Annual Progress Report (APR)

2022 Air Quality Annual Progress Report (APR) for South Ayrshire Council

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

June 2022

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Executive Summary: Air Quality in Our Area

South Ayrshire Council (SAC) has carried out a review of air quality within South Ayrshire which fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the report follows technical guidance LAQM.TG (16), (Reference1), issued by the Scottish Government to assist Local authorities in their Review and Assessment of air quality.

The report forms our 2022 Progress Report (PR) and includes latest available data up to the end of 2021. It also considers the conclusions of the previous rounds of Review and Assessment and any changes that have occurred since then that would have an effect on local air quality.

The report sets out the results of air quality monitoring carried out by South Ayrshire Council and considers the potential impacts from a range of sources such as road traffic and other transport emissions, industrial processes, commercial and domestic fuel use and fugitive emission sources.

The Progress Report concluded that concentrations of the various air quality objectives are unlikely to be exceeded.

A detailed assessment is therefore not required for South Ayrshire Council.

The next annual progress report will be submitted to the Scottish Executive by the end of June, 2023.

Air Quality in South Ayrshire

The air quality within South Ayrshire remains very good. The majority of air pollution present is as a result of transport sources primarily road traffic fuelled with petrol or diesel. With the gradual move away from those fuel sources to electric vehicles it is expected we will continue to enjoy an improvement in air quality.

South Ayrshire has no air quality management areas (AQMA’s) or action plans.

Actions to Improve Air Quality

During 2021, due to the pandemic we were only able to carry out limited idling enforcement patrols throughout the district. We had planned to carry out more of these in an attempt to reduce drivers allowing their vehicles to idle unnecessarily. We are hoping to carry out more of these patrols in 2022 should the pandemic conditions permit us to do so.

In 2019 we delivered a number of talks to primary school children on air quality and the importance of using active forms of travel where possible. We were intending to repeat that in 2021 but again due to the pandemic were unable to do so though if we are able to do so these will recommence in 2022.

Local Priorities and Challenges

The majority of the air quality pollutants arising within SAC are as a result of road traffic. Therefore, in order to reduce the impact, we intend to carry out vehicle idling enforcement over the coming year. With the assistance of funding from the Scottish Government in 2016 we fitted our two real-time TEOM monitors with $PM_{2.5}$ inlets in order to assess the levels of that pollutant within SAC. Results of monitoring for that pollutant are now available. In 2021 we secured funding from the Scottish Government to update our two TEOM FDMS monitors to FIDAS monitors. This new equipment permits us to accurately monitor $PM_{2.5}$ and PM_{10} levels simultaneously. Unfortunately, these were installed late on in 2021 so PM_{10} levels are not included in the 2022 report but will be available again in the 2023 report.

How to Get Involved

Members of the Public Can Assist to Improve Air Quality by:

- using active transport or public transport where possible instead of driving. If it is necessary to drive, consider changing to a low polluting vehicle or using an electric vehicle
- ensuring if you do drive that you don't leave your engine idling any longer than necessary. In addition to polluting the air and producing greenhouse gases you could be served with a fixed penalty notice and make sure your car is well maintained
- avoiding garden bonfires – instead recycle or utilise your brown refuse bin for garden waste
- reporting badly polluting buses or lorries as follows: https://www.gov.uk/report-smoky-vehicle

- using electric powered lawn and garden equipment instead of petrol.

Our website has links to the two real time monitors results for PM_{10}, $PM_{2.5}$ and NO_2. These can be accessed as follows:

Ayr High Street site: https://www.scottishairquality.scot/latest/site-info/AYR

Ayr Harbour Site: https://www.scottishairquality.scot/latest/site-info/HARB

Previous air quality reports are also available from our website as follows: https://archive.south-ayrshire.gov.uk/environmentalhealth/publichealth/airquality.aspx

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1 Local Air Quality Management

This report provides an overview of air quality in South Ayrshire during 2021. 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) is summarises the work being undertaken by South Ayrshire Council to improve air quality and any progress that has been made.

Table 1.1 – Summary of Air Quality Objectives in Scotland

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12 months, setting out measures it intends to put in place in pursuit of the objectives.

South Ayrshire Council have no AQMA's nor have there been any within South Ayrshire in the past.

2.2 Cleaner Air for Scotland 2

Cleaner Air for Scotland 2 – Towards a Better Place for Everyone (CAFS2) is Scotland's second air quality strategy. CAFS2 sets out how the Scottish Government and its partner organisations propose to further reduce air pollution to protect human health and fulfil Scotland's legal responsibilities over the period 2021 – 2026. CAFS2 was published in July 2021 and replaces Cleaner Air for Scotland – The Road to a Healthier Future (CAFS), which was published in 2015. CAFS2 aims to achieve the ambitious vision for Scotland "to have the best air quality in Europe". A series of actions across a range of policy areas are outlined, a summary of which is available on the Scottish Government's website.

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

One of the major air quality polluters in South Ayrshire is road vehicles and we received funding from the Scottish Government to carry patrols for idling vehicles targeting known problematic areas such as schools in an attempt to reduce air pollution. Unfortunately, very few patrols were carried out in 2021 due to Covid restrictions and it is our plan to restart the patrols during 2022. Idling tends to be more of an issue during the cold months when drivers leave their engine running to provide heat to the interior of the vehicle while waiting so we will target those colder periods later in 2022.

South Ayrshire Council have purchased a number of electric vehicles for their fleet and officers are being advised to utilise these rather than petrol or diesel alternatives again this will reduce pollution and protect air quality.

Within South Ayrshire, the Green Champions Network continues to promote active travel and the council's travel hierarchy. Active travel is also being promoted to the 9 secondary schools through the Provost's School Footprint Challenge and to the primary schools through joint work with the Energy Agency to provide energy lessons and run the calendar competition

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.

Over the next few years, South Ayrshire Council will be working closely with the local community to produce place plans. The plans can be found here: www.south-ayrshire.gov.uk/thriving-places/ within those plans there are a number of measures designed to increase the use of "green transport" eg " Ayr North should be a place that is safe and welcoming to move around on foot and by cycle. Traffic and parking arrangements should allow people to move around safely. It should have a public transport network that meets the needs of the community."

South Ayrshire Council has introduced a carbon budget tracker for each service with a view to reducing the carbon footprint of the organisation.

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.

Within South Ayrshire, part of the ruling Conservative party's manifesto was that they would look at introducing such a zone within Ayr Town Centre.

2.3 Progress and Impacts of Measures to address Air Quality in South Ayrshire

South Ayrshire Council has taken forward a number of measures during the current reporting year of 2021 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in

Table 2.1. completed measures include the introduction of electric bin lifting equipment to refuse collection vehicles

Progress on many of the other actions has been slower than expected due to the pandemic.

Table 2.1 – Progress on Measures to Improve Air Quality

Meas-ure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implement ation Phase	Key Performa nce Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
1.	Active Travel Hub project	Alter-natives to private vehicle use	in partnership with ARA, Sustrans, Community Transport and others this initiative has promoted modal shift in particular to walking and cycling,	ARA				In particular NOX and PM	Operational ongoing project		actively reducing air pollution. Potential reduction in private vehicle use so this project is seeking to actively reduce air pollution

2.	Introduction of a car club	Alter-natives to private vehicle use	The feasibility of a car club in South Ayrshire. Initial results are very positive and demonstrate that moving to a car club would reduce air pollution as it shows that replacing both council grey fleet miles and / or residential miles with car club miles would mean more efficient cars in terms of pollution (as well as safety and emissions) would be travelling those miles.	Sustainability section, Neighbourhood Services				PM and NOX	Report commissioned into feasibility. Feedback very positive	2022	Analysis suggests that introduction would lead to an overall reduction in miles and the possibility that some people would no longer run a car or second car, which would also be positive for air quality A further business plan into this proposal was commissioned in 2018/19 utilising funding available through the Active Travel Hub. It is hoped findings will be considered and taken forward in the year ahead. The business plan / further feasibility report has been drafted and is currently with KD for consideration This action area was paused during the COVID pandemic however is now being picked up by way of new actions in the proposed Fleet Strategy which was approved by Leadership Panel last year.

3.	Bicycle Rental	Alter-natives to private vehicle use	the aim of having a hub in place at Ayr Station by July 2016 which will rent out bikes, and provide information about all forms of active travel and alternatives to private car use	ARA				PM and NOX	Ongoing		The hub has been facilitating the hire of the abellio bike and go bikes however there are some outstanding issues regarding arrangements around this going forward. It is unclear at present how this will unfold however it is anticipated that bikes will still be available to the public for hire going forward. The abellio bikes are no longer being rented via the hub as the hub were asked to pay for providing this service. Abellio still have a contractual requirement to provide this bike service from the station, so it is hoped they will do so in future. Alternative ways to make the hub fleet of bikes / bikes generally available to workplaces and the public at other locations are now being investigated and arrangements being made through the hub project.

Meas-ure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
4.	Green Champions	Alter-natives to private vehicle use	Within the Council our Green Champions Network continues to promote active travel and the council's travel hierarchy. Active travel is also being promoted to our 9 secondary schools through the Provost's School Footprint Challenge and to our primary schools through our joint work with the Energy Agency to provide energy lessons and run the calendar competition	Sustainability section, Neighbourhood Services					ongoing	ongoing	Although the pandemic has hampered many of the positive interventions listed below there has also been some benefits in terms of reduced travel and use of more sustainable modes during the pandemic. It is now hoped that the green recovery which the council has committed to can build on these positive trends and leave the negative ones behind.

Meas-ure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
5.	Promotion of renewable Energy	Promoting low emission plants	The Energy Agency, who we work in partnership with, have been working with us on the promotion of renewable energy and energy efficiency..	Sustainability section, Neighbourhood Services					ongoing	ongoing	This contributes to a move away from the burning of fossil fuels and any air quality detriment associated with this The Energy Agency has now installed micro hydro on the River Ayr which will contribute towards this action area. There is also a live aspiration to take forward a Council Energy Strategy which would also promote reduced energy demand and use, renewable energy and self-sufficiency.

Meas-ure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
6.	Vehicle fleet efficiency	Promoting low emission transport	Several electric vehicles are being procured for use by council staff. In addition a number of charging points are being installed throughout the district. We are now aiming to transition the small vehicle fleet to fully electric by 2025.	Fleet section, Neigh=bour-hood Ser-vices	Vehicles will be phased in over the period up to 2025	Due to the drop in costs for EVs we are now not so reliant on grant funding and vehicles are now being financed through Departmental budgets in addition to grant funding.	Monthly mileage, no of trips per month and trips exceeding 100 miles recorded	PM NOX and CO2	As of 30th April 2020 forty one vehicles have been put into service	Ongoing with the aim of having a fully electric small vehicle fleet by 2025.	New Fleet Policy at Leadership Panel May 2021 emphasising these targets and goals. South Ayrshire Council now has around 70 electric vehicles operational at any 1 time with a rolling program being commenced to update to newer EVs wherever a departments budget allows. However, some departments are already claiming they cannot fund EVs which were previously grant funded.

Meas-ure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
7.	Vehicle fleet efficiency	Promoting low emission plant	Electric bin lifting equipment where possible will be fitted to all RCVs. This results in the vehicle engine operating at lower revs (when lifting bins) which reduces fuel consumption, vehicle exhaust emissions and noise levels.	Fleet section, Neighbourhood Fleet section, Neighbourhood Services	All new RCVs will be procured with Electric Lifters where possible.	At present all RCVs on the Fleet have this equipment fitted.		PM10, NO2	Complete	Complete	Where possible Electric Bin Lift Equipment will continue to be specified for all RCVs.

8.	Vehicle fleet efficiency	Promoting low emission transport	Large Goods Vehicles (LGVs) over 3500kg GVW will also be fitted where possible with the latest technology to reduce fuel consumption and exhaust emissions. Certain vehicles will be fitted with in-cab heaters to stop the practice of vehicles idling in cold weather to defrost windows etc. This practice greatly increases fuel consumption and results in exhaust gases being emitted unnecessarily.	Fleet section, Neighbourhood Services	These items are now standard on any vehicle specification being prepared in this class.	Fully rolled out at present. Vehicle replacement ongoing.		PM10, NO2	On-going	Phased rollout	This fuel saving equipment is now standard requirement on all vehicle specifications in this class. And will continue to be fitted where possible We are looking into HVO low emission fuel use to replace diesel fuel however the 2 main barriers appear to be a considerable extra cost per litre and a possible issue with the sources not being fully environmentally friendly.
9.	Vehicle fleet efficiency	Promoting low	HGV's will have engines which are all built to the latest	Fleet section, Neighbourh	Latest emission standards	Ongoing		PM10, NO2	Ongoing	Phased rollout	All new vehicles South Ayrshire Council procure will continue to be

Meas-ure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
		emission transport	European legal limits on exhaust gases (Euro 6) specification. Which will result in the vehicles emitting the lowest possible exhaust gases.	ood Services	only excepted for new vehicles procured.						to the latest European exhaust emissions standards. Alternative fuel will also always be considered where possible.
10.	Vehicle fleet efficiency	Promoting low emission transport	Cars, minibuses, vans & pick-ups up to 3500GVW where possible will be fitted with speed limiters, rev limiters and stop/start technology to maximise fuel efficiency and reduce exhaust emissions. By 2025 it is hoped that all small fleet will be electric.	Fleet section, Neighbourhood Services	These items are now standard on any vehicle specification being prepared in this class.	Ongoing		PM10, NO2	Ongoing	Phased rollout	This fuel saving equipment is now standard requirement on all vehicle specifications in this class. And will continue to be fitted where possible. South Ayrshire Council now have 59 full EVs & 8 PHEVs on our Fleet.

Meas-ure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
11.	Vehicle fleet efficiency	Promoting low emission transport	Departments be asked to use smaller vans to replace larger vans where practical and small vehicles will be transitioned to electric vehicles (EVs) between now and 2025. Although unfortunately at this time the infrastructure of charging points will restrict the number of EVs we can put into our fleet, however investment is being sought to address this with the aim of transitioning all small fleet to electric by 2025	Fleet section, Neighbourhood Services	As and when vehicles are due replaced	Ongoing		PM10, NO2	Ongoing	Phased rollout	Our Property Maintenance Service have recently added 12 EVs to their Fleet. These EVs have replaced diesel vans and cars. They have also committed to adding at least another 8 EVs in the latest Fleet replacement program which is ongoing at present. We have arranged for the depot at McCalls Avenue to get a new, grant funded, rapid charger (50 KWH) This will begin trials later this year to see how feasible it is to rotate multiple vehicles based on sharing the one rapid charger available.

Meas-ure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
12.	Vehicle fleet efficiency	Promoting low emission transport	Part of the Fleet Management Review is developing and putting in place a hierarchy of travel guidelines. This will advise our staff the most economical and environmental friendly way of travel mode. This should identify and reduce unnecessary journeys and again reduce the Councils carbon usage.	Fleet section, Neighbourhood Services	Policy now in place	Ongoing. Policy will be rolled out during 2019.		PM10, NO2	On-going	Phased rollout	

Meas-ure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
13.	Vehicle fleet efficiency	Promoting low emission transport	The vehicle tracking system has also help reduce our fuel usage by identify routes where vehicles were passing each other on journeys to jobs. In particular this applied to our Property Maintenance section. The system now allows the nearest vehicle to attend call-outs etc. The vehicle tracking system is being improved in 2020 which will further the benefits it can provide.	Fleet section, Neighbourhood Services	Ongoing	Ongoing		PM10, NO2	On-going	Phased rollout	Department to monitor and review journeys which overlap

Meas-ure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
14	Vehicle Idling Patrols	Promoting low emission transport	We received funding to repeat vehicle idling work which we carried out in 2019. Unfortunately, due to the pandemic we were unable to do this work but are hoping to resume late 2022 should pandemic controls permit. We did put out communications to social media reminding members of the public to switch off their engines when stationary for more than 5 minutes.	Environmental Health	Complete	ongoing	None	PM's and NO2	On-going	Ongoing	Well received by members of the public Main source of air pollution in SA is road traffic

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

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

South Ayrshire Council undertook automatic (continuous) monitoring at 2 sites during 2021. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at http://www.scottishairquality.scot/

Maps showing the location of the monitoring sites are provided in Figure 1 and Figure 2. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

South Ayrshire Council undertook non- automatic (passive) monitoring of NO_2 at 20 sites during 2021. Table A.2 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Figure 3. 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.

Appendices D, E and F display trends of monitoring and compare results with the air quality objective for monitoring undertaken.

3.2.1 Nitrogen Dioxide (NO_2)

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

For diffusion tubes, the full 2021 dataset of monthly mean values is provided in Appendix B.

Table A.4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year. Particulate Matter (PM_{10})

There were no exceedances of the air quality objectives for PM_{10} within SAC for 2016. We ceased monitoring of this pollutant in 2016 but monitoring was restarted late 2021 when we installed new Fidas monitors which have the capacity to monitor PM_{10} and $PM_{2.5}$ simultaneously. Unfortunately, we do not have a full year data for PM_{10} for 2021 but will hopefully be able to report on a full year monitoring for 2022 in the 2023 progress report.

Table A.5 in Appendix A compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the 5 years up to 2021 with the air quality objective of 18µg/m^3.

Table A.6 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the 5 years up to 2021 with the air quality objective of 50µg/m^3, not to be exceeded more than 7 times per year.

There were no exceedances of the air quality objectives during this period.

3.2.2 Particulate Matter ($PM_{2.5}$)

Table A.7 in Appendix A compares the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years with the air quality objective of 10µg/m^3.

There were no exceedances of the air quality objectives reported for $PM_{2.5}$ in 2021 at either of our two continuously monitored sites.

3.2.3 Sulphur Dioxide (SO_2)

We did not monitor SO2 concentrations during 2021 within SAC. We are not aware of any changes that have occurred in their status since submission of the previous report.

Previously, monitoring was by means of two eight port bubblers, one at Dundonald Activity Centre and the other at the Road Depot within Grangeston Industrial Estate Girvan. Analysis of the solution took place at Glasgow Scientific Services and no exceedances were reported.

3.2.4 Carbon Monoxide, Lead and 1,3-Butadiene

We did not undertake any monitoring for Carbon Monoxide, Lead or 1,3-Butadiene within SAC in 2021. We are not aware of any changes that have occurred in their status since submission of the previous report.

4 New Local Developments

We are not aware of any new local developments within SAC that may affect air quality.

4.1 Road Traffic Sources

We are not aware of any new road traffic sources within SAC that have the potential to affect air quality.

4.2 Other Transport Sources

We are not aware of any new road traffic sources within SAC that have the potential to affect air quality.

4.3 Industrial Sources

We are not aware of any new industrial sources within SAC that has the potential to affect air quality.

4.4 Commercial and Domestic Sources

There are no new commercial or domestic sources we are aware of within SAC that would have the potential to affect air quality.

4.5 New Developments with Fugitive or Uncontrolled Sources

There are no new developments we are aware of within SAC that would have the potential to produce a source of fugitive or uncontrolled particulate matter.

5 Planning Applications

There are no new planning applications in 2021 we are aware of within SAC that would have the potential to affect air quality.

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

There were no exceedances of the air quality objectives identified within SAC during 2021.

6.2 Conclusions relating to New Local Developments

There were no local developments during 2021 in SAC that required consideration.

6.3 Proposed Actions

There were no exceedances of the air quality objectives identified within SAC in 2021. Therefore, there is no need to progress to a detailed assessment nor is there any need to consider air quality management areas.

Our next Progress Report is due by the end of June 2023.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
CM1	High St Ayr	Roadside	337223	221162	NO_2, and PM	N	Chemiluminescent; FDMS	5	2	2.0
CM2	Taylor St (Harbour) Ayr	Roadside	233608	622750	NO_2, and PM	N	Chemiluminescent; FDMS	10	1	2.0

Notes:

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

(2) N/A if not applicable.

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)
DT1	147 Whitletts Road, Ayr	Roadside	234392	622366	NO_2	N	20	1	N	2.5
DT2	Dundonald Road, Troon	Roadside	232588	631277	NO_2	N	10	2	N	2.5
DT3	2 Portland Street, Troon	Roadside	232292	631235	NO_2	N	1	2	N	2.5
DT4	2 Walker Rd Ayr	Roadside	234892	622730	NO_2	N	5	1	N	2.5
DT5	3 The Cross, Prestwick	Roadside	235229	626228	NO_2	N	5	2	N	2.5
DT6	141 Main St Prestwick	Roadside	235142	625816	NO_2	N	2	2	N	2.5
DT7	Heathfield Rd/ P/wick Rd Ayr	Roadside	234641	624159	NO_2	N	2	1	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT8	Station Taxi Rank, Smith St Ayr	Roadside	240194	624754	NO_2	N	5	1	N	2.5
DT9	Morrison's Castlehill Rd Ayr	Roadside	234126	621201	NO_2	N	5	2	N	2.5
DT10	39 Whitlett's Rd Ayr	Roadside	234605	622412	NO_2	N	2	N/A	N	2.5
DT11	Tesco, Whitlett's Road, Ayr	Roadside	235150	622528	NO_2	N	10	2	N	2.5
DT12	King's St Ayr	Roadside	233830	622352	NO_2	N	2	1	N	2.5
DT13	Town Buildings Ayr	Roadside	233691	622093	NO_2	N	2	2	N	2.5
DT14	Corner of Waggon Rd & Back Peebles St Ayr	Roadside	233876	622838	NO_2	N	5	2	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT15	Corner of Waggon Rd & Green St Ayr	Roadside	233744	622882	NO_2	N	5	2	N	2.5
DT16	Ayr Bus Station	Roadside	233576	621805	NO_2	N	10	2	N	2.5
DT17	Rozelle Park Ayr	Urban Back-ground	233763	618944	NO_2	N	10	N/A	N	2.5
DT18	Minishant Inn, A77	Roadside	232983	614277	NO_2	N	10	1	N	2.5
DT19	133 Whitlett's Rd Ayr	Roadside	235099	622542	NO_2	N	10	1	N	2.5
DT20	Roxy Bar Bridge St Girvan	Roadside	281549	598064	NO_2	N	5	1	N	2.5

Notes:

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

(2) N/A if not applicable.

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

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2021 (%) [2]	2017	2018	2019	2020	2021
CM1	Roadside	Automatic	100	92	14	11	11	10	12
CM2	Roadside	Automatic	100	75	7	9	11	(8)	8
DT1	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	15	22
DT2	Roadside	Diffusion Tube	100	100	13	13	14	8	12
DT3	Roadside	Diffusion Tube	100	100	15	17	15	9	11
DT4	Roadside	Diffusion Tube	100	92	N/A	N/A	N/A	8	11
DT5	Roadside	Diffusion Tube	100	100	28	25	26	18	20
DT6	Roadside	Diffusion Tube	100	100	22	19	21	11	15
DT7	Roadside	Diffusion Tube	100	100	25	24	27	16	22
DT8	Roadside	Diffusion Tube	100	92	20	19	30	10	15
DT9	Roadside	Diffusion Tube	100	100	22	21	21	14	17
DT10	Roadside	Diffusion Tube	100	100	27	26	28	16	19
DT11	Roadside	Diffusion Tube	100	100	26	23	31	12	19
DT12	Roadside	Diffusion Tube	100	92	31	27	30	16	22
DT13	Roadside	Diffusion Tube	100	92	23	26	30	18	23
DT14	Roadside	Diffusion Tube	100	100	N/A	N/A	20	11	11
DT15	Roadside	Diffusion Tube	100	100	N/A	N/A	13	7	10
DT16	Roadside	Diffusion Tube	100	92	29	23	22	16	16
DT17	Urban Background	Diffusion Tube	100	83	4	4	4	4	3
DT18	Roadside	Diffusion Tube	100	100	20	15	16	11	13
DT19	Roadside	Diffusion Tube	100	100	N/A	N/A	23	13	22
DT20	Roadside	Diffusion Tube	100	100	32	24	23	14	22

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(16) 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 – 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 2021 (%) (2)	2017	2018	2019	2020	2021
CM1	Roadside	Automatic	100	92	0(70)	0 (746)	0 (57)	0	0
CM2	Roadside	Automatic	100	75	0	0	0	0 (54)	0 (57)

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

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
CM1	Roadside	Not Monitored	Not Monitored	**Not Monitored**	**Not Monitored**	**Not Monitored**	**Not Monitored**	**Not Monitored**
CM2	Roadside	Not Monitored	Not Monitored	**Not Monitored**	**Not Monitored**	**Not Monitored**	**Not Monitored**	**Not Monitored**

Notes:

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

All means have been "annualised" as per LAQM.TG(16), 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%).

PM_{10} levels recommenced late 2021 and will be reported on in the next report in 2023

Table A.6 – 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 2021 (%) (2)	2017	2018	2019	2020	2021
CM1	Roadside	**Not monitored**	**Not monitored**	**Not monitored**	**Not monitored**	**Not monitored**	**Not monitored**	**Not monitored**
CM2	Roadside	**Not monitored**	**Not monitored**	**Not monitored**	**Not monitored**	**Not monitored**	**Not monitored**	**Not monitored**

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

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
CM1	Roadside	100	84	(8)	(7)	6	(5)	5
CM2	Roadside	100	95	(10)	8	7	6	6

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(16), 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%).

Appendix B: Full Monthly Diffusion Tube Results for 2021

Table B.1 – NO_2 2021 Monthly Diffusion Tube Results (µg/m^3) Bias adjustment 1.12

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Bias Adjusted (1)
DT1	31.4	14.3	15.5	10.5	20.1	22.3	21.5	9.8	12.1	25.1	23.9	29.6	19.68	22
DT2	24.2	19.4	7	7.5	4.8	8.9	8.9	7	5.3	9.8	10.1	13.5	10.53	12
DT3	20.9	17	5.2	7.3	16	12.2	8.6	9.1	12.3	12.3	9,4	11,6	10.08	11
DT4	19.8	8.3	7.5	5.3		18.3	3.6	4	9.6	11.4	7.7	14	9.95	11
DT5	3.2	28.9	20.4	11.3	27.2	17.6	13.6	11.2	12.9	22.4	21	23.4	17.75	20
DT6	26.7	12.9	7	7.8	16.2	11.2	11.9	11.6	13.4	16.6	13.2	17.3	13.82	15
DT7	25.3	22.2	11.1	12.8	25.5	18.9	18.9	14.7	13.5	21.8	22.6	24.9	19.35	22
DT8	17.5		11.6	11.8	12.2	10.6	6.7	12	14.5	11.8	16.6	17.4	12.97	15
DT9	26.2	15.6	14.8	10.7	13.8	17.6	3.5	11.5	11.3	22.5	13.5	20	15.08	17
DT10	34.2	16.8	9	9.4	15.2	J20.3	10.4	17.9	14	28.2	19	26.9	18.44	21
DT11	16.8	17	10.5	14.6	17.4	12.5	10.7	10.9	19.6	21.4	27	24.3	16.89	19
DT12	39	23.6	15.2		23.4	15.5	14,8	16.4	31,1	25.9	30.4	30.4	19.98	22
DT13	31.1	21.9	20.3	10.3		24.6	22.9	19.2	10.6	27.3	20	22	20.93	23
DT14	15	12.8	4.4	7	9.9	8.2	7.4	7	12.3	10.4	12.7	12.6	9.98	11
DT15	19.3	9.2	9.6	7	8.5	7.6	7.5	7.8	9.6	8.4	9.6	1.4	8.792	10
DT16	23.9	2.8	11.1	9.2	14.8	13.5		12.6	13.1	18.7	16.1	19.1	14.08	16
DT17	10.5	2		3	4.3	2.1	2	1.8	2.4		2	3.8	2.82	3
DT18	27.5	13.7	3.7	3.2	7.5	16.4	10.4	9.2	14.9	8.5	15.4	11	11.78	13
DT19	20.8	16.2	7.2	21.5	21.1	21.5	9.8	12.1	25.1	23.9	29.	29	19.77	22
DT20	20.4	13.8	10.9	25.3	18.1	21.7	22.8	15.4	27.6	15.7	18.6	21.9	19.35	22

Notes:

(1) See Appendix C for details on bias adjustment

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

New or Changed Sources Identified Within South Ayrshire During 2021

South Ayrshire Council has not identified any new sources relating to air quality within the reporting year of 2021.

Additional Air Quality Works Undertaken by South Ayrshire Council During 2021

South Ayrshire Council has not completed any additional works within the reporting year of 2021.

QA/QC of Diffusion Tube Monitoring

Within South Ayrshire, diffusion tubes are supplied, changed and analysed by Glasgow Scientific Services which is operated by Glasgow City Council. The method of preparation is 20% TEA in water. Monitoring was completed in adherence with the 2021 Diffusion Tube Monitoring Calendar.

GSS Scored the following results for 2021 in the laboratory summary performance for AIR NO_2 PT: Jan/March 50%, April – December no results were available.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within South Ayrshire Council recorded data capture of 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

Diffusion Tube Bias Adjustment Factors

The diffusion tube bias adjustment value of 1.12 was obtained from version 03/22 of the spreadsheet on the LAQM Support website at http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html and was applied to all diffusion tubes for 2021.

A summary of bias adjustment factors used by South Ayrshire Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	03/22- (8 studies)	1.12
2020	National	03/21 (10 studies)	0.96
2019	National	03/20 (4 studies)	0.86
2018	National	03/19 (9 studies)	0.86
2017	National	03/18 (6 studies)	0.91

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within South Ayrshire required distance correction during 2021.

QA/QC of Automatic Monitoring

Both of the automatic sites within South Ayrshire are part of the Scottish Air Quality Programme and are audited twice per year by Ricardo-AEA. Ricardo also carried out 12 months of fortnightly LSO calibration of the NOx and PM analysers at both of our automatic sites. All data is ratified and scaled by Ricardo before being finalised. Servicing and repairs are carried out by Acoem UK.

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

The type of PM_{10}/$PM_{2.5}$ monitor(s) utilised within South Ayrshire Council do not required the application of a correction factor.

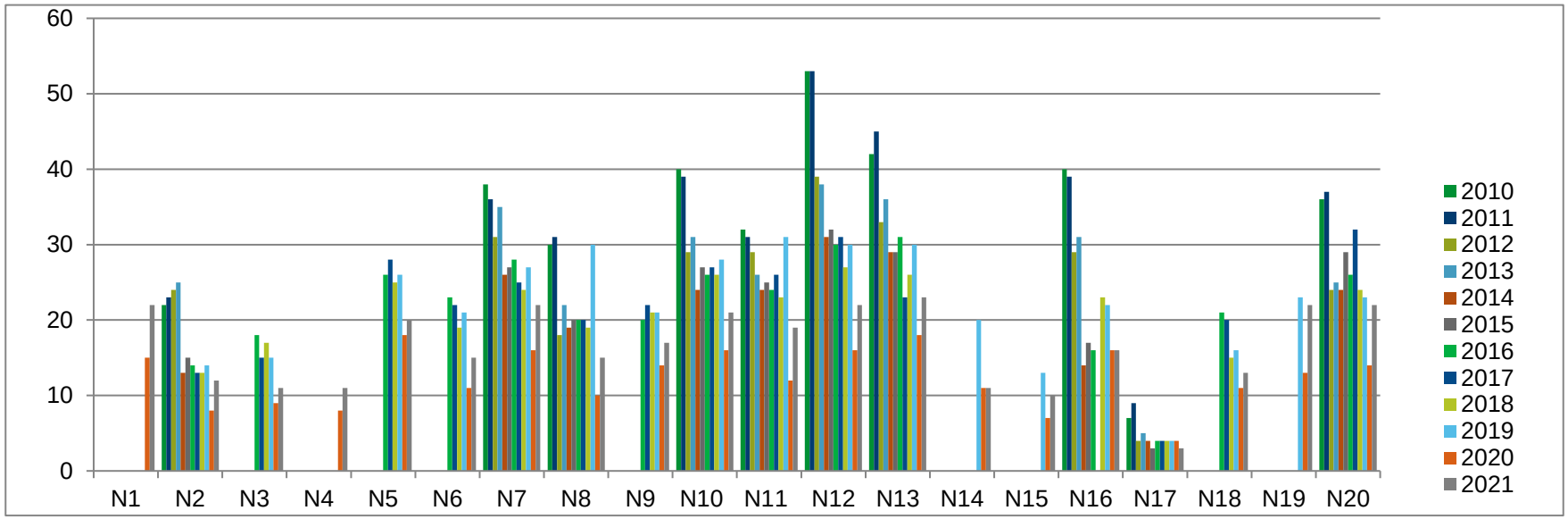
Automatic Monitoring Annualisation

All automatic monitoring locations within South Ayrshire Council recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within South Ayrshire required distance correction during 2021.

Appendix D: Trend of Non-Automatic NO_2 Results 2010 – 2021

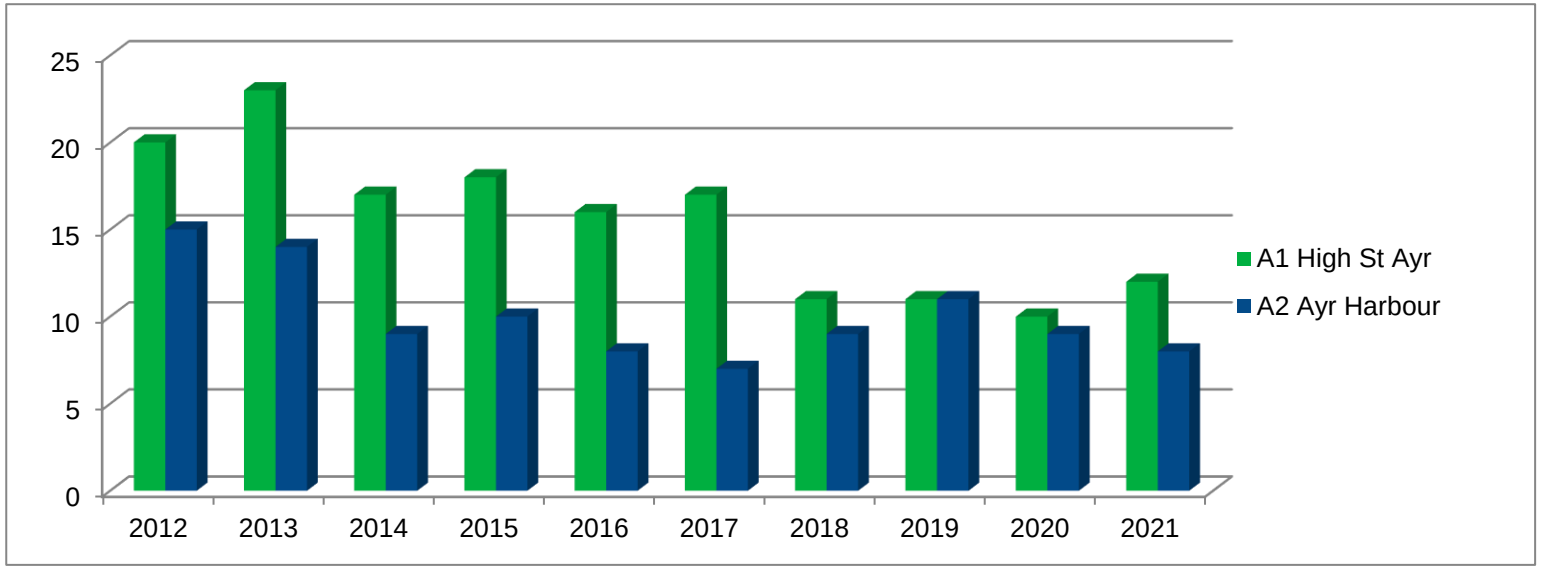


Levels of NO_2 are measured as an annual average and displayed in µg/m^3 of air.

In general, there is a gradual downward trend in the NO_2 diffusion tube results but 2020 showed a large decrease at all sites. This is due to the greatly reduced volume of road traffic during the pandemic lockdown restrictions. During 2021 most sites showed a slight increase over 2020 levels though all were still well within the objective level of an annual mean of 40 µg/m^3.

Not all records are displayed in the graph as the location of a number of the lower recording sites have been changed over the eleven-year period.

Appendix E: Trend of Automatic NO_2 Results 2010 – 2021

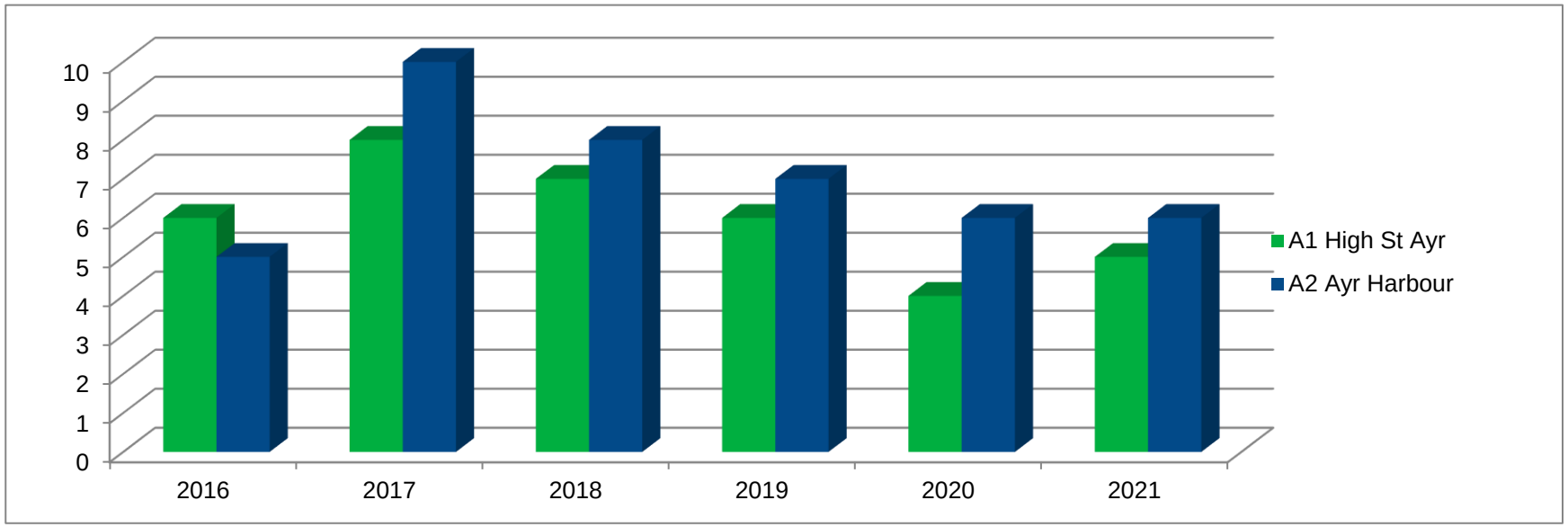


Levels of NO_2 are measured as an annual average and displayed in µg/m³ of air.

Monitoring commenced in 2012 at Ayr Harbour (Taylor Street Ayr). This was as a result of complaints from the residents of dust form the adjacent scrap yard. The scrap yard then closed in 2016

High Street showed an increase from 2012 to 2013 then a gradual reduction to 11 µg of NO_2 per m^3 of air in 2018 which was repeated in 2019. 2020 saw a further reduction to only 10 µg of NO_2 per m^3 of air. Ayr Harbour (Taylor Street) showed an initial drop from 2012 to 2014 but was hovering around the 10 or 11 µg NO_2 per m^3 of air up to the end of 2019. 2020 saw a drop to 9µg of NO_2 per m^3 of air. The pandemic lockdown was probably responsible for these low values seen in 2020. Ayr Harbour showed another slight fall in 2021 but Ayr High Street rose slightly. All results since monitoring commenced in 2012 are well within the objective level of 40 µg/m^3 of air.

Appendix F: Trend of Automatic $PM_{2.5}$ Results 2016 – 2021



Levels of $PM_{2.5}$ are measured as an annual average and displayed in µg/m³ of air.

We commenced monitoring $PM_{2.5}$ levels at our two real time monitoring stations in 2016. Levels increased slightly in 2017 and then reduced in 2018 and 2019. The lowest results were obtained in 2020. In all likelihood this was as a result of the pandemic lockdown. In 2021, the level at Ayr Harbour remained unchanged but that at the High St in Ayr rose slightly. All levels were below the annual permitted level of 10 µg/m^3 of air.

Glossary of Terms

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

References

Reference1: Technical guidance LAQM.TG(16), issued by the Scottish Government.

Reference 2: Policy Guidance LAQM PG(S) (16), issued by the Scottish Government

Figure 1: Location of NO_2 Diffusion Tubes

Number	Tube Number	Location
1	DT1	147 Whitlett's Rd, Ayr
2	DT2	Dundonald Rd, Troon
3	DT3	2 Portland St, Troon
4	DT4	2 Walker Rd, Ayr
5	DT5	3 The Cross, Prestw ick
6	DT6	141 Main St, Prestw ick
7	DT7	Heathfield Rd/ P/w ick Rd, Ayr
8	DT8	Station Taxi Rank, Smith St, Ayr
9	DT9	Morrison's Castlehill Rd, Ayr
10	DT10	39 Whitlett's Rd, Ayr
11	DT11	Tesco, Whitletts Rd, Ayr
12	DT12	King's St, Ayr
13	DT13	Tow n Buildings, Ayr
14	DT14	Waggon Rd/Back Peebles St, Ayr
15	DT15	Waggon Rd/Green St, Ayr
16	DT16	Ayr Bus Station, Ayr
17	DT17	Rozelle Park, Ayr
18	DT18	Minishant Inn, A77
19	DT19	133 Whitletts Road, Ayr
20	DT20	Roxy Bar Bridge St, Girvan