paisley78	Neilston Road	Roadside	248339	662576	NO_2	Y	0.2	2.6	No	2.5
Paisley79	Incle Street	Roadside	248632	664212	NO_2	N	0.2	2.8	No	2.2
Paisley80	Glasgow Road	Roadside	249653	664123	NO_2	N	1.9	2.1	No	2.4
Paisley82	Well Street	Roadside	247513	664024	NO_2	Y - PTC	0.2	2.3	No	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)
Paisley83	Wellmeadow Street	Kerbside	247671	663913	NO_2	N	0.4	3.3	No	2.5
Paisley84	Ferry Village	Roadside	251254	667876	NO_2	Y - PTC	18.0	0.5	No	2.4
Johnstone85	High Street	Roadside	242622	663306	NO_2	Y - JHS	0.6	1.1	No	2.4
Johnstone86	High Street	Roadside	242495	663358	NO_2	Y - JHS	0.1	2.7	No	2.4
Paisley89	Abercorn Street	Roadside	248467	664303	NO_2	Y - PTC	0.1	3.5	No	2.3
Renfrew90 (triplicate)	Renfrew Monitor	Roadside	250567	667558	NO_2	Y - RTC	7.0	3.9	Yes	1.6
Lochwin92	Newton of Barr	Roadside	234904	658634	NO_2	N	0.5	2.0	No	2.4
Lochwin93	Main St, Lochwinnoch	Roadside	235280	658877	NO_2	N	0.4	1.2	No	2.6

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)
Paisley94	New St	Roadside	248186	663925	NO_2	Y - PTC	2.1	0.5	No	2.4
Paisley96	McDonalds Renfew Rd	Roadside	248998	665204	NO_2	N	19.0	2.2	No	2.2
Renfrew97	Inchinnan Road	Kerbside	250610	667534	NO_2	Y - RTC	2.1	0.6	No	2.4
Johnstone99	High Street	Roadside	242584	663307	NO_2	Y - JHS	0.5	1.3	No	2.4
Johnstone100	High Street	Roadside	242643	663285	NO_2	Y - JHS	0.1	1.9	No	2.2
Renfrew101	Glebe Street	Roadside	250656	667457	NO_2	N	4.5	2.5	No	2.3
Paisley102	Orchard Street	Roadside	248363	663752	NO_2	Y - PTC	0.6	2.3	No	2.1
Paisley103	Greenock Road	Roadside	247486	665285	NO_2	N	18.0	0.8	No	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)
Paisley105	Central Road 2	Roadside	248425	664192	NO_2	Y - PTC	55.0	4.0	No	2.3
Paisley106	Smithhills Street	Roadside	248477	664189	NO_2	Y - PTC	2.6	0.3	No	2.0
Johnstone107	High Street	Roadside	242503	663335	NO_2	Y - JHS	6.0	2.8	No	2.2
Paisley108	Central Road	Roadside	248355	664180	NO_2	Y - PTC	8.4	4.6	No	2.4

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.

PTC – Paisley Town Centre, RTC – Renfrew Town Centre, JHS – Johnstone High Street

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
REN1	Roadside	Automatic	43.6	43.6	31.1	20.9	24.5	22.4	20.3
REN03	Roadside	Automatic	89.7	89.7	24.1	19.9	19.0	19.7	23.6

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 automatic monitoring sites have been corrected for bias. All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2019	2020	2021	2022	2023
Paisley1	248350	664082	Urban Centre	82.7	82.7	21.3	16.1	14.9	13.5	15.2
Paisley2	247925	664052	Urban Background	90.4	90.4	14.6	10.9	9.6	11.9	10.0
Paisley3	249002	662138	Urban Background	92.3	92.3	11.6	8.9	7.4	6.8	8.8
Renfrew8	250589	667547	Kerbside	100.0	100.0	**41.4**	**40.2**	29.8	30.2	37.7
Renfrew17	251524	666287	Roadside	100.0	100.0	32.0	26.3	22.9	23.5	22.1
Paisley19	245701	663603	Roadside	100.0	100.0	24.9	24.1	22.5	17.9	17.4
Johnstone20	242675	663286	Kerbside	100.0	100.0	28.7	25.5	20.2	19.3	23.5
Paisley21 (1), Paisley21 (2), Paisley21 (3)	248316	663612	Roadside	100.0	100.0	27.6	25.7	21.9	18.6	19.1
Paisley33	248277	663524	Roadside	100.0	100.0	28.8	27.7	24.1	19.4	22.2
Paisley35	248360	664272	Roadside	100.0	100.0	31.1	31.5	25.7	21.9	26.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2019	2020	2021	2022	2023
Paisley36	247948	664774	Roadside	100.0	100.0	28.2	27.7	26.5	20.5	24.4
Renfrew40	250763	667631	Roadside	100.0	100.0	25.8	21.6	18.7	16.4	18.0
Paisley43	248481	664154	Roadside	92.3	92.3	26.7	20.4	20.5	15.0	14.9
Paisley44	248209	664474	Roadside	100.0	100.0	21.9	16.3	16.1	15.5	17.6
Renfrew45	251803	667365	Kerbside	92.3	92.3	21.5	20.3	18.4	14.9	18.4
Renfrew48	251264	666217	Roadside	100.0	100.0	29.1	24.8	20.9	17.7	21.6
Paisley50	248985	665494	Roadside	100.0	100.0	24.3	21.8	17.9	17.3	18.7
Renfrew52	251515	666955	Roadside	100.0	100.0	25.3	24.9	21.2	17.3	19.7
Renfrew56	250579	667488	Roadside	100.0	100.0	26.3	24.4	20.9	19.5	22.6
Renfrew57	250597	667473	Roadside	100.0	100.0	24.4	18.1	19.0	12.9	16.8
Johnstone59	242656	663281	Kerbside	100.0	100.0	37.9	39.5	34.4	30.9	29.9

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 2022 (%) [2]	2019	2020	2021	2022	2023
Paisley60	247525	664326	Roadside	100.0	100.0	33.6	30.1	24.5	22.3	25.3
Kilbarchan61	240584	663007	Roadside	100.0	100.0	30.2	26.0	26.1	18.7	21.1
Renfrew62 (1), Renfrew62 (2), Renfrew62 (3)	250463	665934	Roadside	100.0	100.0	34.3	30.5	25.3	21.9	24.9
Paisley63	249159	665710	Roadside	92.3	92.3	29.4	25.2	25.2	20.9	23.5
Kilbarchan65	240599	663000	Roadside	92.3	92.3	30.3	25.8	20.9	16.9	19.4
Kilbarchan66	240573	663021	Roadside	100.0	100.0	22.3	18.1	15.9	14.1	13.8
Kilbarchan67	240512	663027	Roadside	100.0	100.0	17.5	18.6	13.2	10.3	11.0
Renfrew68	250522	667419	Roadside	100.0	100.0	23.8	21.0	16.4	17.4	19.5
Renfrew69	250537	667602	Roadside	100.0	100.0	29.9	25.0	32.4	25.3	35.6
Renfrew70	250599	667561	Roadside	40.4	40.4	25.4	26.9	17.4	18.1	20.6
Renfrew71	251729	666360	Roadside	100.0	100.0	29.2	26.2	24.4	19.1	23.8

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 2022 (%) [2]	2019	2020	2021	2022	2023
Johnstone72	243080	663140	Roadside	100.0	100.0	23.4	20.2	19.9	13.6	17.2
Paisley73	248566	664072	Roadside	100.0	100.0	26.1	27.0	22.5	17.7	22.8
Paisley74	248313	663621	Roadside	100.0	100.0	27.8	28.6	23.0	18.7	19.3
Renfrew75	250853	667747	Roadside	100.0	100.0	22.1	21.1	20.2	13.9	16.1
Paisley78	248339	662576	Roadside	100.0	100.0	26.6	24.4	24.0	16.8	19.2
Paisley79	248632	664212	Roadside	100.0	100.0	27.8	32.0	24.6	20.0	20.0
Paisley80	249653	664123	Roadside	90.4	90.4	23.9	23.7	18.4	14.9	17.2
Paisley82	247513	664024	Roadside	100.0	100.0	28.9	36.1	28.1	24.3	28.3
Paisley83	247671	663913	Kerbside	100.0	100.0	33.2	25.1	22.7	21.8	21.6
Paisley84	251254	667876	Roadside	100.0	100.0	23.1	16.8	14.9	13.1	14.6
Johnstone85	242622	663306	Roadside	100.0	100.0	25.0	30.2	24.5	19.9	26.9

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 2022 (%) [2]	2019	2020	2021	2022	2023
Johnstone86	242495	663358	Roadside	100.0	100.0	27.0	29.9	19.0	19.2	24.7
Paisley89	248467	664303	Roadside	100.0	100.0	30.4	24.9	23.2	20.0	23.2
Renfrew90 (1), Renfrew90 (2), Renfrew90 (3)	250567	667558	Roadside	100.0	100.0	24.4	21.4	20.1	17.2	22.8
Lochwin92	234904	658634	Roadside	100.0	100.0	-	14.8	14.3	13.5	13.7
Lochwin93	235280	658877	Roadside	100.0	100.0	-	14.1	16.7	11.1	12.3
Paisley94	248186	663925	Roadside	92.3	92.3	-	21.0	19.0	17.9	18.8
Paisley96	248998	665204	Roadside	90.4	90.4	-	24.2	21.2	16.9	16.7
Renfrew97	250610	667534	Kerbside	100.0	100.0	-	-	30.5	28.5	30.9
Johnstone99	242584	663307	Roadside	100.0	100.0	-	-	35.4	25.7	32.7
Johnstone100	242643	663285	Roadside	100.0	100.0	-	-	31.8	24.3	28.8
Renfrew101	250656	667457	Roadside	100.0	100.0	-	-	19.5	17.8	20.0

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 2022 (%) (2)	2019	2020	2021	2022	2023
Paisley102	248363	663752	Roadside	100.0	100.0	-	-	-	19.1	19.6
Paisley103	247486	665285	Roadside	7.7	7.7	-	-	-	13.1	-
Paisley105	248425	664192	Roadside	92.3	92.3	-	-	-	16.6	19.9
Paisley106	248477	664189	Roadside	90.4	90.4	-	-	-	17.7	26.5
Johnstone107	242503	663335	Roadside	92.3	92.3	-	-	-	20.6	26.7
Paisley108	248355	664180	Roadside	92.3	92.3	-	-	-	14.7	18.0

☒ **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%).

Figure 6. Annual Mean NO_2 Concentrations at Automatic Monitoring Sites

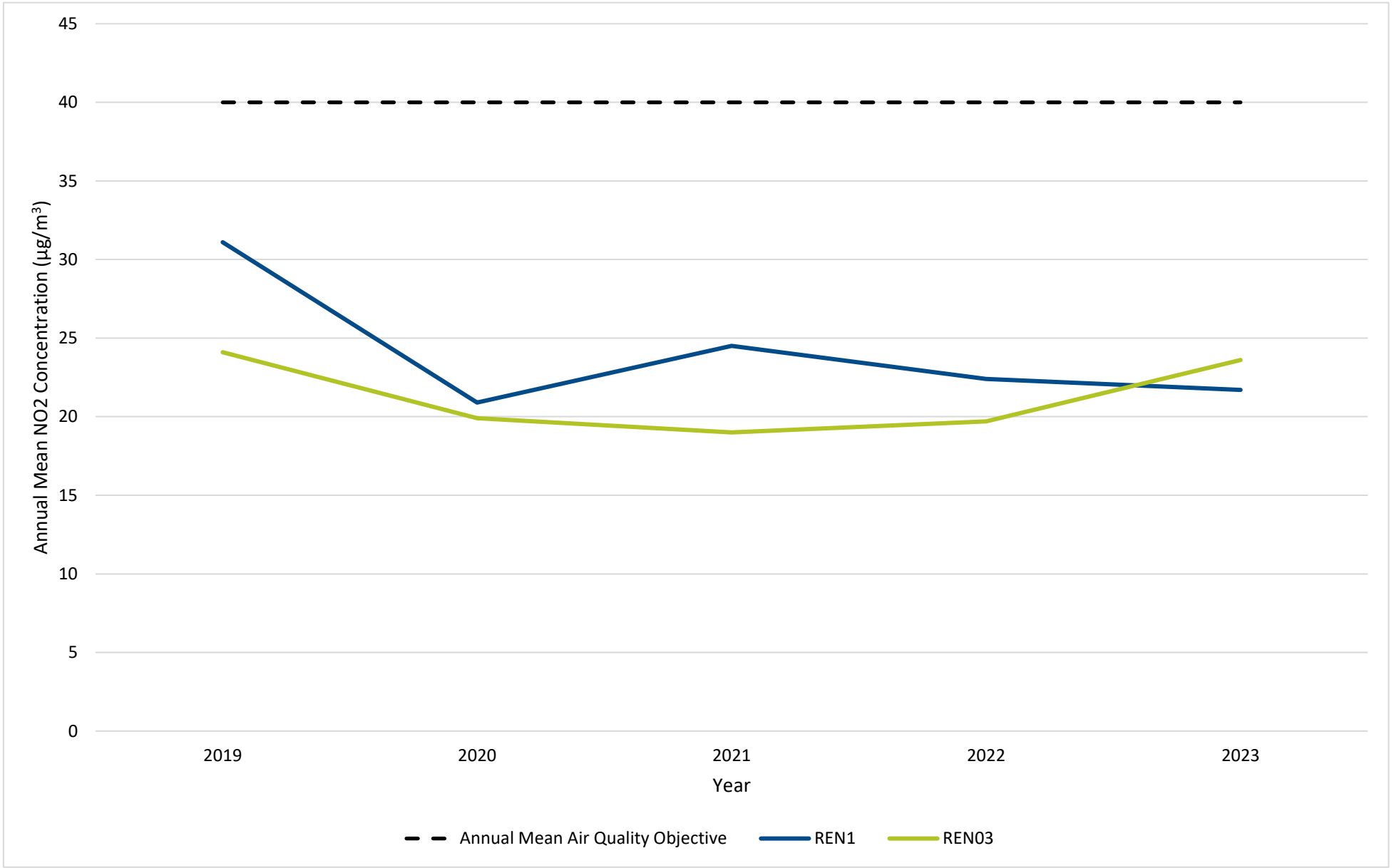


Figure 7. Annual Mean NO_2 Concentrations at Non-Automatic Monitoring Sites (Urban Centre, Urban Background, Kerbside)

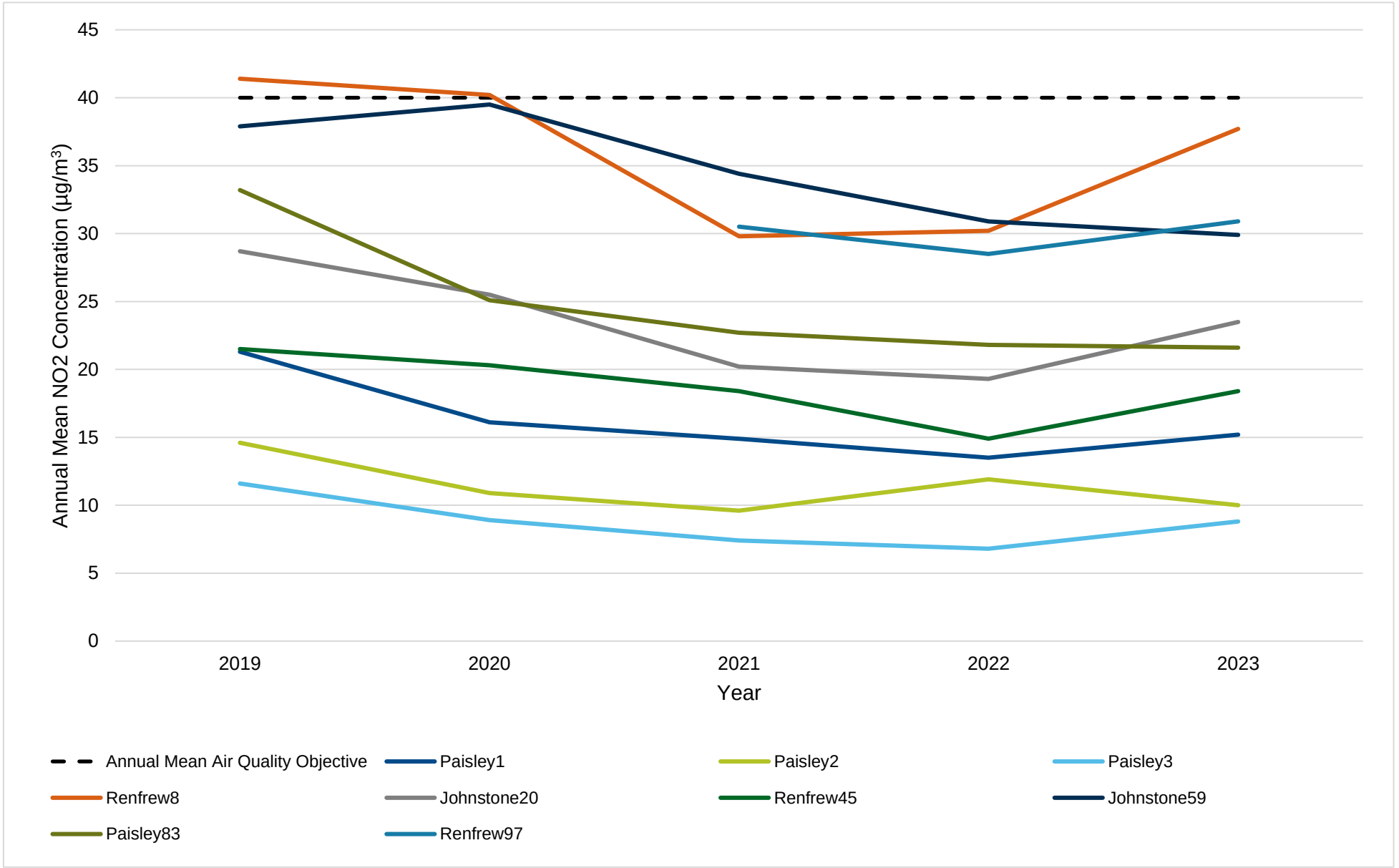


Figure 8. Annual Mean NO_2 Concentrations at Non-Automatic Monitoring Sites (Roadside 1)

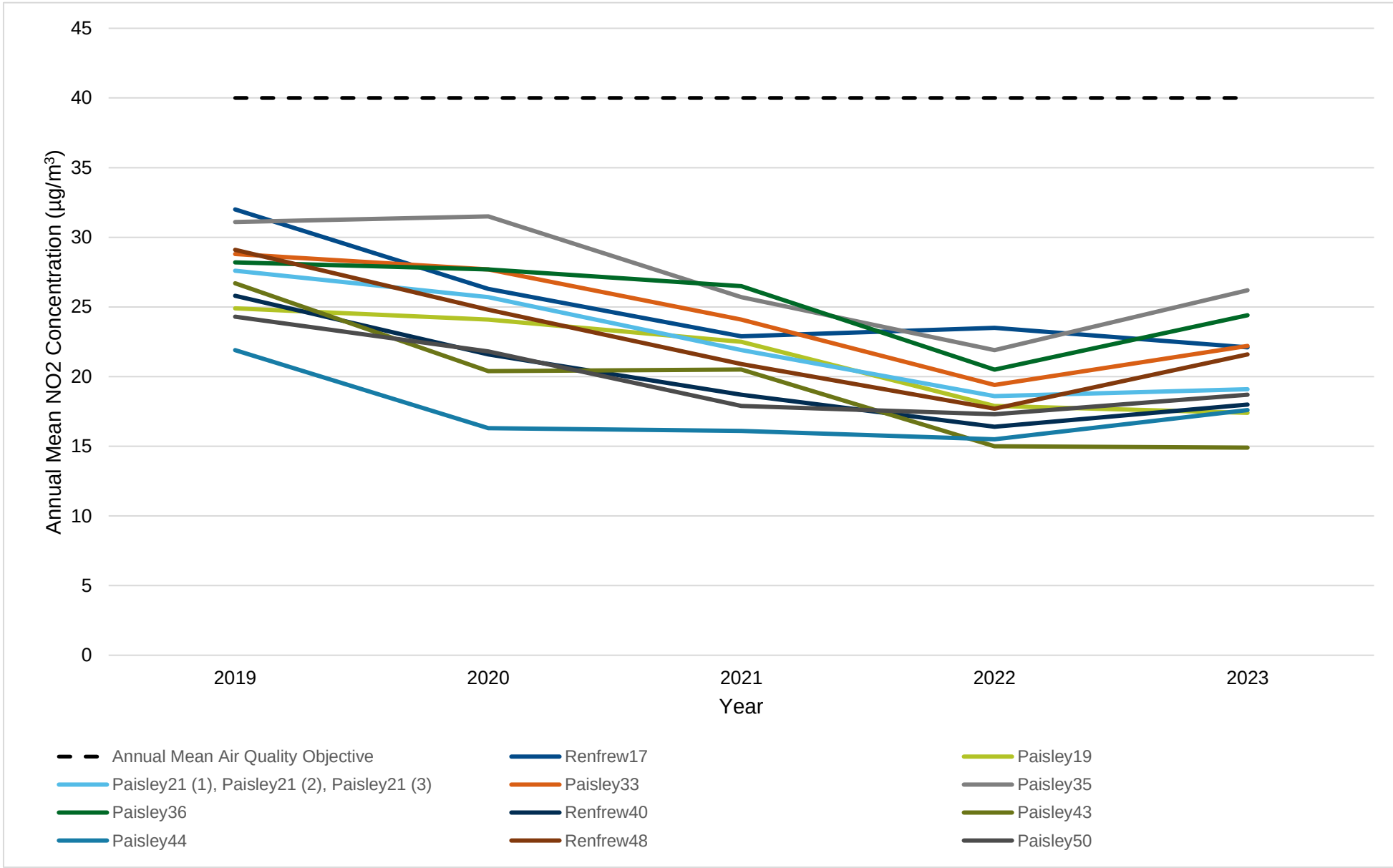


Figure 9. Annual Mean NO_2 Concentrations at Non-Automatic Monitoring Sites (Roadside 2)

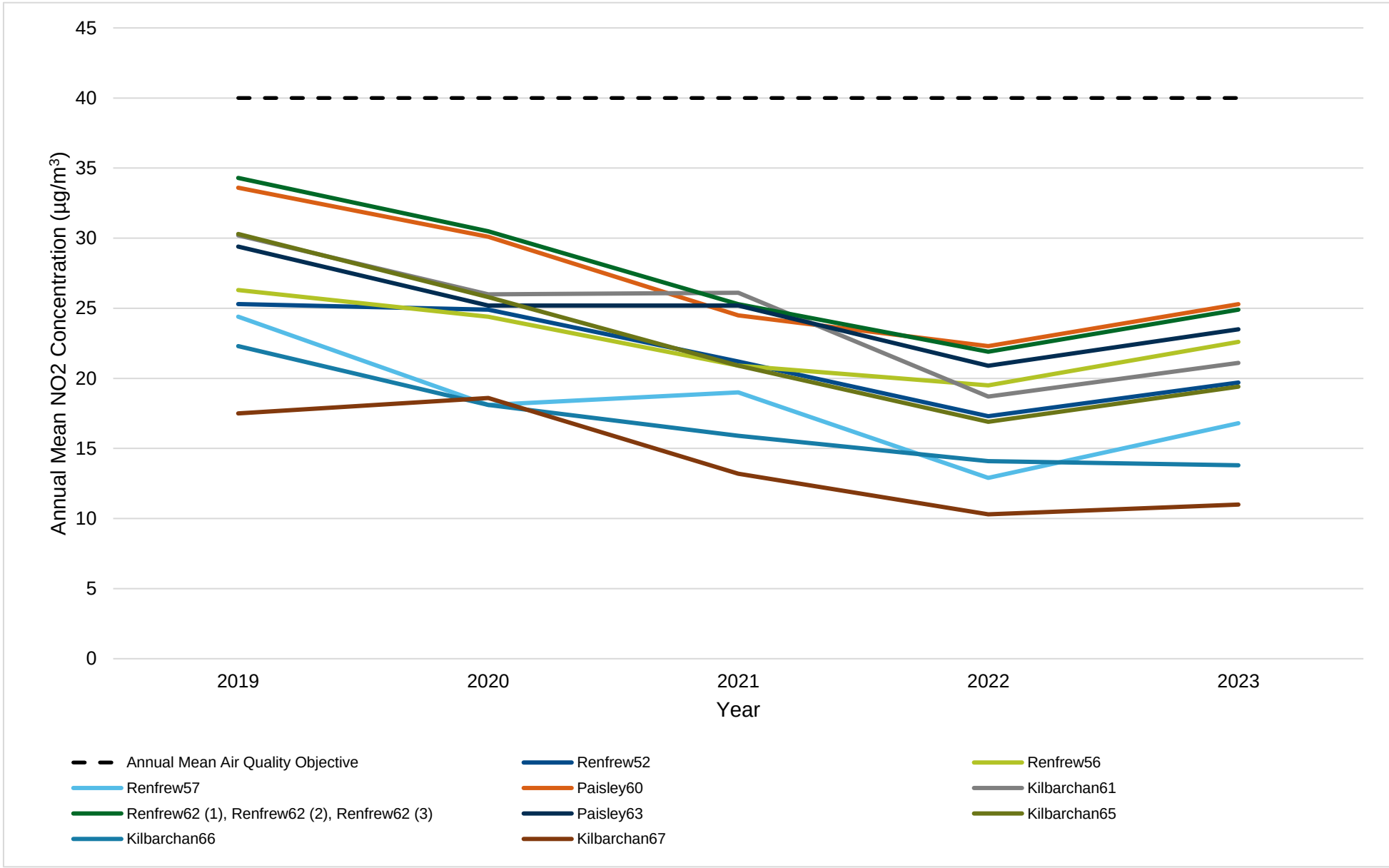


Figure 10. Annual Mean NO_2 Concentrations at Non-Automatic Monitoring Sites (Roadside 3)

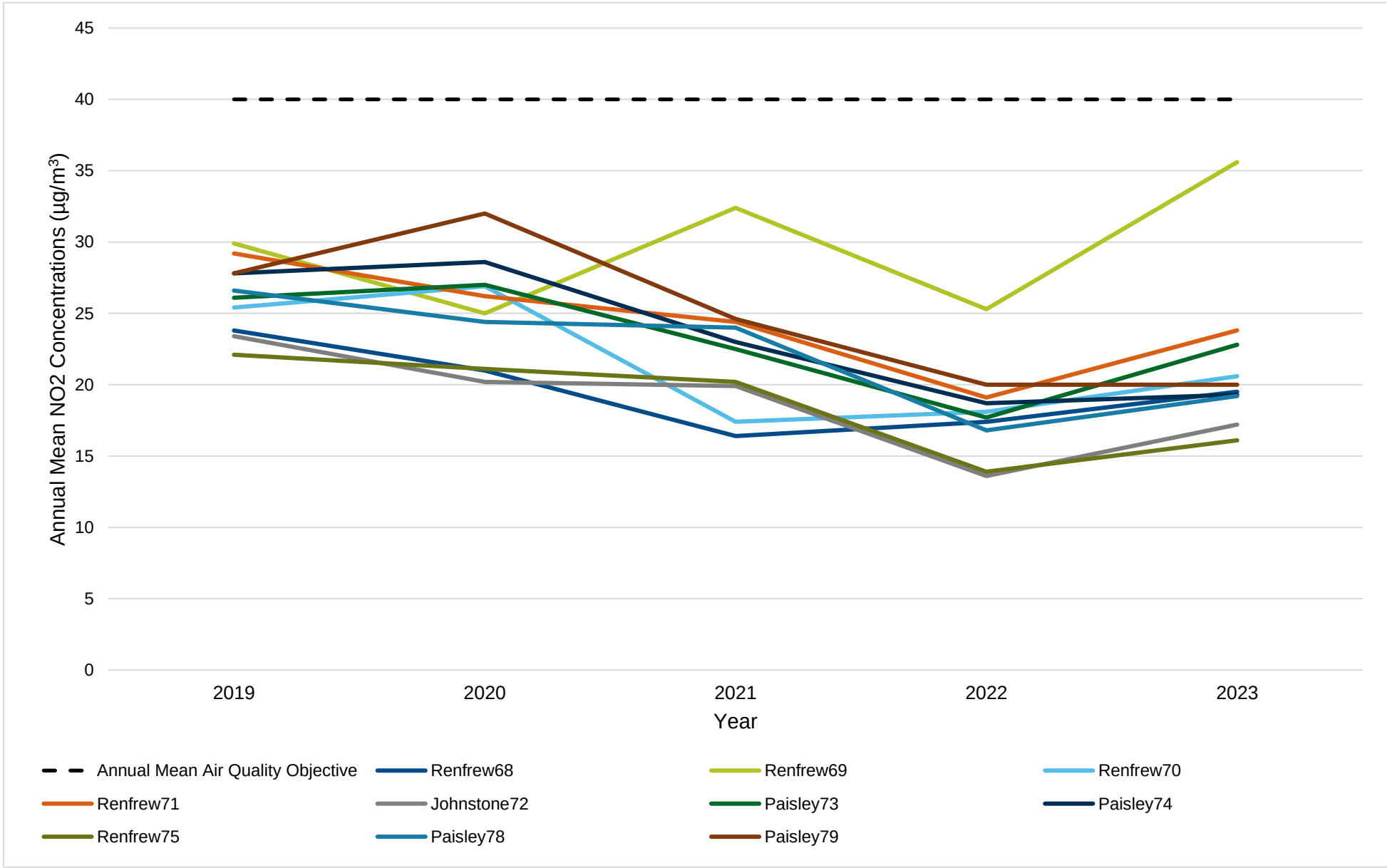


Figure 11. Annual Mean NO_2 Concentrations at Non-Automatic Monitoring Sites (Roadside 4)

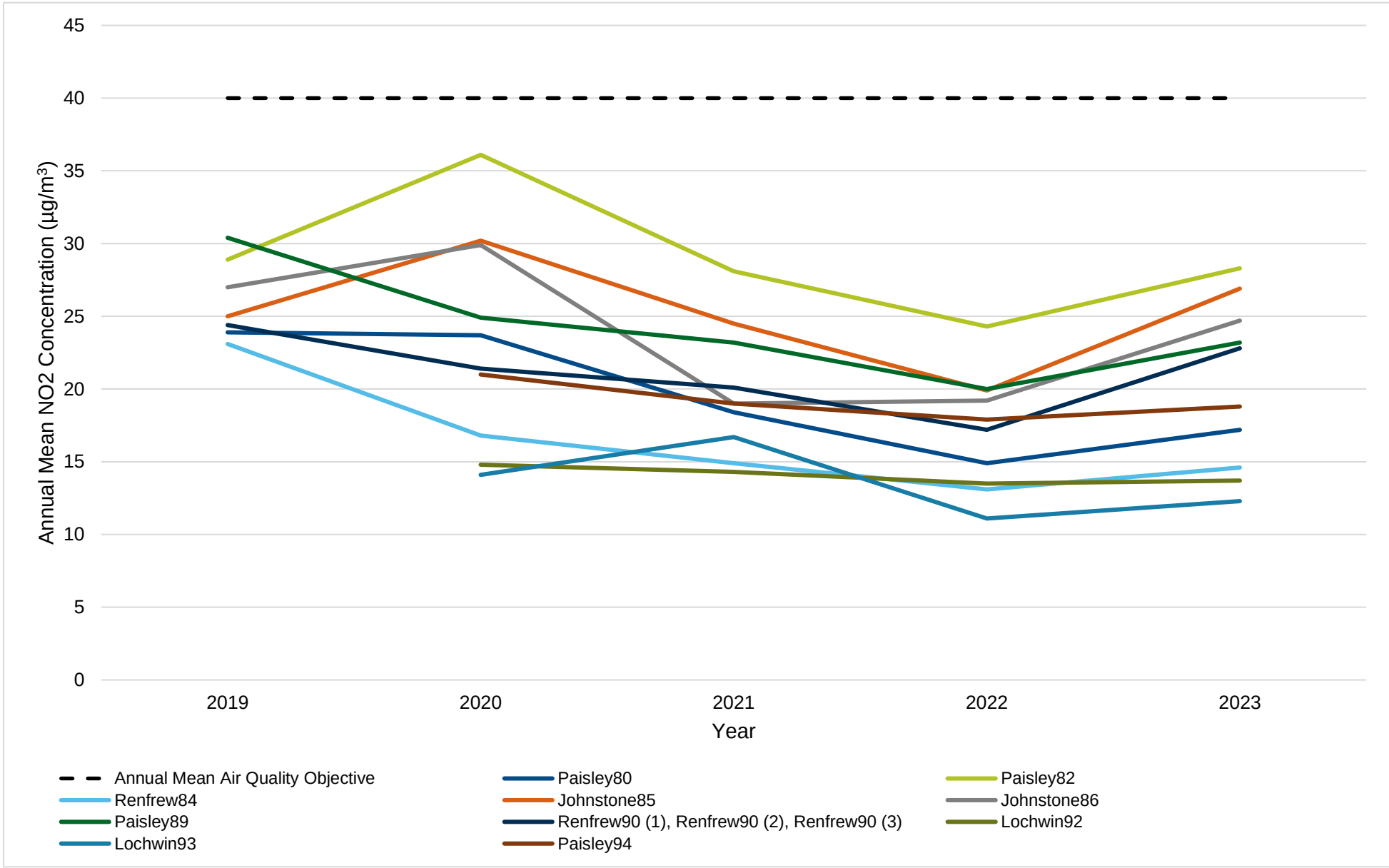


Figure 12. Annual Mean NO_2 Concentrations at Non-Automatic Monitoring Sites (Roadside 5)

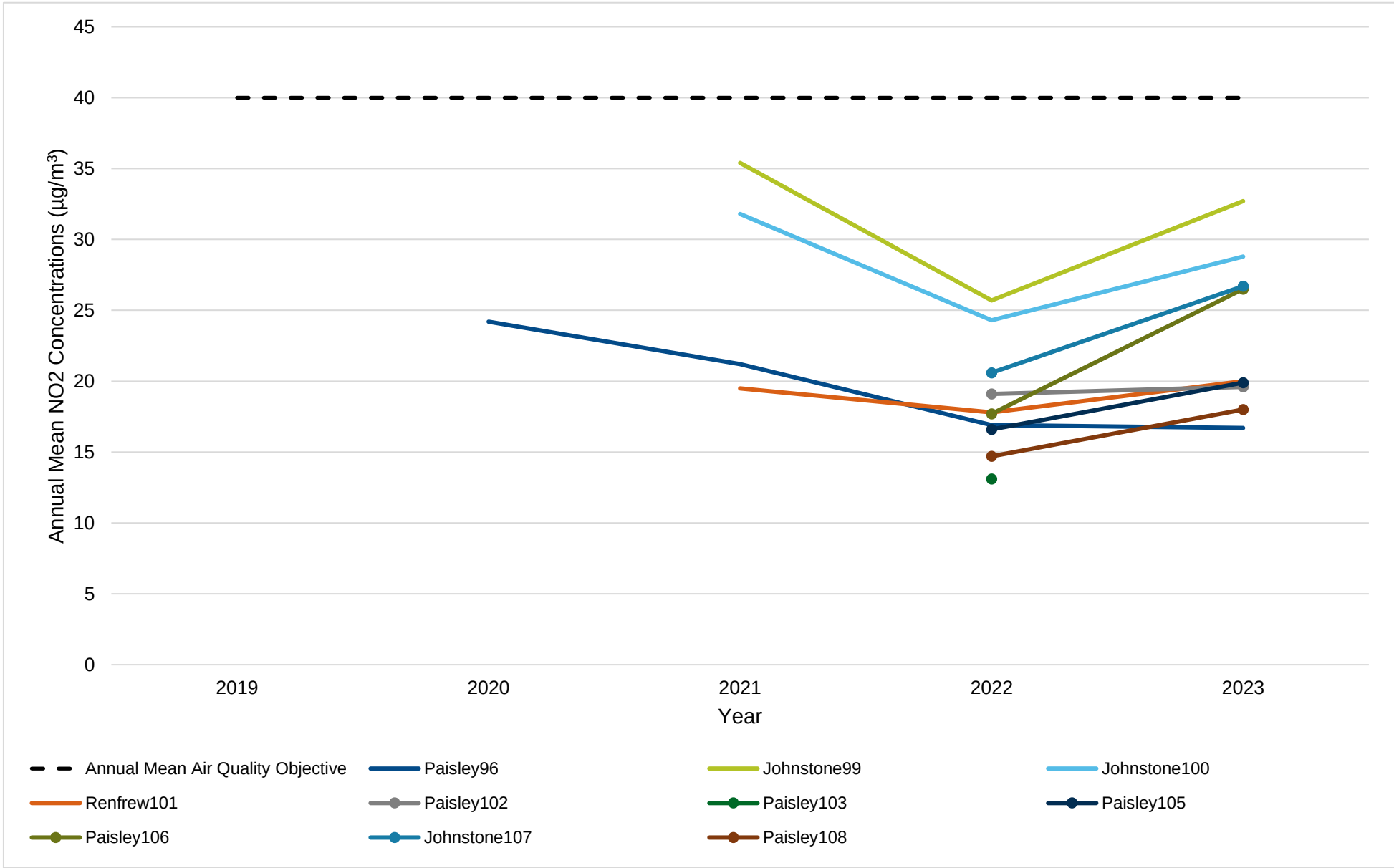


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
REN1	Roadside	Automatic	43.6	43.6	0	0	0	0	0 (91.3)
REN03	Roadside	Automatic	89.7	89.7	0	0	0	0	0

Notes:

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

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

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

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

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

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
REN02	Roadside	98.9	98.9	16.3	10.2	13.7	12.9	13.4
REN02 Corrected	Roadside	98.9	98.9	17.9	11.3	15.1	14.2	14.7

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%).

Figure 13. Annual Mean PM_{10} Concentrations at Automatic Monitoring Sites

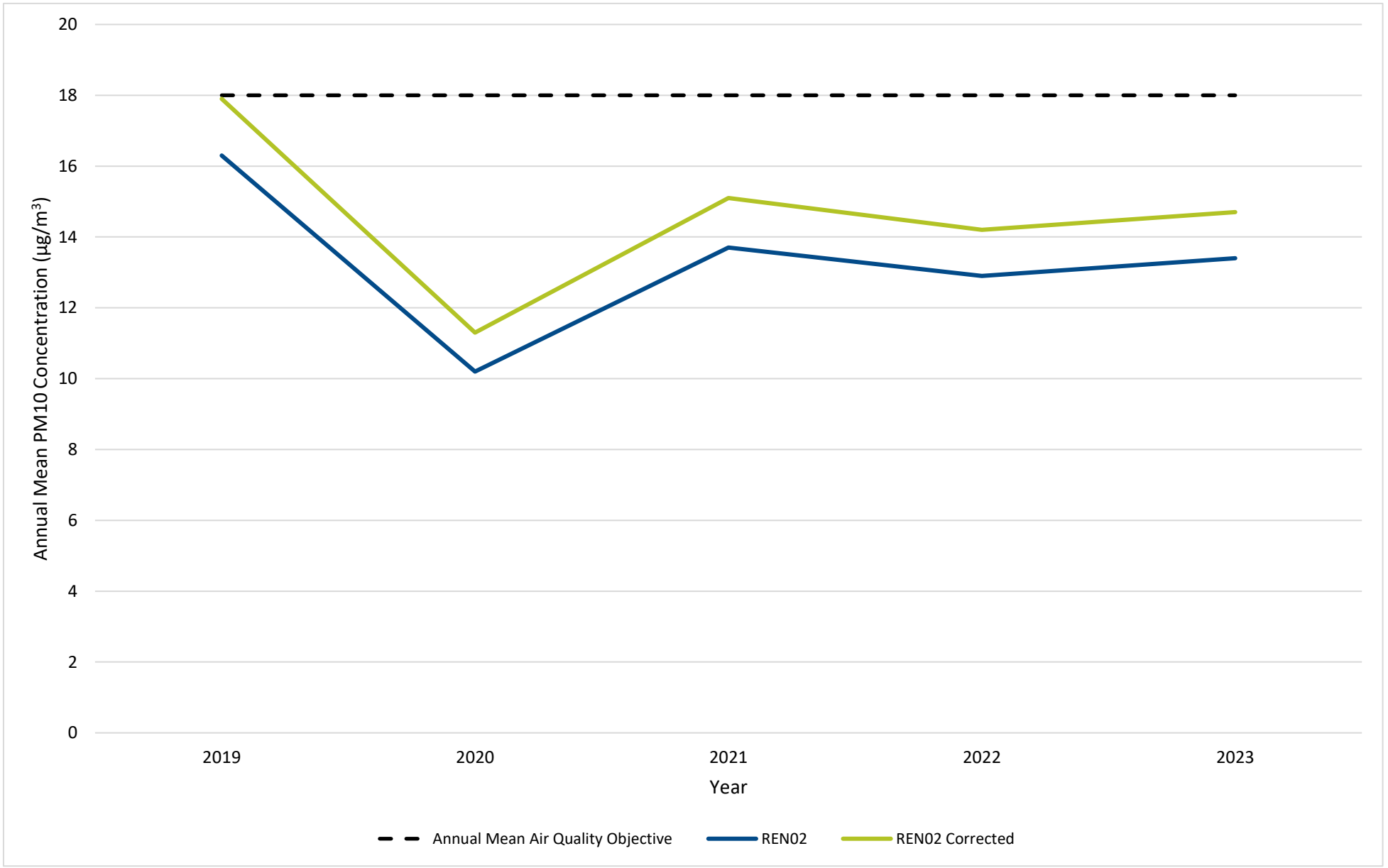


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
REN02	Roadside	99.0	99.0	**14**	0	1	0	3

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	2023
REN02	Roadside	99.0	99.0	7.9	5.5	6.0	6.1	6.9
REN02 Corrected	Roadside	99.0	99.0	8.4	5.9	6.3	6.5	7.3

Notes:

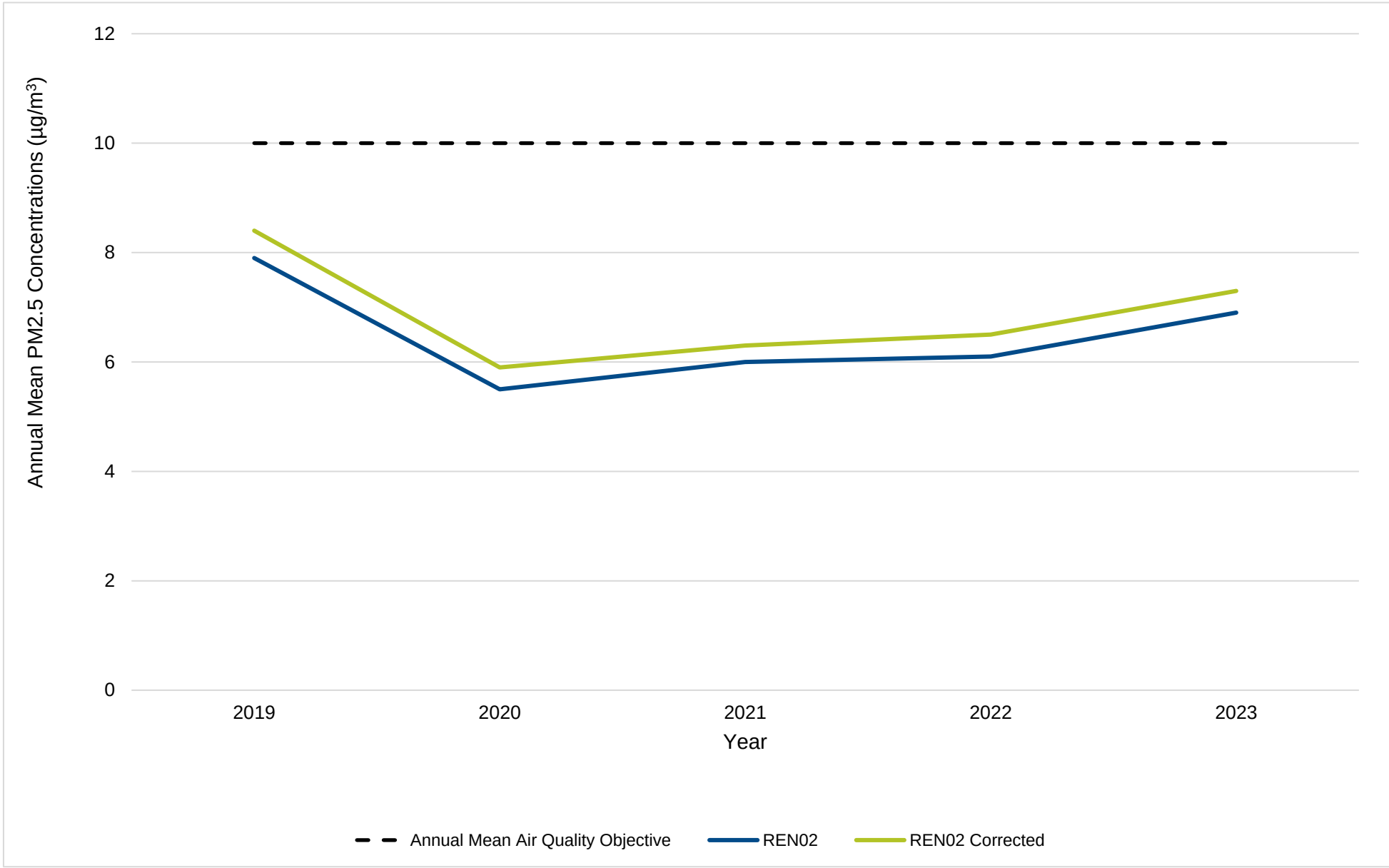
Exceedances of the $PM_{2.5}$ annual mean objective of 10 µg/m^3 are shown in bold.

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

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

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

Figure 14. Annual Mean $PM_{2.5}$ Concentrations at Automatic Monitoring Sites



Appendix B: Full Monthly Diffusion Tube Results for 2023

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

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (1.31)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
Paisley1	248350	664082	-	16.6	18.0	8.9	3.3	6.6	4.9	-	8.6	17.5	17.4	13.9	11.6	15.2		
Paisley2	247925	664052	10.3	9.8	14.2	4.6	2.3	2.0	3.1	-	5.1	9.1	15.1	8.1	7.6	10.0		
Paisley3	249002	662138	8.9	8.1	10.1	3.6	2.1	4.3	-	4.2	4.8	8.5	11.5	7.5	6.7	8.8		
Renfrew8	250589	667547	**44.5**	**42.0**	34.1	15.2	11.2	22.7	17.5	25.9	24.9	23.6	**55.4**	28.3	28.8	37.7	37.4	
Renfrew17	251524	666287	30.7	26.0	31.4	9.6	7.9	12.0	7.7	14.9	12.8	14.6	15.4	19.8	16.9	22.1		
Paisley19	245701	663603	21.7	15.9	17.2	10.5	6.2	9.3	9.3	11.3	11.3	12.7	18.3	15.8	13.3	17.4		
Johnstone20	242675	663286	22.6	18.3	30.0	14.6	9.2	19.5	11.7	12.6	14.4	18.2	26.1	18.0	17.9	23.5		
Paisley21 (1)	248316	663612	22.9	-	16.8	12.5	5.8	12.7	15.0	12.1	15.3	17.7	21.6	2.1	-	-		Triplicate Site with Paisley21 (1), Paisley21 (2) and Paisley21 (3) - Annual data provided for Paisley21 (3) only

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (1.31)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
Paisley21 (2)	248316	663612	25.3	18.0	18.2	12.2	5.9	14.6	11.2	13.1	9.9	15.6	24.7	5.1	-	-		Triplicate Site with Paisley21 (1), Paisley21 (2) and Paisley21 (3) - Annual data provided for Paisley21 (3) only
Paisley21 (3)	248316	663612	22.0	23.7	20.9	12.8	5.7	10.9	8.6	7.1	12.2	18.1	19.5	14.5	14.6	19.1	22.3	Triplicate Site with Paisley21 (1), Paisley21 (2) and Paisley21 (3) - Annual data provided for Paisley21 (3) only
Paisley33	248277	663524	24.5	16.6	26.0	15.0	9.4	9.6	15.0	15.0	15.4	16.0	27.1	13.8	17.0	22.2		
Paisley35	248360	664272	29.3	22.6	27.9	14.6	10.0	22.4	15.2	17.5	18.1	20.8	23.3	18.6	20.0	26.2		
Paisley36	247948	664774	29.3	22.5	27.2	13.1	13.2	16.5	11.7	11.9	18.1	20.2	23.3	16.7	18.6	24.4		
Renfrew40	250763	667631	24.4	18.1	20.5	9.5	5.1	7.2	8.8	11.5	11.7	10.2	22.5	15.3	13.7	18.0		
Paisley43	248481	664154	20.5	14.2	19.7	9.5	4.4	7.2	3.7	8.4	9.8	13.3	14.8	-	11.4	14.9		
Paisley44	248209	664474	17.6	14.5	22.3	11.8	6.3	10.3	9.3	9.6	8.6	13.2	18.5	19.1	13.4	17.6		
Renfrew45	251803	667365	24.4	13.5	15.9	-	7.1	11.2	10.2	12.3	11.7	17.1	15.3	15.5	14.0	18.4		
Renfrew48	251264	666217	27.7	21.5	26.4	12.0	6.4	12.6	8.3	13.5	8.7	16.4	1.7	**42.6**	16.5	21.6	25.0	

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 (1.31)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
Paisley50	248985	665494	25.2	16.0	24.3	10.7	5.0	8.6	8.1	12.1	12.2	14.4	15.7	19.3	14.3	18.7		
Renfrew52	251515	666955	29.5	21.9	24.1	10.3	5.8	7.1	8.1	9.5	12.7	11.5	22.0	17.9	15.0	19.7		
Renfrew56	250579	667488	29.6	21.1	24.3	9.8	8.9	13.5	14.8	6.8	17.2	19.4	26.2	15.7	17.3	22.6		
Renfrew57	250597	667473	21.6	12.8	23.0	9.5	4.7	7.4	8.4	9.9	10.3	16.3	14.7	15.0	12.8	16.8		
Johnstone59	242656	663281	**43.4**	28.4	36.3	19.7	15.3	16.1	10.3	23.0	16.2	20.3	24.9	19.8	22.8	29.9		
Paisley60	247525	664326	30.3	23.0	22.8	14.3	10.1	12.5	12.9	17.0	13.2	21.8	37.3	16.6	19.3	25.3		
Kilbarchan61	240584	663007	25.8	21.3	26.3	12.0	8.4	13.8	12.4	11.2	11.2	18.3	18.8	13.9	16.1	21.1		
Renfrew62 (1)	250463	665934	33.1	15.7	26.2	15.8	9.9	14.1	11.8	16.3	14.2	24.4	23.1	18.4	-	-		Triplicate Site with Renfrew62 (1), Renfrew62 (2) and Renfrew62 (3) - Annual data provided for Renfrew62 (3) only
Renfrew62 (2)	250463	665934	31.6	26.0	26.7	14.5	10.2	12.7	9.2	18.4	13.1	22.5	25.9	20.0	-	-		Triplicate Site with Renfrew62 (1), Renfrew62 (2) and Renfrew62 (3) - Annual data provided for Renfrew62 (3) only

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (1.31)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
Renfrew62 (3)	250463	665934	33.6	-	29.8	15.1	9.6	12.0	11.1	16.2	13.1	20.4	28.1	19.8	19.0	24.9		Triplicate Site with Renfrew62 (1), Renfrew62 (2) and Renfrew62 (3) - Annual data provided for Renfrew62 (3) only
Paisley63	249159	665710	31.4	-	25.0	14.4	12.6	14.2	10.4	2.0	14.2	23.2	25.8	24.5	18.0	23.5		
Kilbarchan65	240599	663000	26.1	-	23.7	10.1	9.5	9.0	8.7	11.9	12.1	16.4	22.5	13.1	14.8	19.4		
Kilbarchan66	240573	663021	15.7	7.9	18.6	10.5	4.0	7.8	6.6	7.2	6.9	13.0	17.1	10.7	10.5	13.8		
Kilbarchan67	240512	663027	14.4	7.7	12.3	6.3	3.3	4.6	6.3	4.9	6.1	12.1	14.2	8.9	8.4	11.0		
Renfrew68	250522	667419	35.8	14.3	24.0	10.8	7.1	8.9	10.3	8.3	10.8	15.6	18.3	14.1	14.9	19.5		
Renfrew69	250537	667602	**49.1**	17.8	28.4	15.0	7.0	18.8	13.1	13.4	30.1	26.2	**77.1**	29.7	27.1	35.6		
Renfrew70	250599	667561	25.9	22.3	16.1	11.2	-	-	-	-	-	14.3	-	-	18.0	20.6		
Renfrew71	251729	666360	28.4	25.3	28.1	9.7	5.6	15.1	11.2	13.5	15.1	16.3	25.6	24.0	18.2	23.8		
Johnstone72	243080	663140	13.6	11.0	21.8	12.3	6.8	10.6	7.5	8.7	12.0	17.5	20.8	14.5	13.1	17.2		
Paisley73	248566	664072	17.9	**45.2**	21.0	11.7	7.0	9.2	9.9	12.8	13.4	12.1	22.8	25.8	17.4	22.8		

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 (1.31)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
Paisley74	248313	663621	17.7	18.9	20.7	18.2	8.1	8.6	11.2	12.2	14.1	17.8	17.5	11.7	14.7	19.3		
Renfrew75	250853	667747	16.4	12.7	20.8	9.6	4.9	11.4	9.0	9.7	12.6	6.9	18.6	14.6	12.3	16.1		
Paisley78	248339	662576	20.9	19.4	24.3	13.6	6.9	14.1	11.1	11.0	10.7	13.1	17.9	13.3	14.7	19.2		
Paisley79	248632	664212	2.1	17.2	25.7	10.8	4.3	12.0	4.9	13.5	16.1	25.7	28.9	22.4	15.3	20.0		
Paisley80	249653	664123	15.5	12.6	19.6	10.1	5.6	7.8	9.8	-	12.3	16.9	20.5	13.8	13.1	17.2		
Paisley82	247513	664024	23.5	31.9	17.0	14.8	5.0	11.1	14.2	10.7	16.8	**40.3**	**63.3**	10.8	21.6	28.3		
Paisley83	247671	663913	19.7	21.9	24.8	11.0	7.5	9.6	12.0	13.6	14.7	17.6	26.2	18.9	16.5	21.6		
Paisley84	251254	667876	15.6	13.4	14.2	7.8	4.4	5.7	7.1	6.9	9.4	13.2	19.9	16.1	11.1	14.6		
Johnstone85	242622	663306	17.8	15.0	33.1	26.9	9.2	15.0	14.9	11.5	21.0	30.9	34.6	16.8	20.6	26.9		
Johnstone86	242495	663358	10.7	18.7	30.7	25.8	9.7	21.6	15.2	12.1	15.7	21.9	26.3	17.6	18.8	24.7		
Paisley89	248467	664303	19.0	21.6	27.2	20.1	7.2	13.2	14.0	13.3	11.6	15.0	29.3	21.0	17.7	23.2		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (1.31)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
Renfrew90 (1)	250567	667558	14.1	16.3	26.6	22.6	9.4	16.2	12.4	16.0	14.7	14.7	23.7	19.4	-	-		Triplicate Site with Renfrew90 (1), Renfrew90 (2) and Renfrew90 (3) - Annual data provided for Renfrew90 (3) only
Renfrew90 (2)	250567	667558	17.7	14.1	22.4	22.3	10.9	18.5	12.0	18.0	19.3	18.3	19.7	20.3	-	-		Triplicate Site with Renfrew90 (1), Renfrew90 (2) and Renfrew90 (3) - Annual data provided for Renfrew90 (3) only
Renfrew90 (3)	250567	667558	18.0	16.0	26.2	20.4	9.9	12.2	11.8	16.5	15.9	17.4	27.2	15.8	17.4	22.8		Triplicate Site with Renfrew90 (1), Renfrew90 (2) and Renfrew90 (3) - Annual data provided for Renfrew90 (3) only
Lochwin92	234904	658634	11.6	8.3	16.8	13.0	5.3	11.0	10.0	7.4	7.4	11.7	12.9	10.2	10.5	13.7	-	
Lochwin93	235280	658877	12.6	7.6	14.8	11.8	3.3	7.1	6.1	6.0	7.8	10.2	16.6	9.2	9.4	12.3	-	
Paisley94	248186	663925	14.3	12.4	23.3	20.3	-	10.9	9.8	4.1	9.8	15.5	26.2	11.3	14.4	18.8	-	
Paisley96	248998	665204	15.7	15.0	20.5	14.7	9.6	4.8	10.8	9.2	12.9	11.0	-	15.8	12.7	16.7	-	
Renfrew97	250610	667534	24.5	29.0	28.9	24.6	25.6	22.4	20.2	18.0	26.7	20.1	26.4	16.9	23.6	30.9	-	
Johnstone99	242584	663307	24.3	26.3	31.6	27.3	21.7	24.9	24.4	19.2	22.5	23.8	29.7	23.9	25.0	32.7	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (1.31)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
Johnstone100	242643	663285	22.8	23.6	33.0	25.5	21.7	22.2	18.0	15.8	23.8	21.0	15.8	20.3	22.0	28.8	-	
Renfrew101	250656	667457	18.1	17.5	22.0	16.4	10.5	13.4	10.4	8.2	14.9	14.0	22.7	15.5	15.3	20.0	-	
Paisley102	248363	663752	15.2	16.2	23.9	15.4	9.5	11.5	9.3	9.6	13.5	18.4	20.6	16.7	15.0	19.6	-	
Paisley103	247486	665285	11.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Paisley105	248425	664192	14.8	18.3	22.4	18.0	-	13.7	5.6	7.4	12.4	19.2	18.6	16.7	15.2	19.9	-	
Paisley106	248477	664189	14.1	14.1	-	**41.1**	10.8	28.9	9.2	32.1	13.0	18.1	25.3	15.4	20.2	26.5	-	
Johnstone107	242503	663335	18.7	19.4	29.8	23.2	18.5	17.8	16.2	12.1	22.3	19.3	27.3	-	20.4	26.7	-	
Paisley108	248355	664180	10.2	10.6	18.5	13.0	-	13.6	5.9	8.3	10.1	16.8	23.3	21.2	13.8	18.0	-	

☒ **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.**

☒ **Renfrewshire 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 Renfrewshire Council During 2023

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

Additional Air Quality Works Undertaken by Renfrewshire Council During 2023

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

QA/QC of Diffusion Tube Monitoring

The diffusion tubes for the reporting year of 2023 were supplied and analysed by Glasgow Scientific Services (GSS) using the 20% TEA in water preparation method. All results have been bias adjusted and annualised (where required) before being presented in **Error! Reference source not found.**.

GSS is a UKAS accredited laboratory and participates in the AIR-PT Scheme (a continuation of the Workplace Analysis Scheme for Proficiency (WASP)) for NO_2 tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre.

The latest AIR-PT results were as follows:

- AIR-PT AR037 (May – June 2020) – No Results (NR)
- AIR-PT AR039 (July – August 2020) – No Results (NR)
- AIR-PT AR040 (September – October 2020) – 100%
- AIR-PT AR042 (January – February 2021) – 50%
- AIR-PT AR043 (May – June 2021) – 100%

- AIR-PT AR045 (July – August 2021) – 100%
- AIR-PT AR046 (September – October 2021) – No Results (NR)
- AIR-PT AR049 (January – February 2022) – 100%
- AIR-PT AR050 (May – June 2022) – 100%
- AIR-PT AR052 (July – August 2022) – 100%
- AIR-PT AR053 (September – October 2022) – 100%
- AIR-PT AR055 (January 2023 – February 2023) – 100%
- AIR-PT AR056 (May – June 2023) – 100%
- AIR-PT AR058 (July – August 2023) – 100%
- AIR-PT AR059 (September – October 2023) – 100%

Diffusion Tube Annualisation

One diffusion tube monitoring location within Renfrewshire Council required annualisation as its data capture was less than 75% but greater than 25%: Renfrew70, details are provided in Table C.2. One diffusion tube monitoring location recorded a data capture below 25% and therefore could not be annualised: Paisley103. The remainder of the sites recorded a data capture greater than 75% and therefore did not require annualisation.

Diffusion Tube Bias Adjustment Factors

Renfrewshire Council have applied a local bias adjustment factor of 1.31 to the 2023 monitoring data. A summary of bias adjustment factors used by Renfrewshire Council over the past five years is presented in Table C.1.

The 2023 national bias adjustment factor was taken from the National Diffusion Tube Bias Adjustment Factor Spreadsheet (version 03/24) of which reports one study analysed by Glasgow Scientific Services in 2023 to give a national bias adjustment factor of 0.74.

Both automatic monitoring locations with co-located diffusion tubes recorded an overall data capture of <90% in 2023. As per the Defra Diffusion Tube Data Processing Tool v4.0, this is determined as ‘Poor Overall Data Capture’ and warns that the local bias adjustment factor, which was 1.31 from Renfrew Inchinnan Road, should be treated with caution. The data from the Cockel’s Loan automatic monitoring site was disregarded in the local bias calculations because of its very low data capture (43.6%). Following the LAQM.TG(22)

guidance, the usual procedure would be to apply the national bias adjustment factor of 0.74 to 2023 monitoring data. However, due to the large disparity between the local and national factors, and because the overall data capture of the Inchinnan Road automatic monitoring site was just 0.3% under the 'Good Overall Data Capture' threshold, the Scottish Environment Protection Agency (SEPA) were contacted in order to provide additional guidance for which bias adjustment factor would be best to use.

SEPA recommended using the local adjustment factor, as it was much larger than the national adjustment factor and was considered to provide a more conservative, worst-case approach; this is consistent with the Council's previous years' choice of bias adjustment factors. Bias adjustment was carried out using the Defra Diffusion Tube Data Processing Tool v4.0 (https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/).

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	Local	-	1.31
2022	Local	-	1.06
2021	National	03/22	1.12
2020	Local	-	1.20
2019	Local	-	0.89

NO_2 Fall-off with Distance from the Road

Three monitoring sites (Renfrew8, Paisley21 and Renfrew48) were not representative of exposure and so the NO_2 fall-off with distance calculator was used to adjust the NO_2 concentration so that it was representative for a receptor close to the monitoring location. The calculations are shown in Table C.4. NO_2 Fall-off with Distance from the Road was carried out using the Defra Diffusion Tube Data Processing Tool (https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/).

QA/QC of Automatic Monitoring

Automatic monitoring of NO_X, PM_{10} and $PM_{2.5}$ is completed within Renfrewshire using Chemiluminescence (NO_X) and FIDAS 2000 ($PM_{2.5}$ and PM_{10}) analysers. Local Site Operator (LSO) duties are carried out by an Officer from Renfrewshire Council on a monthly basis. Automatic monitoring data is available on the Scottish Air Quality website (https://www.scottishairquality.scot/) both in real-time and following ratification by Ricardo Energy and Environment to AURN standards. The continuous monitoring sites are audited every six monthly by Ricardo and are serviced every six months by ACOEM who maintain the Service and Maintenance Contract. REN1 and REN03 NO_2/NOx monitors are visited and calibrated once a month by an LSO from Renfrewshire Council and reports from these calibrations are sent to Ricardo to use in the QA/QC process.

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

PM_{10} and $PM_{2.5}$ data have been corrected in line with the Scottish Government Guidance Note in relation to the measurement of ambient Particulate Matter (PM) and the LAQM reporting of measured concentrations, issued in May 2023. PM_{10} data have been corrected by dividing the ratified data by 0.909. $PM_{2.5}$ data have been corrected by multiplying the ratified data by 1.06. Both the corrected and uncorrected values have been reported for completeness, as per the Scottish Government Guidance Note.

Automatic Monitoring Annualisation

One automatic monitoring location within Renfrewshire Council required annualisation as its data capture was less than 75% but greater than 25%: Ren1- Cockels Loan, details are provided in Table C.2.

NO_2 Fall-off with Distance from the Road

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

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

Site ID	Annualisation Factor Glasgow Anderston	Annualisation Factor Glasgow Townhead	Annualisation Factor Site 3 Name	Annualisation Factor Site 4 Name	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
Renfrew70	0.8888	0.8654			0.8771	18.0	15.8	
Ren1	0.9403	0.9307			0.9355	21.7	20.3	

Table C.3 – Local Bias Adjustment Calculations

	Local Bias Adjustment 1 Inchinnan Road	Local Bias Adjustment 2 Renfrew Cockels Loan	Local Bias Adjustment Input 3	Local Bias Adjustment Input 4	Local Bias Adjustment Input 5
Periods used to calculate bias	9	4			
Bias Factor A	1.31 (1.12 - 1.6)	1.03 (0.7 – 1.97)			
Bias Factor B	-24% (-37% - -10%)	-3% (-49% - 43%)			
Diffusion Tube Mean (µg/m^3)	17.8	21.3			
Mean CV (Precision)	9.1%	4.4%			
Automatic Mean (µg/m^3)	23.4	22.0			
Data Capture	100%	100%			
Adjusted Tube Mean (µg/m^3)	23 (20 - 28)	22 (15-42)			

Notes:

Local bias adjustment input 2 (Renfrew Cockels Loan) has been disregarded due to a very poor diffusion tube data capture (43.6%) so a single local bias adjustment factor (Inchinnan Road) has been used to bias adjust the 2023 diffusion tube results. The diffusion tube data

capture was also ‘poor’ (<90%) for Inchinnan Road but was still deemed representative. The data capture for Inchinnan Road was 89.7%.

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

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
Renfrew8	2.6	2.7	37.7	11.1	*37.4*	*Predicted concentration at Receptor within 10% the AQS objective.*
Paisley21 (1), Paisley21 (2), Paisley21 (3)	9.9	3.6	19.1	10.7	22.3	
Renfrew48	45.0	23.0	21.6	15.6	25.0	*Receptor is more than 20m further from the kerb than the monitor - treat result with caution.*

Glossary of Terms

Abbreviation	Description
AMIDS	Advanced Manufacturing Innovation District Scotland South
APR	Air Quality Annual Progress Report
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
AQO	Air Quality Objective
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
CAFS2	Cleaner Air for Scotland 2
CWRR	Clyde Waterfront & Renfrew Riverside
DEFRA	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EV	Electric Vehicle
FDMS	Filter Dynamics Measurement System
GAIA	Glasgow Airport Investment Area
GSS	Glasgow Scientific Services
HGV	Heavy Goods Vehicle
HVO	Hydrotreated Vegetable Oil
I,L&E	Infrastructure, Land & Environment
JHS	Johnstone High Street
LA	Local Authority
LAQM	Local Air Quality Management

LEZ	Low Emission Zone
LSO	Local Site Operator
LTS	Local Transport Strategy
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
PTC	Paisley Town Centre
REN1	Renfrew Cockels Loan
REN02	Renfrewshire Johnstone
REN03	Renfrew Inchinnan Road
RTC	Renfrew Town Centre
QA/QC	Quality Assurance and Quality Control
SEPA	Scottish Environment Protection Agency
SO_2	Sulphur Dioxide
SPT	Strathclyde Partnership for Transport
TEA	Triethanolamine
TRO	Traffic Regulation Order
TTRO	Temporary Traffic Regulation Order
UTC	Urban Traffic Control
VPR	Vehicle Replacement Programme
VRC	Vehicle Replacement Capital

References

Air Quality in Scotland website (2023 Monitoring data), available at http://www.scottishairquality.co.uk/

AIR-PT-Rounds 37 to 59 (May 2020 to October 2023) available at https://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework/

AMIDS South - https://www.renfrewshire.gov.uk/transport-links-amids-south-paisley.

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Local Air Quality Management Technical Guidance LAQM.TG(22). August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.

National Diffusion Tube Bias Adjustment Factor Spreadsheet version 03/24 available at https://laqm.defra.gov.uk/bias-adjustment-factors/national-bias/

Renfrewshire Air Quality Action Plan 2019.

Renfrewshire Air Quality Action Plan 2024

Renfrewshire Council (2019-2023) Annual Progress Reports.