

Annual Progress Report (APR)



2019 Air Quality Annual Progress Report (APR) for
East Renfrewshire Council

In fulfilment of Part IV of the
Environment Act 1995

Local Air Quality Management

June 2019

Local Authority Officer	Richard Mowat
Department	Environment
Address	Thornliebank Depot, Carnwadric Road, Thornliebank , G46 8HR
Telephone	0141 577 3127
E-mail	environmentalhealth@eastrenfrewshire.gov.uk
Report Reference number	APR1901
Date	June 2019

Executive Summary: Air Quality in Our Area

Air Quality in East Renfrewshire Council

Air quality in East Renfrewshire is generally good. There are no major industrial or commercial sources of air pollutants within the area and road traffic is therefore the main source of local air pollution. No air quality monitoring areas have been declared in East Renfrewshire and our monitoring of air quality across the district has found that pollutant levels have decreased over recent years.

Actions to Improve Air Quality

While our air quality is generally good, we have been working over the past year on a range of measures designed to improve local air quality and increase public awareness of the steps that we can all take to minimise our impact on our local environment. We have continued to carry out roadside emissions testing in conjunction with Police Scotland and have increased the level of vehicle idling enforcement schemes operating around local schools, local transport hubs and taxi ranks.

East Renfrewshire Council have supported a wider anti idling awareness campaign in conjunction with 5 neighbouring Local Authorities (Figure 1.).



Figure 1: Promotional Material for regional Awareness Campaign (Billboards and Bus Advertising)

East Renfrewshire Council

The Environmental Health Department have worked with colleagues in Education, Active Travel co-ordinators and School committees to run air quality presentations and competitions in a holistic style approach to Air Quality looking at the wider community and health benefits to improve local air quality. The project was delivered across 8 Primary schools and to over 2500 pupils.



Figure 2: Competition Winners with their school banners

East Renfrewshire Council in partnership with PoliceScotland and our corporate communications team have continued to roll out the **GO – SAFE East Ren Initiative** encompassing **safer driving, safer cycling and safer walking**



Figure 3: Promotional Material for School and Community events

Local Priorities and Challenges

As air quality in East Renfrewshire is generally good, local priorities are not only about meeting objectives but the challenge remains to go beyond compliance and to deliver the Council's 3rd Single Outcome Agreement in the Outcome Delivery Plan to ensure East Renfrewshire is "*a thriving, attractive and sustainable place for businesses and residents*".

This year we will continue our vehicle idling enforcement programme across East Renfrewshire. Our Community Safety Officers carry out 10 hours per week of idling enforcement outside schools, leisure centres and at taxi stands / bus terminus.

As well as carrying out idling enforcement outside schools and community facilities, ERC's Education Department will continue to be supported to deliver air quality education to pupils and promote active travel to and from school. It will also be the intention to attend community hubs and events to reiterate the pro-active measures that can be taken to improve local air quality.

How to Get Involved

East Renfrewshire Council's Prevention Team has developed a unique partnership with many local MOT stations to offer free vehicle emissions checks to local residents. Any resident who is concerned about their vehicle's emissions can visit one of the participating local garages for a free check – details of all of the participating garages can be found on East Renfrewshire Council's website at <http://www.eastrenfrewshire.gov.uk/article/6006/Reducing-car-pollution>

Further information on local air quality and our enforcement and education activities can also be found on East Renfrewshire Council's website at <http://www.eastrenfrewshire.gov.uk/air-quality>

Residents who are concerned about local air quality can contact Environmental Health at environmentalhealth@eastrenfrewshire.gov.uk, by phone on 0141 577 3127 or via the 'Contact Us' section of our website.

Table of Contents

Executive Summary: Air Quality in Our Area	iii
Air Quality in East Renfrewshire Council.....	iii
1. Local Air Quality Management	1
2. Actions to Improve Air Quality	3
2.1 Air Quality Management Areas.....	3
2.2 Progress and Impact of Measures to address Air Quality in East Renfrewshire.	3
2.2.1 Collaborative and Partnership Working.....	3
2.3 Cleaner Air for Scotland	9
2.3.1 Transport – Avoiding travel – T1	9
2.3.2 Climate Change – Effective co-ordination of climate change and air quality policies to deliver co-benefits – CC2.....	9
3. Air Quality Monitoring Data and Comparison with Air Quality Objectives	11
3.1 Summary of Monitoring Undertaken	11
3.1.1 Automatic Monitoring Sites	11
3.1.2 Non-Automatic Monitoring Sites.....	11
3.2 Individual pollutants.....	11
3.2.1 Nitrogen Dioxide (NO ₂).....	11
3.2.2 Particulate Matter (PM ₁₀).....	12
3.2.3 Particulate Matter (PM _{2.5})	12
3.2.4 Sulphur Dioxide (SO ₂).....	13
3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene	13
4. New Local Developments	14
4.1 Road Traffic Sources.....	14
4.2 Other Transport Sources	14
4.3 Industrial Sources.....	15
4.4 Commercial and Domestic Sources	15
4.5 New Developments with Fugitive or Uncontrolled Sources.....	15
5. Planning Applications	16
6. Conclusions and Proposed Actions	17
6.1 Conclusions from New Monitoring Data.....	17
6.2 Conclusions relating to New Local Developments	17
6.3 Proposed Actions	18

Appendix A: Monitoring Results	19
Appendix B: Full Monthly Diffusion Tube Results for 2018.....	26
Table B.1 – NO₂ Monthly Diffusion Tube Results for 2018.....	26
Appendix C: Supporting Technical Information / Air Quality Monitoring	
Data QA/QC	27
Glossary of Terms	29

List of Tables

Table 1.1 – Summary of Air Quality Objectives in Scotland	1
Table 2.1 - Progress on Measures to Improve Air Quality.....	6
Table A1 - Details of Non-Automatic Monitoring Sites for NO ₂	19
Table A2 – Annual Mean NO ₂ Monitoring Results.....	24
Table B.1 – NO ₂ Monthly Diffusion Tube Results for 2017.....	26

List of Figures

Figure 1 Promotional Material for Regional Awareness Campaign (Billboards and Bus Advertising)	iv
Figure 2 Competition Winners with their School Banners.....	iv
Figure 2.1 Winning Entrants.....	5
Figure 3.1 -Nitrogen Dioxide diffusion tube results at each monitoring site 2012-2017.....	9

1. Local Air Quality Management

This report provides an overview of air quality in East Renfrewshire Council during 2018. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

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

Table 1.1 – Summary of Air Quality Objectives in Scotland

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Nitrogen dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	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
	18 µg/m ³	Annual mean	31.12.2010
Particulate Matter (PM _{2.5})	10 µg/m ³	Annual mean	31.12.2020
Sulphur dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	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

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Lead	0.25 µg/m ³	Annual Mean	31.12.2008

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 an Air Quality Action Plan (AQAP) within 12 months, setting out measures it intends to put in place in pursuit of the objectives.

East Renfrewshire Council has not declared any AQMAs.

2.2 Progress and Impact of Measures to address Air Quality in East Renfrewshire.

East Renfrewshire Council has taken forward a number of measures during the current reporting year of 2018 in pursuit of improving local air quality. As East Renfrewshire does not have any AQMAs, these measures are not specifically designed to target any particular location, but rather have been developed to improve air quality across the district more generally.

Key completed measures include the adoption of enhanced enforcement powers to target vehicle idling (particularly outside schools, at public transport hubs and leisure facilities) and roadside emissions checks, in conjunction with Police Scotland. We have worked with local Schools and Junior Road Safety Officers to produce promotional material that can be used to promote an anti-idling message around the school gates. Across East Renfrewshire Council, an active travel strategy has been developed, together with energy efficiency and sustainable transport projects. Further detail on these projects and others across East Renfrewshire are detailed in **Table 2.1** (Page 6).

2.2.1 Collaborative and Partnership working

In 2018 East Renfrewshire Council's focus was on air quality education in schools, promoting active travel, responsible driving/parking and anti-idling.

Pooled resources from Environmental Health, Active Travel and Education in partnership with SEPA, Living Streets and "Smarter Choices, Smarter Places" allowed the production of an educational package that could be delivered in schools .

This educational resource was used to compliment a wider health initiative - **Beat the Street** creating the perfect opportunity to look at Air Quality in a more holistic manner – and in particular local air quality around schools during drop off and collection times.

Beat the Street is a community wide engagement program which improves the health and wellbeing of individuals by encouraging residents of all ages to turn to active travel rather than relying on cars and vehicles. The 6 week initiative ran in Barrhead and Newton Mearns and saw over 5000 residents fulfilling their commitment to leave the car at home and to walk, cycle or scoot for short journeys.

This collaborative work between council departments (Roads, Education, Community Safety and Environmental Health) allowed engagement in 8 local primary schools reaching out to over 2800 children. The benefits of leaving cars at home for the school run to; improve our physical and mental health, be less expensive, be fun and improve local air quality were fully explored. The project also supported the work of schools: Junior Road Safety Officers, ECO committees working towards their Green Flag Awards and Rights Respecting School Committees working towards the right to “a Clean and Safe Environment”.

Air quality monitors available for the duration of the **Beat the Street** initiative, were used to monitor local air quality by recording levels of NO₂ outside the school gates. This provided tangible data which the school children were able to understand and interpret.

The project also supported by SEPA and “**Healthier Scotland**” (**Scottish Government**) included poster competitions at each of the schools to produce artwork which could be used in production of large banners for outside the school gates. Entries demonstrated clearly that school children fully understand the issues surrounding Air Quality. Examples of entries are included below in **Figure 2.1 A Selection of Winning Entrants**.

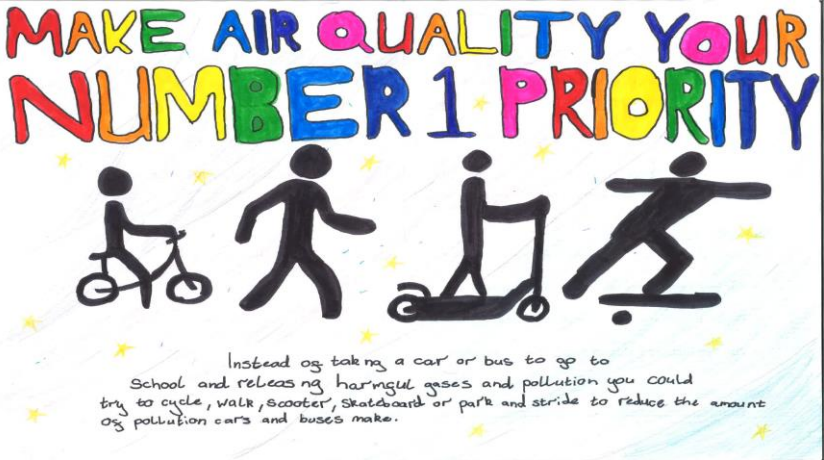


Figure 2.1 A Selection of Winning Entrants

Table 2.1 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Progress to Date	Estimated Completion Date	Comments
1	Air Quality education project in schools	Public Information	ERC Education Department will be supported to deliver active travel and air quality education in Primary schools.	ERC Education Department and Environment Department	1/4/17	1/4/18	No. Of Schools supported	8 Schools were involved reaching over 2500 children	Ongoing	This Project successfully combines air quality and active travel education.
2.	Vehicle Idling Enforcement	Traffic management	Vehicle idling enforcement around local schools, leisure and transport hubs	ERC Community Safety	1/4/15	ongoing		Level of enforcement continued at 10 Hours per week	ongoing	Enforcement has increased from some local schools to all local schools, leisure centres and transport hubs.
3	Roadside emission checks	Traffic Management	ERC and Police Scotland carry out roadside vehicle emission testing, with Fixed Penalty Notice issued to any drivers vehicle which fails the test	ERC Environment in partnership with Police Scotland	1/4/15	phasing out	Nos. vehicle failing emission test	1 Day of enforcement carried out in 2018 (calendar year)	April 2019	No enforcement days to be completed during 2019.
4	Local garage emission test partnership	Vehicle fleet efficiency	ERC created a partnership with local MOTstations to offer free vehicle emission checks to residents	ERC Environment and local garages	1/4/16	Scheme fully operational		16 Garages have signed up to voluntary scheme	ongoing	

East Renfrewshire Council

Measure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Progress to Date	Estimated Completion Date	Comments
5	Staff Pool Cars Electric Vehicles available plus 2 electric supervisor vans have been purchased for use by the parks department.	Promoting low emission transport	ERC now has 11 electric vehicles available for use as a staff pool car	ERC Environment Department		Scheme fully operational		Scheme fully operational	ongoing	The scheme is publicised across all staff to encourage uptake.
6.	Trial of 2 new Electric vans for use across different departments	Promoting low emission transport		ERC Environment Department	April 2018	2019		Performance monitoring	ongoing	The purchase of two new electric vans has been made to evaluate opportunity for further vehicles to be replaced
7.	Trial of Electric parks gardening equipment-hedge trimmers and lawnmowers etc.	Promoting low emission work equipment		ERC Environment Department	2018	2019		Performance monitoring	2020	The purchase of electric hedge trimmers and lawnmowers will allow full assessment of this equipment with a view to roll out a change programme.

East Renfrewshire Council

Measure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Progress to Date	Estimated Completion Date	Comments
8.	Promotion of Active travel to and from schools.	Active Travel	Reduction of children travelling to school in cars	ERC Environment Department	2017/8	2018/19	School travel assessments	Engagement through active programmes – “Beat the Street” , “Walk and Stride” “Walk to School Week” , extension of “Bikeability” and the “Primary to Secondary transition travel Initiative”	Ongoing	4 Secure , covered cycle parking shelters have been installed at local schools to support this programme.
9.	Enforcement of Parking in vehicle electrical charging spaces for controlled vehicles/	Promoting low emission transport	Community Wardens are monitoring electrical charging stations in controlled car parks for vehicles either not being charged or not capable of being charged	ERC Community Safety	April 2017	June 2018	No. of fixed penalty notices issued vs. no of spaces monitored	112 Fixed Penalty notices served during 2018.	ongoing	Monitoring of electrical charging stations ensures that these bays can be fully available for recharging purposes.

2.3 Cleaner Air for Scotland

Cleaner Air for Scotland – The Road to a Healthier Future (CAFS) is a national cross-government strategy that sets out how the Scottish Government and its partner organisations propose to reduce air pollution further to protect human health and fulfil Scotland’s legal responsibilities as soon as possible. A series of actions across a range of policy areas are outlined, a summary of which is available at <http://www.gov.scot/Publications/2015/11/5671/17>. Progress by East Renfrewshire Council against relevant actions within this strategy is demonstrated below.

2.3.1 Transport – Avoiding travel – T1

All local authorities should ensure that they have a corporate travel plan, which is consistent with any local air quality action plan. Details of East Renfrewshire Council’s most recent climate change report can be viewed at <https://www.keepsotlandbeautiful.org/sustainability-climate-change/sustainable-scotland-network/climate-change-reporting/climate-change-reports/>. The report contains details of how ERC is performing in its target to promote active travel, promote the use of low emission vehicles and reduce the need for “unnecessary journeys”. The reduction of staff making “unnecessary journeys” is underpinned by Service redesign promoting the use of a digital platform for conference calls, agile working and hot desks.

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

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. East Renfrewshire Council is currently finalising their Environmental Sustainability Strategy for 2019 – 2022/23.

This ESS will underpin a group of strategies, plans and policies that describe the function of the Council in reducing its resource use and mitigating its environmental impact; mainly in relation to emission of Greenhouse Gases (GHGs). The aim of the document is, therefore, to create a unified approach to resource use, sustainability and environmental management within the organisation.

The responsibility for implementing this Strategy will lie with the Council. However, there may be projects arising from this strategy that have a bearing on other community planning partnership organisations.

- The Council Cabinet will oversee this strategy.
- The Corporate Asset Management Group will assume the management role.
- Environment Dept. – namely the Environment Partnership will be responsible for the implementation of the overall Strategy.
- The responsibility for the success of the Strategy will rely on all Council staff understanding their part in helping to reduce the environmental impacts of the Council.

Air Quality considerations are covered across the strategy and include the following examples:

- Planning and the local development plan have targets to increase the current capacity of wind turbines, establish 2.85km of new walkway by 2029, establish new bus route for Levern valley by 2020 and establish new rail station at Barrhead south
- Public sustainable transport have targets to enhance the lengths of cycle tracks and cycle routes, work with public transport providers to increase the number of people using public transport by 2020, encourage the implementation of a school “walking bus” scheme by 2020.
- Housing have targets to ensure 100% of Council and RSL homes meet Energy Efficiency in Social Housing standards by 2020, to contact households re support for energy efficiency measures and maximise available support for home energy efficiency improvements directed towards the most vulnerable households

The launch of the **Think Green Campaign** within East Renfrewshire aims to support the Council by raising awareness of current environmental issues and encourage staff to take action.

3. Air Quality Monitoring Data and Comparison with Air Quality Objectives

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

East Renfrewshire Council does not currently have any automatic monitoring sites.

3.1.2 Non-Automatic Monitoring Sites

East Renfrewshire Council undertook non- automatic (passive) monitoring of NO₂ at 23 sites during 2018. **APPENDIX A: MONITORING RESULTS**

Table A.1 in **Appendix A** shows the details of the sites.

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

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 (NO₂)

East Renfrewshire Council currently monitors nitrogen dioxide at 23 locations, using diffusion tubes. During 2018, nitrogen dioxide levels at all 23 sites were within the annual mean objective. **There is therefore no need to proceed to any more detailed monitoring or assessment of nitrogen dioxide levels for any location within East Renfrewshire.**

All monitoring sites have recorded a slight decrease in nitrogen dioxide levels during 2018 compared to the previous calendar year, levels. There continues to be an overall downward trend in NO₂ levels over the last six years as shown in **Figure 3.1** below.

Table A. in **Appendix A** compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 6 years with the air quality objective of 40µg/m³.

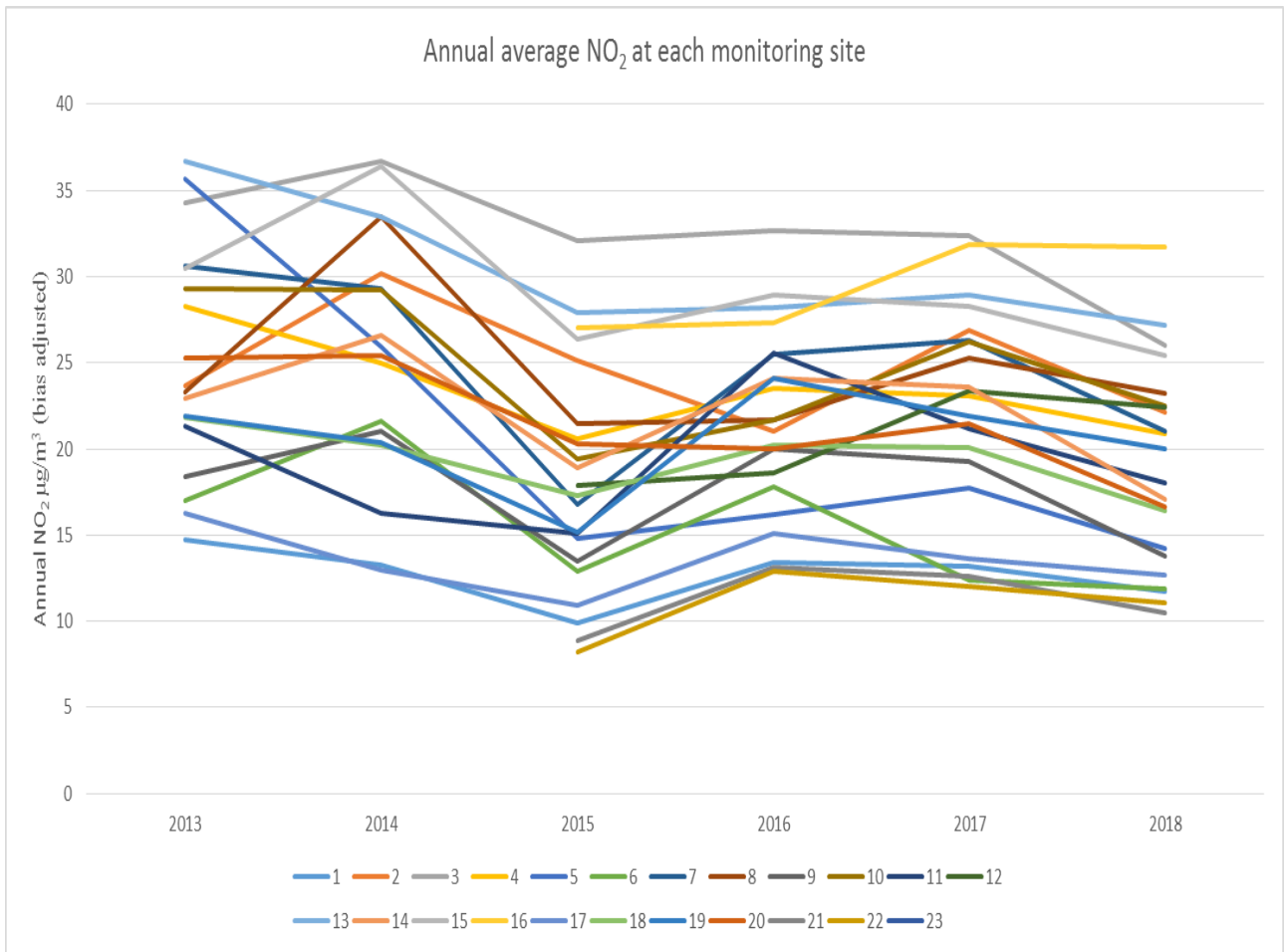


Fig. 3.1 Nitrogen Dioxide diffusion tube results at each monitoring site 2012-2018

For diffusion tubes, the full 2018 dataset of monthly mean values is provided in **Appendix B- Table B.1**.

3.2.2 Particulate Matter (PM₁₀)

PM₁₀. Monitoring was undertaken at Sheddens Roundabout until mid-2014. Data results up until that time had indicated that there was no likelihood of failing to meet the hourly or annual mean objective for PM₁₀.

3.2.3 Particulate Matter (PM_{2.5})

East Renfrewshire Council does not monitor PM_{2.5} and currently has no plans to do so.

3.2.4 Sulphur Dioxide (SO₂)

East Renfrewshire Council does not monitor SO₂ as there are no significant sources of SO₂ in the area.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

East Renfrewshire Council does not monitor any of these pollutants as there are no significant sources of these pollutants within our area.

4. New Local Developments

There are significant new local developments currently either being considered under the development management system or are under construction around the south of Barrhead and Newton Mearns. As part of the development management process, air quality assessments are required for any significant development. These may be stand-alone assessments or may form a chapter of the wider Environmental Impact Assessment for the development. The conclusions of each of these air quality assessments has been reviewed by the Environmental Health Service; as background pollutant levels across the district are generally low, none of these developments has been considered to create a risk of exceedance of air quality objectives. Any of these air quality assessments can be viewed via East Renfrewshire Council's Online Planning Portal at:

<http://www.eastrenfrewshire.gov.uk/planning-and-building-standards>

4.1 Road Traffic Sources

2018 has not seen any new:

- Narrow congested streets with residential properties close to the kerb.
- Busy streets where people may spend one hour or more close to traffic.
- Roads with a high flow of buses and/or HGVs.
- Significant Junctions.
- New roads constructed or proposed
- Roads with significantly changed traffic flows.
- Bus or coach stations

4.2 Other Transport Sources

There are no airports or shipping ports within East Renfrewshire, nor are there any:

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

4.3 Industrial Sources

There are no new:

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

4.4 Commercial and Domestic Sources

There are no new:

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

4.5 New Developments with Fugitive or Uncontrolled Sources

There are no new:

- Landfill sites.
- Quarries.
- Unmade haulage roads on industrial sites.
- Waste transfer stations, etc.
- Other potential sources of fugitive particulate matter emissions.

5. Planning Applications

There are significant areas of development around the south of Barrhead and Newton Mearns. These developments predominantly comprise residential development, together with associated community facilities e.g. schools. There is also approval for residential developments in areas to the north east of Barrhead and west of Newton Mearns regenerating industrial/commercial areas that have been lying vacant for a number of years.

Wherever such significant development is being considered, the Environmental Health Service recommends to the Development Management team that an air quality assessment is required. Often the developer's appointed consultant will contact the EH service to discuss the requirement for an assessment, obtain any available local monitoring data and agree a suitable methodology for the assessment.

For the smaller housing developments, the assessment usually comprises a stand-alone report. For larger scale developments, air quality is normally included as a chapter of the full Environmental Impact Assessment for the site. The assessment will cover both the construction and operational phases of the development. East Renfrewshire Council encourages developers to consider the cumulative effect of their own development and other nearby developments which are already the subject of a planning application or under construction.

6. Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

There were no exceedances of Scottish objectives identified within East Renfrewshire in 2018. The monitoring data shows a continued downward trend in NOx levels over the last 5 years.

6.2 Conclusions relating to New Local Developments

There are areas of significant development around the south of the existing suburbs of Newton Mearns and Barrhead and a number of regeneration projects to bring vacant commercial and industrial land to the north of Barrhead and west of Newton Mearns back into use as residential areas. Much of this development is already under construction, although some is still being processed through the development management system. For all planning applications for significant development, air quality assessments are required. These assessments will include review of the impact on local air quality during any demolition works, construction works or the completed and operational phase of the development. None of these assessments have considered that any of the development present a risk of national air quality objectives being exceeded, primarily as a result of the comparatively low background levels of pollutants.

This notwithstanding, Environmental Health has liaised with the Development Management section and with other services across East Renfrewshire Council to work towards securing some mitigation of any impacts on local air quality. East Renfrewshire Council seeks to encourage active travel within the context of place-making for significant new developments.

As new developments are completed and occupied, Environmental Health will review East Renfrewshire Council's air quality monitoring network to ensure that it continues to be appropriate in both scale and location.

6.3 Proposed Actions

As there are no exceedances of national or Scottish air quality objectives within East Renfrewshire, there is no need to progress to any further formal assessments before the next Annual Progress Report (due June 2020).

Although there is no requirement to proceed through any additional formal stages of the Local Air Quality Management process, East Renfrewshire Council is committed to improving local air quality, as part of the council's strategic outcome agreement to ensure that "*East Renfrewshire is a thriving, attractive and sustainable place for businesses and residents*" and as a part of ERC Environment Department's wider 'Prevention' agenda. East Renfrewshire Council is also cognisant of the key role of local authorities in delivery of the new Scottish Government "*Cleaner Air for Scotland*" strategy.

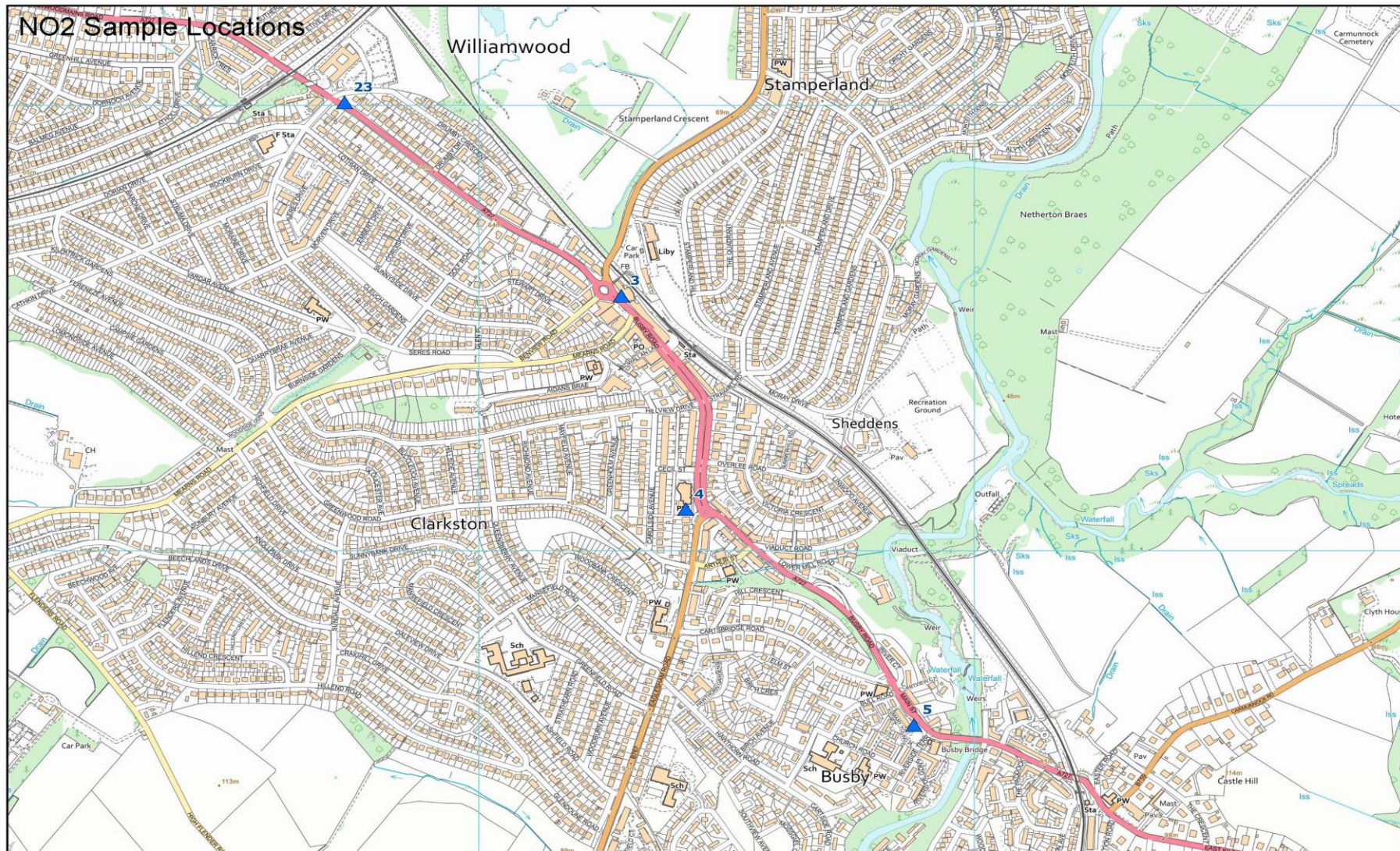
We will therefore be continuing to work throughout 2019/20 on air quality education projects within local schools and at community events, on vehicle idling enforcement and on promotion of the anti-idling message. East Renfrewshire Council is also committed to providing and promoting opportunities for active travel and will continue to deliver on this throughout 2019/20.

Environmental Health will continue to liaise with colleagues in Development Management and Development Plans to ensure that air quality impacts from new developments are appropriately assessed and that mitigation measures are included wherever necessary.

East Renfrewshire Council will demonstrate our on-going commitment to improving local air quality throughout 2019/20, through developing partnerships between ERC services and with external organisations. This integrated partnership approach will help us to deliver beyond air quality compliance, to contribute to wider environmental and health benefits for our residents.

APPENDIX A: MONITORING RESULTS**Table A.1 – Details of Non-Automatic Monitoring Sites for NO₂**

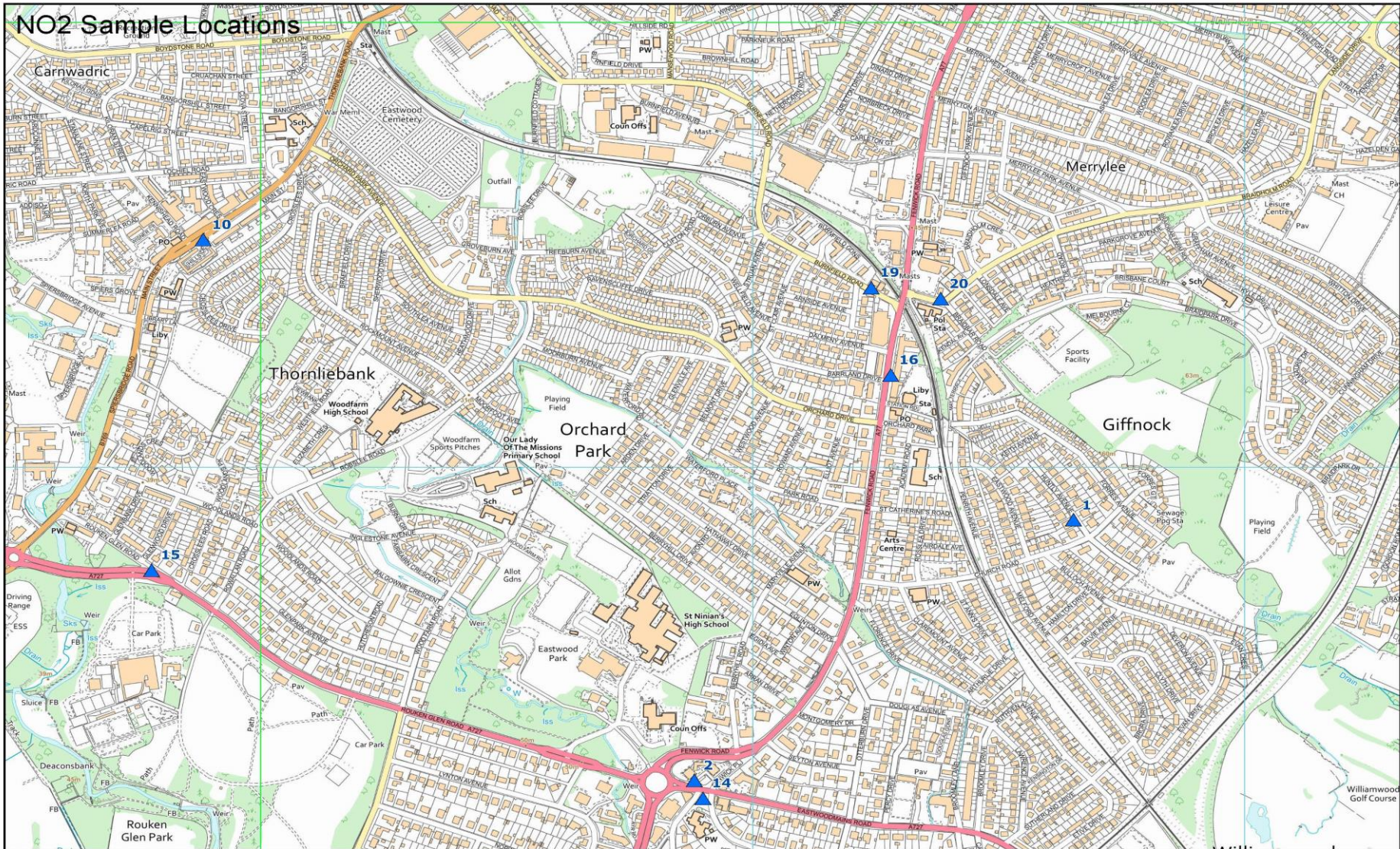
Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (m)	Does this location represent worst-case exposure?
1	Huntly Drive, Giffnock	Roadside	256633	658900	Y 2.0m	0	Y
2	Eastwoodmains Road	Kerbside	255950	658269	Y 5.0m	2.5	Y
3	Clarkston Toll	Roadside	257278	657569	Y 5.0m	0	Y
4	Sheddens Roundabout	Kerbside	257437	657092	Y 2.0m	3	Y
5	Riverside Terrace, Busby	Kerbside	257889	656601	Y 2.5m	2.5	Y
6	Main Street, Neilston	Kerbside	247958	657299	Y 1.0m	2.5	Y
7	Kelburn St, Neilston Rd, Barrhead	Kerbside	249401	658377	Y 2.0m	2.5	Y
8	Cross Arthurlie St, Barrhead	Kerbside	249787	659237	Y 1.0m	2	Y
9	Darnley Rd, Barrhead	Kerbside	250845	659308	Y 5.0m	2.5	Y
10	Main St, Thornliebank	Kerbside	254759	659474	Y 5.0m	2.5	Y
11	Main St, Barrhead, North	Roadside	250651	659238	Y 5.0m	0.5	Y
12	Main St, Barrhead, South (Allans Corner)	Roadside	249845	658779	Y 15.0m	0.5	Y
13	Lochlibo Rd at W. Arthurlie	Kerbside	249344	658392	Y 7.0m	4	Y
14	Eastwoodmains Rd, Mains Ave	Kerbside	255709	658109	Y 5.0m	2	Y
15	Rouken Glen Rd	Kerbside	254777	658770	Y 5.0m	2	Y
16	195 Fenwick Road	Kerbside	256279	659209	Y 2.0m	0.5	Y
17	Mearnskirk Nursing Home	Roadside	253798	655385	Y 2.5m	1	Y
18	Brodick Place, Newton Mearns	Roadside	252407	655475	Y 1.0m	0	Y
19	Burnfield Road	Roadside	256218	659414	Y 1.0m	1.5	Y
20	Braidholm Rd, Giffnock	Roadside	256381	659380	Y 4.5m	2	Y
21	Mearns Castle High School Sports	Kerbside	255418	655265	Y 10m	2	Y
22	Mearns Castle High School Entrance	Kerbside	255405	655274	Y 5m	0.5	Y
23	Eastwood Health Centre Drumby Crescent	Kerbside	256728	658007	Y 5m	3	Y



(c) Crown Copyright and database right 2019. All Rights Reserved. Ordnance Survey Licence number 100023382 2019, East Renfrewshire Council

1:10,000

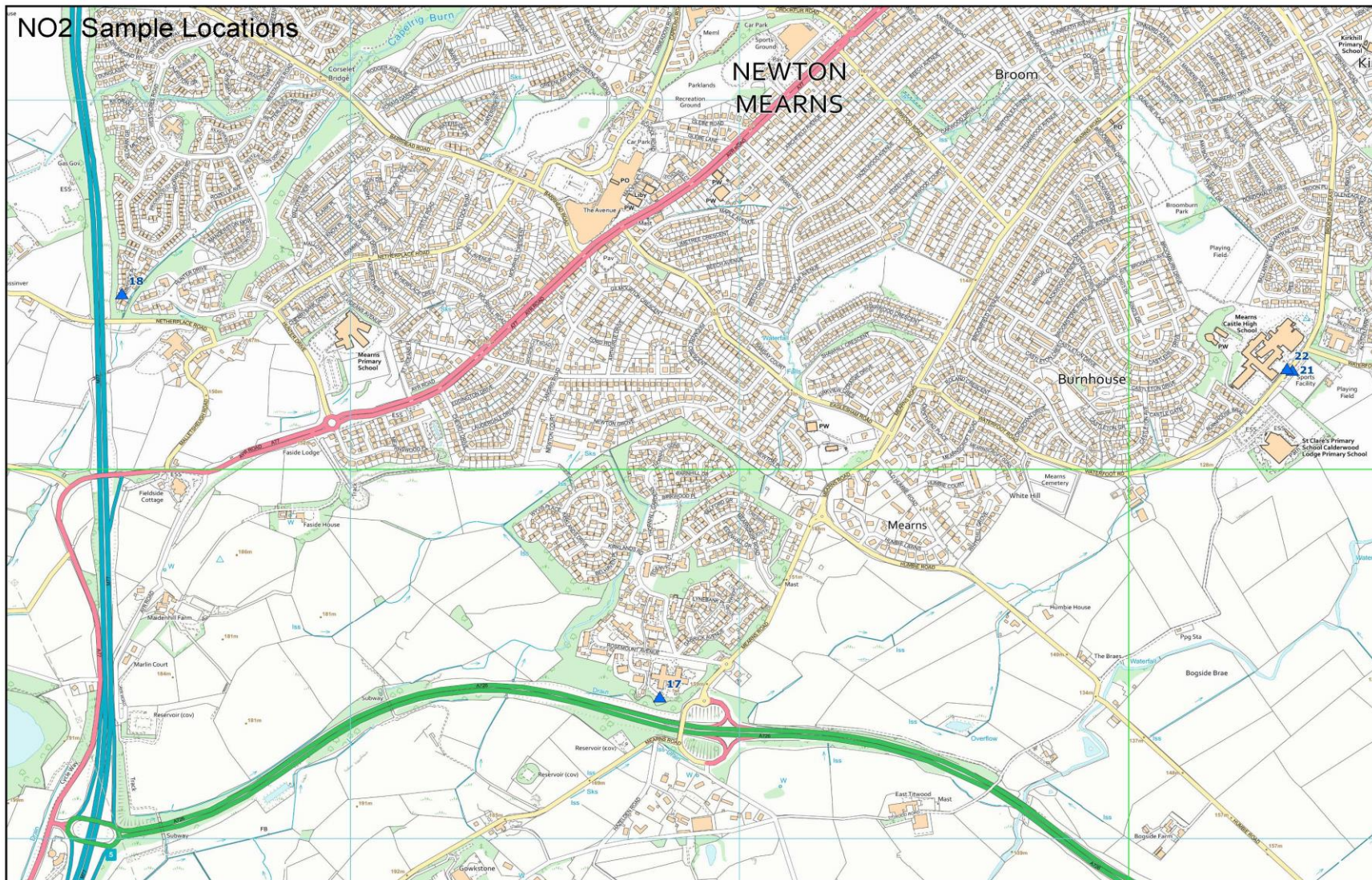
CLARKSTON AND BUSBY



(c) Crown Copyright and database right 2019. All Rights Reserved. Ordnance Survey Licence number 100023382 2019, East Renfrewshire Council

1:10,000

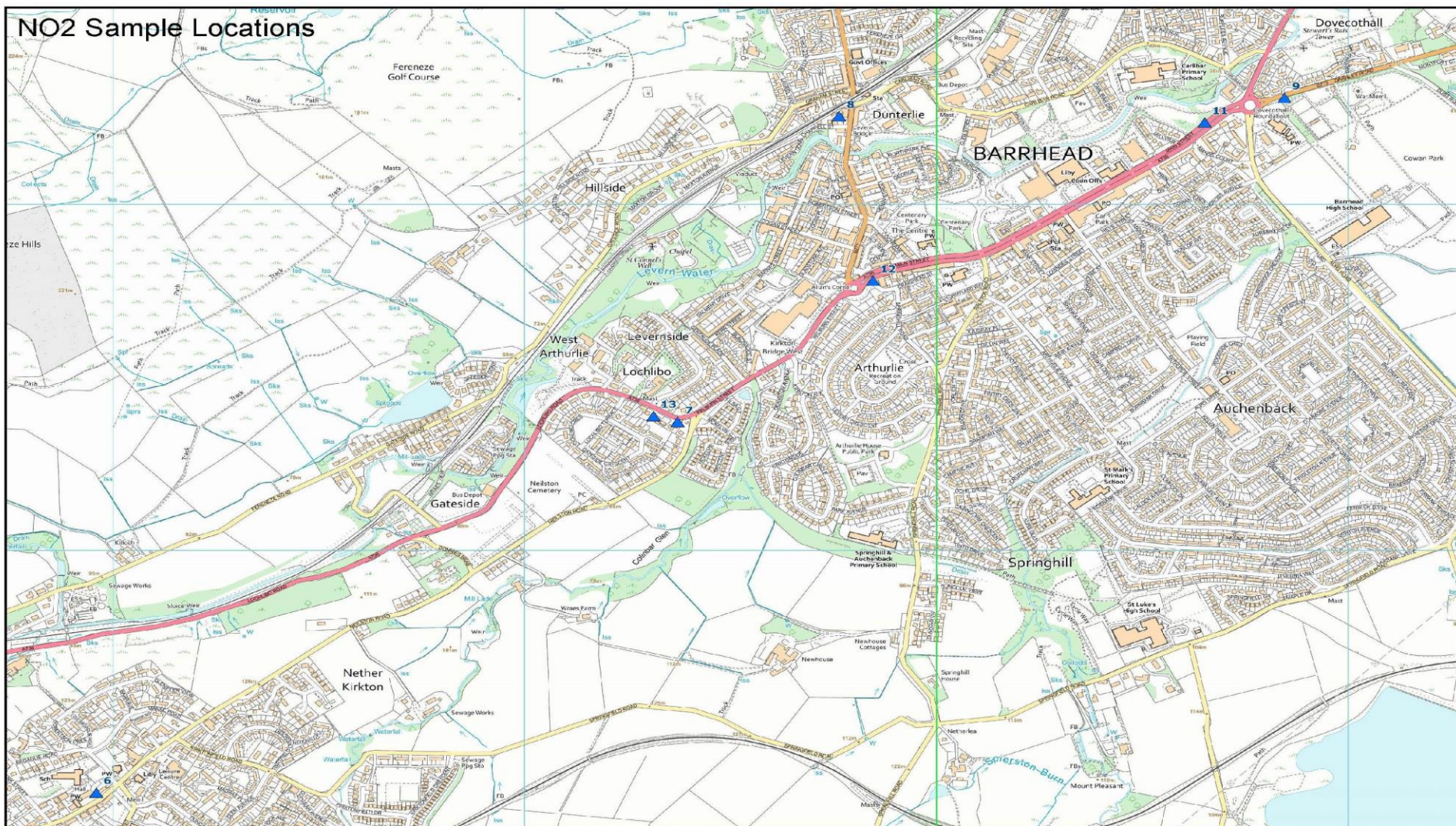
Thornliebank and Giffnock



(c) Crown Copyright and database right 2019. All Rights Reserved. Ordnance Survey Licence number 100023382 2019, East Renfrewshire Council

1:12,500

NEWTON MEARN'S (South)



(c) Crown Copyright and database right 2019. All Rights Reserved. Ordnance Survey Licence number 100023382 2019, East Renfrewshire Council

1:12,500

BARRHEAD AND NEILSTON

Table A.2 – Annual Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	Annual mean concentration (adjusted for bias) µg/m ³					
					2013* (Bias Adjustment Factor = 0.99)	2014* (Bias Adjustment Factor = 0.99)	2015 (Bias Adjustment Factor =0.98)	2016 (Bias Adjustment Factor =0.97)	2017 (Bias Adjustment Factor =0.91)	2018 (Bias Adjustment Factor =0.86)
1	Roadside	Diffusion tube	100%	100%	14.7	13.3	9.9	13.4	13.2	11.7
2	Kerbside	Diffusion tube	92%	92%	23.7	30.2	25.1	21.0	26.9	22.1
3	Roadside	Diffusion tube	75%	75%	34.3	36.7	32.1	32.7	32.4	26.0
4	Kerbside	Diffusion tube	100%	100%	28.3	25.0	20.6	23.5	23.1	20.9
5	Kerbside	Diffusion tube	100%	100%	35.7	25.9	14.8	16.2	17.7	14.2
6	Kerbside	Diffusion tube	100%	100%	17.0	21.6	12.9	17.8	12.4	11.9
7	Kerbside	Diffusion tube	100%	100%	30.6	29.3	16.8	25.5	26.3	21.0
8	Kerbside	Diffusion tube	92%	92%	23.3	33.5	21.5	21.7	25.3	23.2
9	Kerbside	Diffusion tube	92%	92%	18.4	21.0	13.5	20.0	19.3	13.8
10	Kerbside	Diffusion tube	92%	92%	29.3	29.2	19.4	21.7	26.2	22.5
11	Roadside	Diffusion tube	100%	100%	21.3	16.3	15.1	25.6	21.2	18.0
12	Kerbside	Diffusion tube	100%	100%	NA	NA	17.9	18.6	23.4	22.4
13	Kerbside	Diffusion tube	100%	100%	36.7	33.5	27.9	28.2	28.9	27.2
14	Kerbside	Diffusion tube	100%	100%	22.9	26.6	18.9	24.1	23.6	17.1

Site ID	Site Type	Monitoring type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	Annual mean concentration (adjusted for bias) $\mu\text{g}/\text{m}^3$					
					2013* (Bias Adjustment Factor = 0.99)	2014* (Bias Adjustment Factor = 0.99)	2015 (Bias Adjustment Factor =0.98)	2016 (Bias Adjustment Factor =0.97)	2017 (Bias Adjustment Factor =0.91)	2018 (Bias Adjustment Factor =0.86)
15	Roadside	Diffusion tube	100%	100%	30.5	36.4	26.4	28.9	28.3	25.4
16	Roadside	Diffusion tube	92%	92%	23.1	NA	27.0	27.3	31.9	31.7
17	Roadside	Diffusion tube	100%	100%	16.3	13.0	10.9	15.1	13.6	12.7
18	Roadside	Diffusion tube	100%	100%	21.8	20.2	17.3	20.2	20.1	16.4
19	Roadside	Diffusion tube	100%	100%	21.9	20.4	15.2	24.1	21.9	20.0
20	Roadside	Diffusion tube	100%	100%	25.3	25.4	20.3	20.0	21.5	16.6
21	Roadside	Diffusion tube	100%	100%	NA	NA	8.9	13.1	12.6	10.5
22	Roadside	Diffusion tube	83%	83%	NA	NA	8.2	12.9	12.0	11.1
23	Kerbside	Diffusion Tube	100%	100%	NA	NA	NA	NA	NA	17.5

Notes: Exceedances of the NO₂ annual mean objective of 40 $\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO₂ annual means exceeding 60 $\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

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

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

(3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG(16) if valid data capture for the full calendar year is less than 75% and annualisation is appropriate. See Appendix C for details.

Appendix B: Full Monthly Diffusion Tube Results for 2018Table B.1 – NO₂ Monthly Diffusion Tube Results for 2018

SITE ID		NO ₂ Mean Concentrations (µg/m ³)												Annual Mean	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted ⁽¹⁾
1	Huntly Drive, Giffnock	24.9	20.5	18.9	9.2	7.6	7.1	6.2	6.3	6.7	9.9	23.8	22.2	13.6	11.7
2	Eastwoodmains Road, Giffnock	35.0	30.3	34.4	29.7	13.8	15.2	22.7	20.2	19.6	21.8	x	39.9	25.7	22.1
3	Clarkston Toll	42.7	1.6 ²	141.0 ²	1.6 ²	24.8	25.7	24.0	22.1	24.1	21.9	47.0	39.6	30.2	26.0
4	Sheddens Roundabout, Clarkston	33.0	33.2	30.9	24.2	23.7	17.0	17.9	15.5	17.8	12.4	36.7	29.3	24.3	20.9
5	Riverside Terrace, Busby	25.7	18.6	22.4	18.0	17.5	11.3	11.6	7.2	7.9	10.8	26.1	20.4	16.5	14.2
6	Main Street, Neilston	24.1	19.0	17.9	15.1	13.9	6.1	7.5	4.5	7.5	8.1	25.9	16.4	13.8	11.9
7	Kelburn St @ Neilston Rd, Barrhead	30.8	32.5	31.9	28.4	18.4	16.2	16.8	12.9	16.6	22.3	36.3	29.9	24.4	21.0
8	Cross Arthurlie St, Barrhead	34.9	34.2	30.1	26.8	16.5	15.8	17.5	1.6 ²	35.6	20.1	36.1	29.5	27.0	23.2
9	Darnley Rd, Barrhead	2.1 ²	22.8	26.2	22.1	11.5	10.3	10.2	8.2	7.6	9.2	26.6	22.7	16.1	13.8
10	Main St, Thornliebank	40.4	33.0	32.6	33.7	19.0	7.7	20.8	17.4	19.3	x	35.6	28.5	26.2	22.5
11	Main St, Barrhead, North	51.7	22.3	23.5	20.9	14.9	4.0 ²	10.5	8.8	8.3	12.7	31.8	24.1	20.9	18.0
12	Main St, Barrhead, South	33.1	31.1	32.6	30.3	24.7	15.5	21.7	21.0	16.0	23.2	33.1	29.5	26.0	22.4
13	Lochlibo Rd at W. Arthurlie	39.3	40.6	41.3	36.4	24.5	21.2	21.2	21.1	22.8	25.6	46.7	38.2	31.6	27.2
14	Eastwoodmains Rd @ Mains Ave	30.9	29.2	22.1	22.3	13.5	9.0	11.5	9.8	15.1	21.9	32.2	21.3	19.9	17.1
15	27 Rouken Glen Rd @ Gushet	44.7	40.9	34.6	36.9	21.2	9.6	17.7	17.2	23.0	24.4	47.4	36.5	29.5	25.4
16	195 Fenwick Road	83.7	46.0	43.6	39.0	22.2	18.7	20.9	21.7	31.5	24.9	48.3	41.9	36.9	31.7
17	Mearnskirk Nursing Home (GSO)	22.8	16.6	17.3	14.5	1.5 ²	16.6	8.7	7.7	13.2	8.8	19.0	18.0	14.8	12.7
18	Brodick Place, Newton Mearns (M77)	33.3	23.4	23.4	20.7	14.6	9.3	14.6	13.2	6.2	20.3	24.0	25.8	19.1	16.4
19	5 Burnfield Road	37.4	26.3	28.6	29.7	18.5	9.3	14.6	15.0	17.9	17.2	37.1	26.2	23.2	20.0
20	8 Braidholm Rd, Giffnock	29.1	30.5	22.7	22.1	14.0	6.6	10.4	13.9	13.7	9.6	30.3	28.6	19.3	16.6
21	Mearns Castle High School Sports	22.6	16.2	15.1	15.3	9.5	3.1	7.5	5.0	8.0	9.1	19.2	15.3	12.2	10.5
22	Mearns Castle High School Entrance	25.1	16.4	16.0	12.2	6.1	x	x	3.8	6.9	9.3	18.6	14.2	12.9	11.1
23	Eastwood Health Centre at Drumby Cres.	55.6	26.4	27.5	23.5	11.4	5.9	9.4	8.1	5.8	10.7	32.6	27.1	20.3	17.5

(1) See Appendix C for details on bias adjustment

(2) Erroneous result has been removed to calculate annual mean of raw data.

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

Bias Adjustment Factor For Glasgow Scientific Services

The diffusion tubes are supplied and analysed by Glasgow Scientific Services (GSS) and are prepared using the 20% TEA in water method and in accordance with the procedures set out in the practical guidance. East Renfrewshire has not carried out any co-location studies itself, although co-location studies are available for GSS. The Department for Environment and Rural Affairs (DEFRA) reports that in co-location testing in 2018, GSS demonstrated 'poor' precision for 6 out of 9 assessments (see <https://laqm.defra.gov.uk/assets/tubeprecision2019version0319finalreduced.pdf>) but also reports that precision for ESG Glasgow, 20% TEA in water 2018 is "good".

DEFRA further reports that the 2018 bias adjustment factor for GSS is 0.86 (see <https://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>). This bias adjustment factor has therefore been applied to the annual average diffusion tube results reported above. Laboratory performance in analysing diffusion tubes is subject to quality assurance/control under the AIR-PT scheme operated by LGC and supported by the Health and Safety Laboratory.

Annualising Results

It is recommended that for results with less than 75% data collection that the results are annualised for the annual average. All results for NO₂ diffusion tubes had above, or met the recommended 75% collection rate. Therefore the annualisation process was not required to be used for this years results.

Road Side Adjustment

Fall off from distance correction calculations are only required in the event that both of the following circumstances are met:

- A diffusion tube reports an NO₂ annual mean concentration to be greater than 36 µg/m³ (to account for the inherent uncertainty in diffusion tube monitoring concentration data); and
- That same diffusion tube is not located at relevant exposure.

Therefore, as all of the sites are recording concentrations to be lower than 36 µg/m³ road side adjustment calculations are not required.

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
APR	Air quality Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
CAFS	Clean Air For Scotland
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
ERC	East Renfrewshire Council
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SEPA	Scottish Environmental Protection Agency
SO ₂	Sulphur Dioxide